VOL. XLVIII. No.7 JULY 1963

MECCANO MAGAZINE

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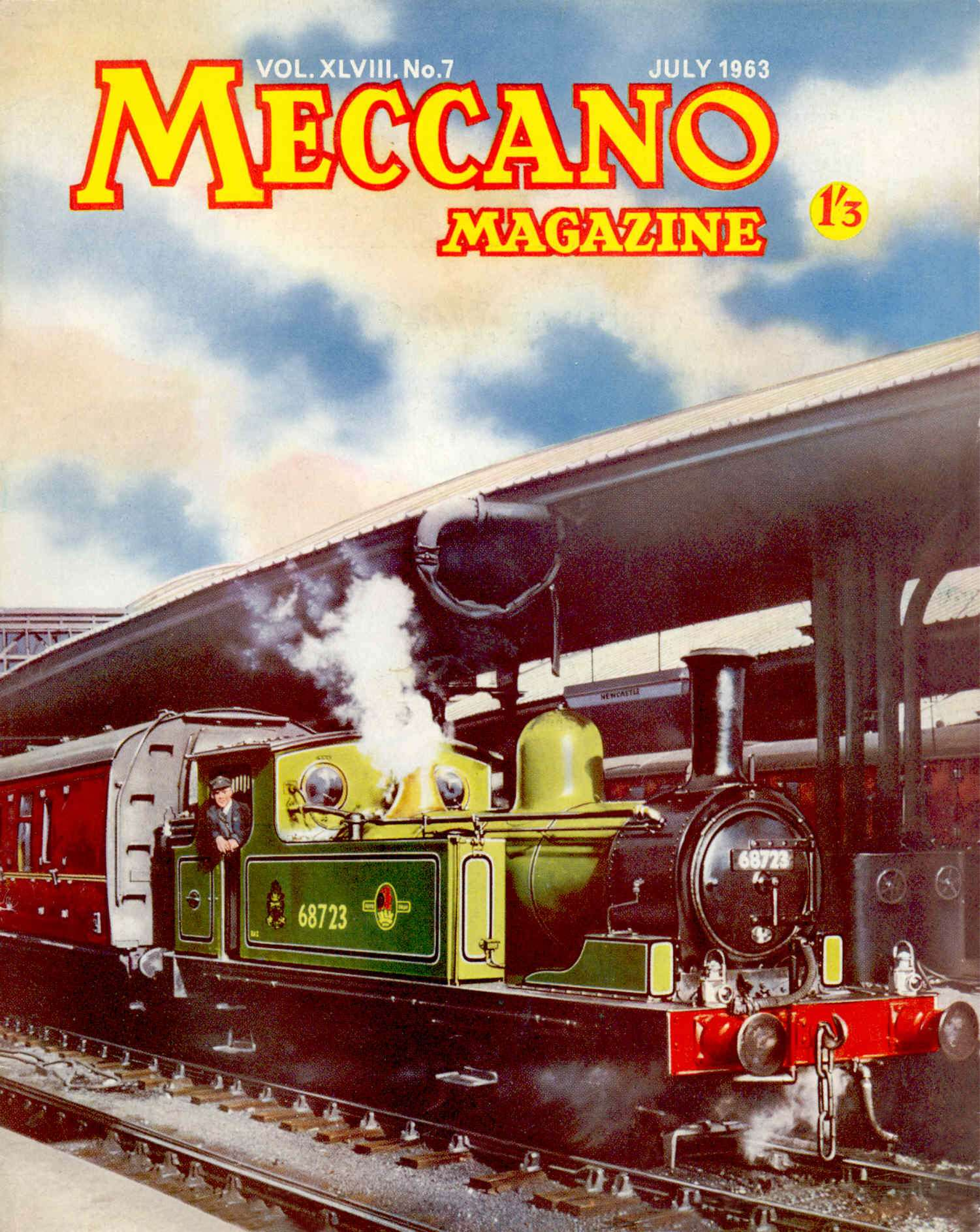

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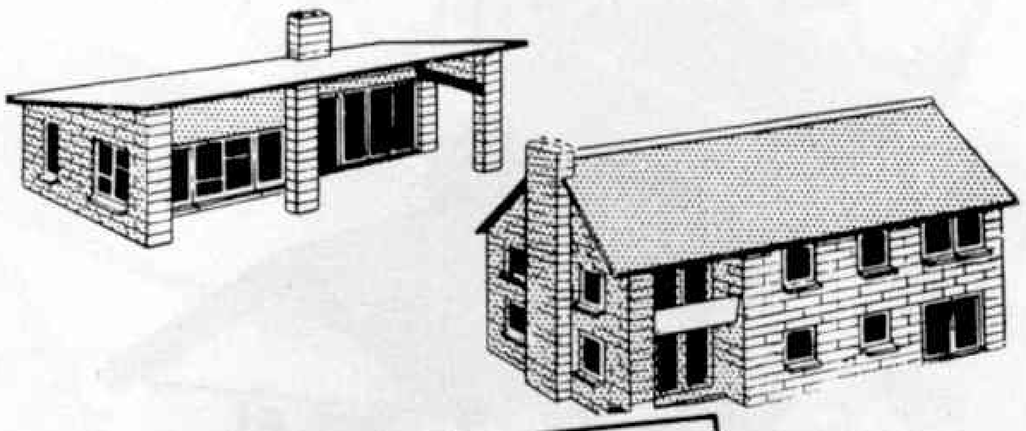

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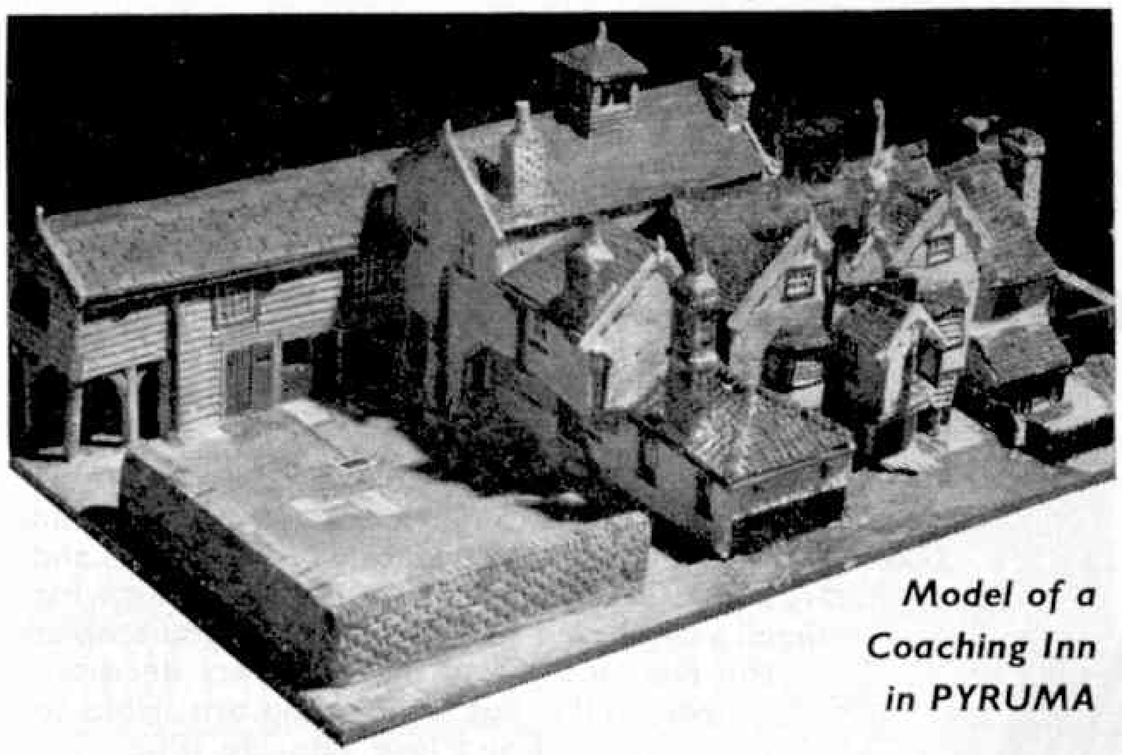

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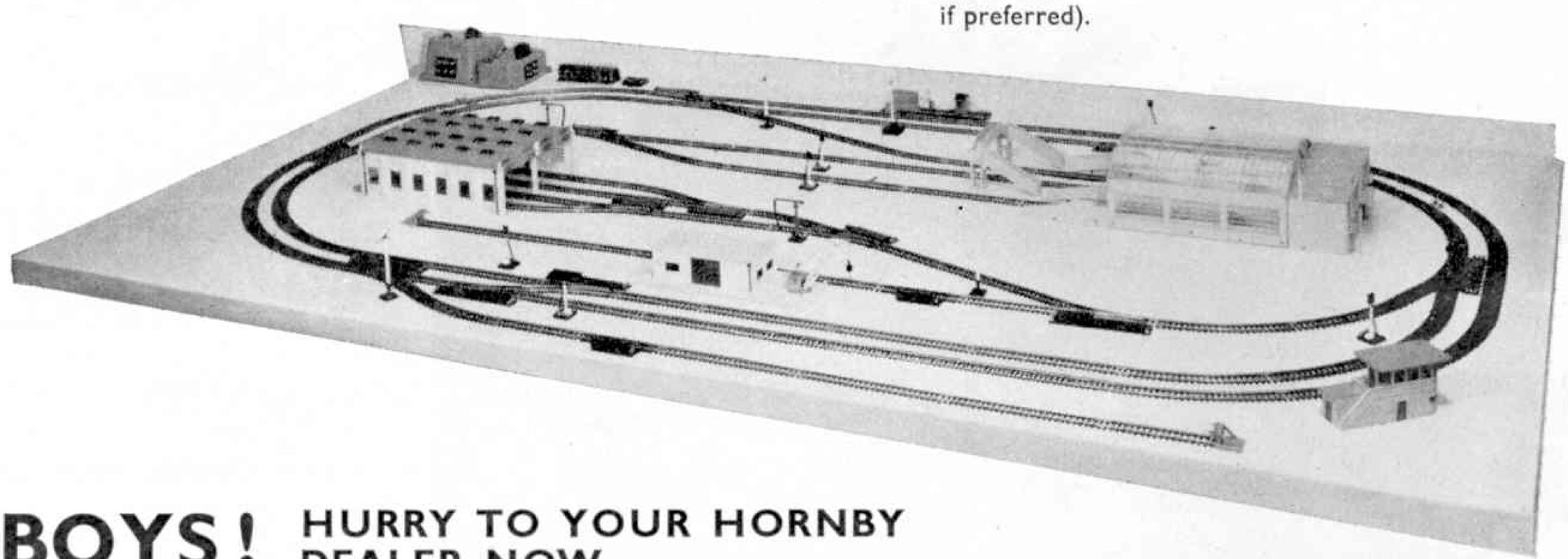

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MECCANO MAGAZINE

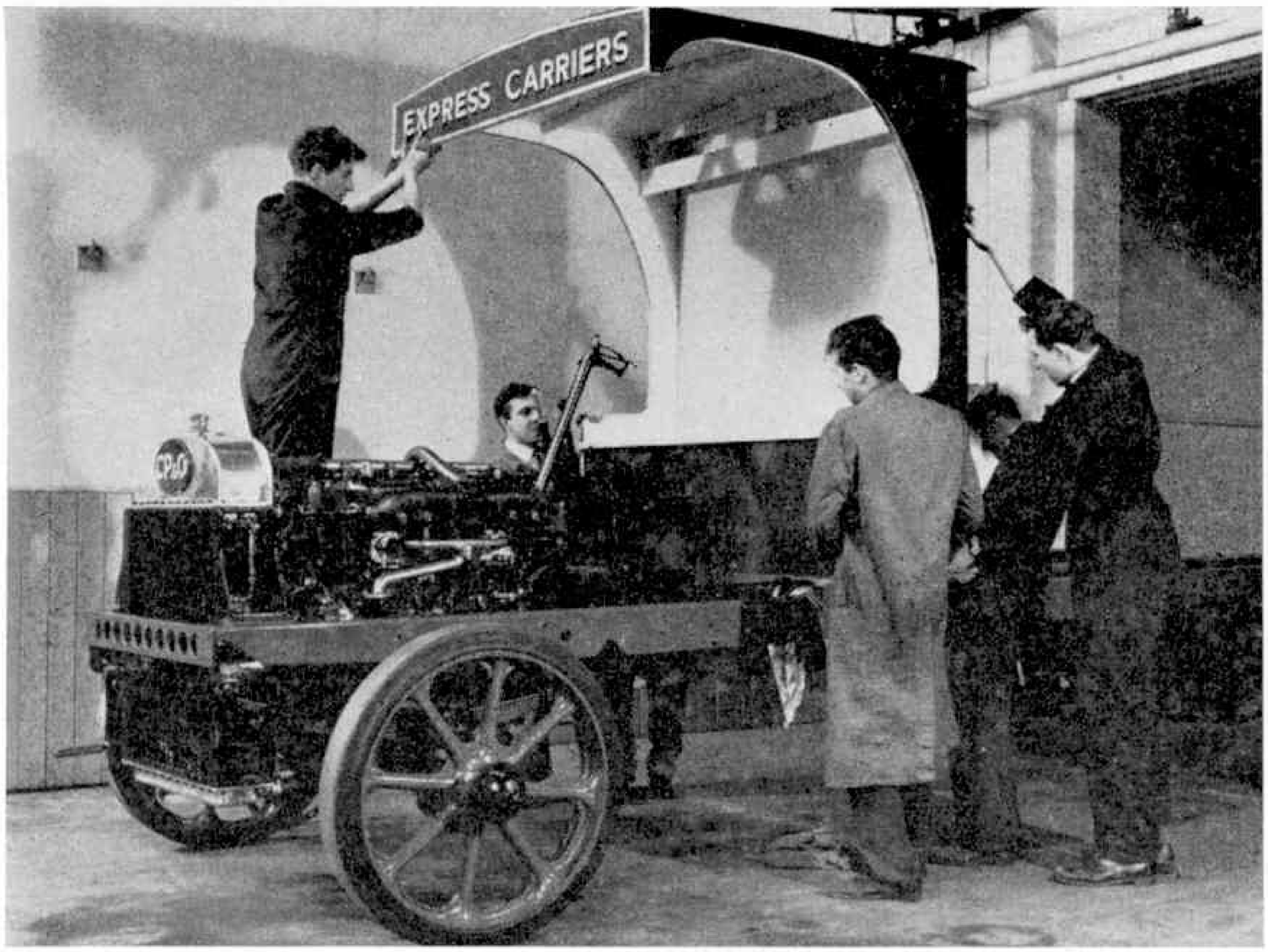
Volume XLVIII No. 7 July 1963

Registered at the G.P.O., London, for transmission by Canadian Magazine Post.

EDITORIAL AND ADVERTISING OFFICES:
LIVERPOOL 13, ENGLAND.
Telegrams: "Meccano, Liverpool."

Editor:
GEOFFREY BYROM

Asst. Editor:
ERNEST MILLER



ALTHOUGH it is not perhaps as topical as many illustrations we have used on this page in the past, our editorial picture this month will certainly intrigue many readers. Earlier this year, in April to be exact, a Drive for Safer Motoring was held in Blackpool and one of the features was a round-the-town cavalcade of national commercial vehicles. They later took part in a contest in which trophies were awarded to transport companies whose vehicles possessed the greatest advertising appeal to the public. Leading the 66 entries were three veteran commercial vehicles, one of which was the 1908 Leyland "X" type 3-tonner illustrated here. It was operated by the London carriers Carter Paterson and Co. Ltd. from 1908 until 1932, when it was presented to Leyland Motors by the firm to whom it had proved such a faithful servant. In its 24 years of active life, carrying goods between various depots, it travelled just short of 400,000 miles, averaging between 55 and 75 miles daily. Its triumphal appearance in the Blackpool cavalcade was the culmination of many months' work by a small group of apprentices at Leyland Motors who had completely renovated the veteran machine.

This "X" type vehicle has a 35 h.p. four-cylinder petrol engine with inlet and exhaust valves on opposite sides. The chassis was originally designed to carry 3½ tons of freight on a 34-seater bus body, and this brings up another point of interest—namely that in the early days of commercial motor transport such chassis were frequently used for dual roles, carrying goods on weekdays and passengers (in the appropriate bus body) at weekends.

M.M. readers whose special pleasure is building in Meccano will undoubtedly appreciate the article on pages 308–9 on the use of Meccano in micro-photography. Recently, several instances of the way in which Meccano is used as an aid to other hobbies have come to my notice. Mr. Gordon B. Rowley, for instance, tells me how he utilises it in photographing plant movements, and we shall be describing this in an early issue.

THE EDITOR

Next Month: MINING CITY OF BROKEN HILL

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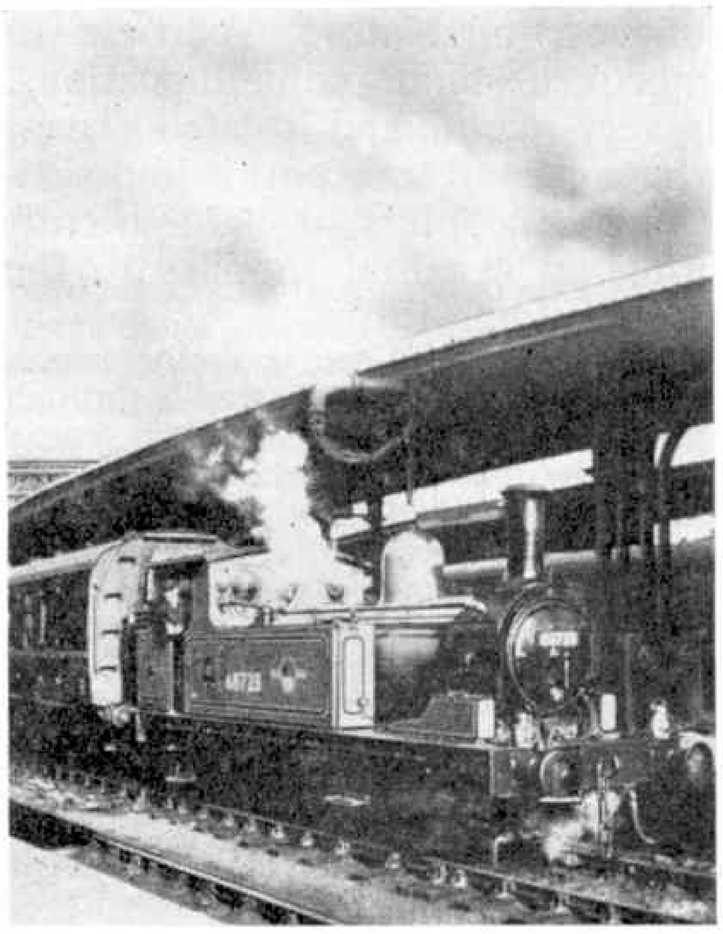
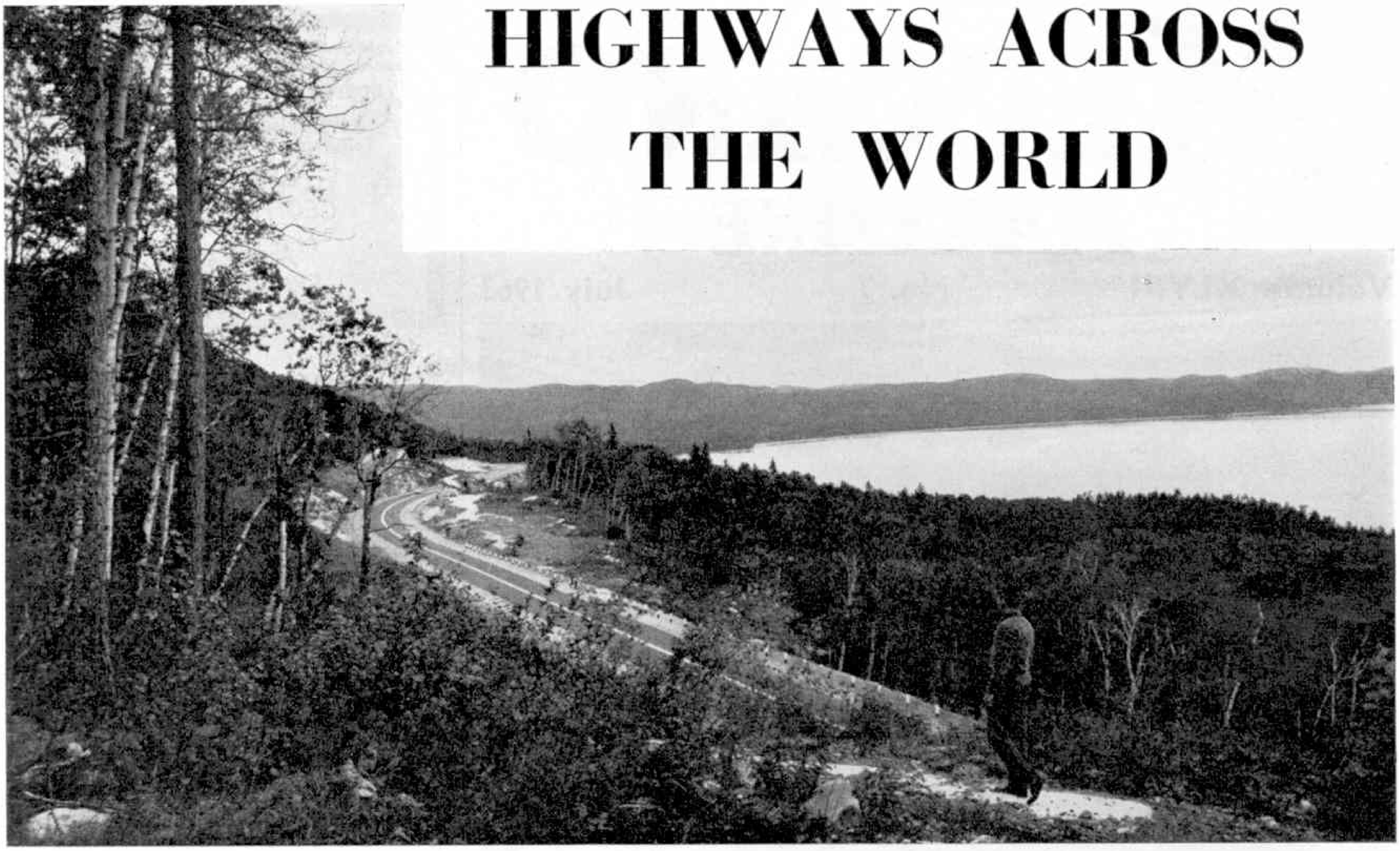
OUR FRONT COVER

The subject of this month's front cover is a locomotive known to railway travellers whose journeys take them to Newcastle Central Station. It is a J.72 0–6–0 tank locomotive (No. 68723) which is employed, together with its sister engine No. 68736, on station pilot duties at Newcastle. Both locomotives are finished in their original livery of North-Eastern green which was the standard finish in pre-grouping days. The illustration appears by courtesy of British Railways North-Eastern Region.



HIGHWAYS ACROSS THE WORLD



By W. H. OWENS

IN most parts of the world today road and bridge building is going ahead on a scale never attempted before. New motor highways are replacing primitive tracks to develop trade between neighbouring countries, to encourage tourism and to open up forests, mines and other untapped sources of natural wealth. Some of the most out-of-the-way and exciting regions, previously visited only by hardy explorers, may soon be made readily accessible to modern traffic.

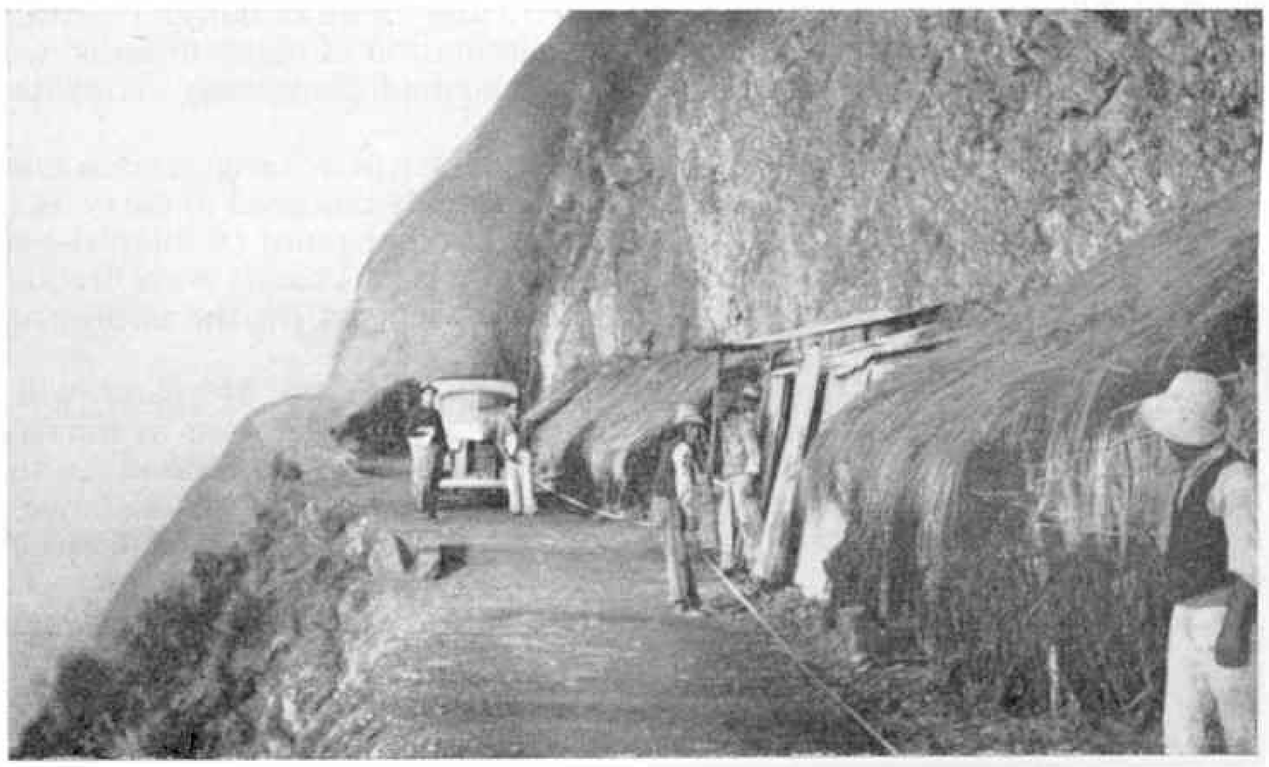
With the aid of powerful mobile machines and new bridging techniques, road engineers are able to conquer some of the last and toughest of Nature's barriers to unbroken land communications. In very remote and isolated places, where ground transport is impracticable, helicopters or light aircraft bring up essential supplies to the road-building teams.

Great trans-continental motor routes are being pushed forward steadily through tropical bush and jungle, over frozen wastes beyond the Arctic Circle, and across the scorched deserts of Africa and Asia. Slender steel and concrete bridges of immense strength carry the new highway safely above the flooding rivers, or span yawning ravines.

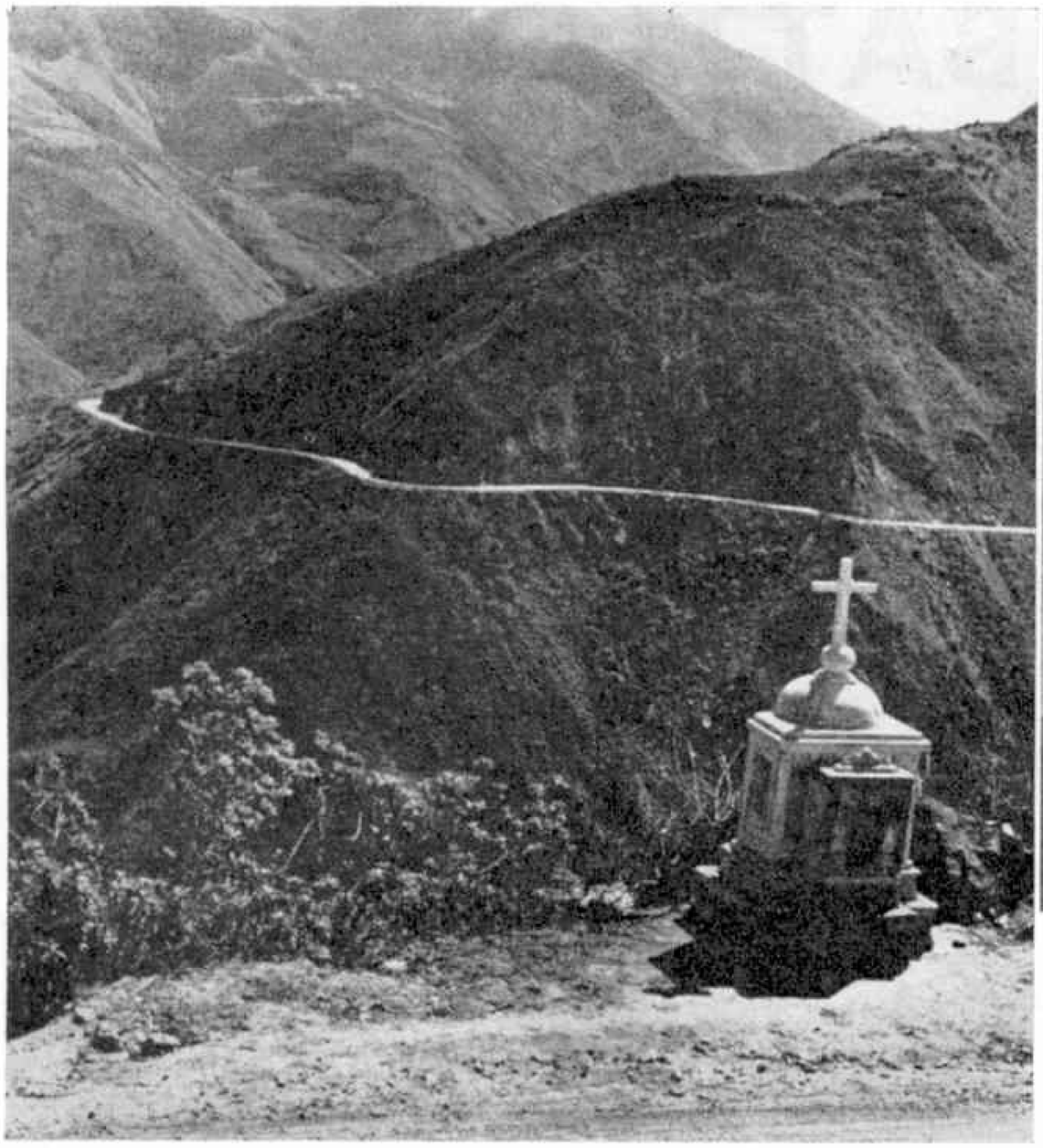
Last year, Canada's magnificent coast-to-coast highway was completed through the Rocky Mountains. So all the Canadian provinces are linked for the first time by modern roads, over which it is possible to drive for nearly 5,000 miles east to west from St. John's, Newfoundland, to Vancouver. Three motor ferries join the offshore islands at each end. The Pan American Highway—the world's longest road system—is now almost completed across two great continents, while a Mediterranean–Cape route, via the Sahara, is beginning to take modern shape through the heart of Africa.

Recently, an Asian Highway has also been planned and United Nations' transport experts are now at work on the detail of this project. Like the Pan

The modern Trans-Canada Highway (top photograph) has been cut through rock and forest on the wild shore of Lake Superior at Agawa Bay, where no roads existed before. Canadian Government Travel Bureau picture.



Road-building on the roof of the world. This photograph was taken on the spiraling Pan American Highway near La Paz. A mishap here would mean plunging into thousands of feet of fog-shrouded space. International Road Federation photograph.



Left: The long, questing ribbon of road seen striding across the rugged mountains is the Pan American highway; the location is Eastern Colombia. Much nearer to the camera is an old dirt road, by the side of which stands a shrine where passers-by place lighted candles to ask a saint's protection as they travel through the mountains. United States' Information Service photograph. Above: Modern road across the Sahara—this vehicle is transporting sections of the pipe line which was laid across the desert between the Hass-Messaoud oilfield and tanker terminals on the Mediterranean Coast. Note the directional sign at the side of the road. Illustration by courtesy of C.F.P.

American Highway, this will link together all the intervening road systems into one continuous network. The Asian Highway will run south-eastwards from the Turkish–Iranian frontier through Afghanistan, Pakistan, India, Burma and Thailand to the southern tip of the Malay Peninsula. Through the link-up in Turkey with the European network, and the construction of a bridge or tunnel between England and France, there could be a modern and continuous highway all the way from Edinburgh to Singapore—more than 8,000 miles.

With these, and other, trans-continental roads now being planned, the time is surely not so distant when driving round the world will be as easy and comfortable as driving in one's own country. Ocean gaps will be bridged by air ferries carrying motor vehicles and their passengers, just as our cross-Channel ferries do now.

Today's road builders are the land pioneers of this century, for every new mile of highway and each new bridge is a step forward in human progress. Roads extend civilisation and the frontiers of knowledge, providing friendly contact between different peoples. They have done so from the beginning, ever since primitive man first crossed a stream over a fallen tree or struck a path through the forest to find out what lay beyond.

Even such highways as the Roman roads, originally built for the purpose of military conquest, served for very much longer as peaceful trade routes. Some of today's famous roads in various parts of the world—the Alaska Highway and the Burma Road, for example—were carved as emergency supply routes in World War II, but have since played a tremendously important part in developing the natural resources of the territories through which they pass.

The 1,100-mile Alaska Highway, starting from the Arctic town of Fairbanks, is the most northerly part of the Pan American route. From Fairbanks all the way south to Buenos Aires, in Argentina, it links together all the different peoples and cultures of the Americas in a way that was never possible before. More than a century ago the far-seeing American statesman Henry Clay proposed such a "hemispheric avenue" as a means of uniting the American nations and fostering trade among them.

If you could travel the whole length of the Pan American Highway, you would pass through every imaginable kind of scenery, experience every altitude from sea level to over 15,000 feet (in the Andes Mountains), and nearly every sort of climate from Alaska's polar cold to the tropical heat of Latin-America. The highway takes in the world's most modern cities and their sophisticated populations. But there are also long stretches, in Mexico and countries further south, where scattered Indian tribes still follow the simple way of living common to their ancestors before white men entered America.

Most great modern highways run, here and there, in the tracks of much older road systems. The Asian Highway, for example, will be built along many of the early caravan routes which led from ancient Persia over the wild Afghan passes into India. It will also follow the famous so-called Silk Roads that run from China to India and the West. Similarly, the Pan American Highway, as it crosses South America, links up with the Great Royal Road of the forgotten Inca Empire—most remarkable of all America's historic highways.

The amazing Inca Road far surpassed in engineering marvels any of the Romans' road-making feats in Europe or North Africa. Four thousand miles long, it stretched from Quito in Ecuador to Tucuman in Central Chile, and crossed some of the roughest, most mountainous country in the world.

The Inca engineers, working centuries ago, faced all the same problems of terrain and climate that today's road builders encounter, in particular, the difficulties of carving roads over steep and rugged mountains. Yet without any of the machinery and scientific equipment used nowadays, they succeeded brilliantly in making a great high road, halfway over a continent and 25 feet wide throughout, to link together all the principal Inca towns and cities.

They spanned rivers with suspension bridges, pierced mountain rocks with tunnels, laid causeways over swamps and shallow lakes, and crossed desert stretches with stone pavements. Many sections of these Inca roads are still in everyday use along the Pan American system.

Similar problems faced the Trans-Canada builders recently, when they had to forge the coast-to-coast road across the wildest parts of the Rockies and over

(*Continued on page 316*)

THE MODERN BATTLE TANK

Armoured Vehicles That Are Fast And Versatile

DEMONSTRATION "Argus" was recently staged at the F.V.R.D.E. (Fighting Vehicle Research and Development Establishment) near Virginia Water, under the direction of the Master-General of Ordnance, Lieutenant-General Sir John Cowley, K.B.E., C.B., A.M. Object of this impressive display was to demonstrate the most modern military equipment at present in service, or due to enter service in the immediate future, and although every branch of the British Army was represented at this huge exhibition, the star attraction was the latest equipment for the Royal Armoured Corps.

By R. E. SMITH

Britain today possesses a series of armoured fighting vehicles which can be described as the finest in the world. They range from the speedy, elusive Mark I Ferret of only 4.1 tons to the heaviest armoured vehicle in existence — the Conqueror, a heavy gun tank of slightly in excess of 65 tons. Finally there is the latest, top-secret Chieftain, now in the advanced stages of production, and designed to equip tank formations with a versatile dual-purpose vehicle.

Let us for a little while pursue the de-

The "Centurion" — battle-tested and used by many nations throughout the world. There is a miniature of this fine tank in the Dinky Toys military series

Largest and heaviest armoured fighting vehicle used by any nation at the present time is the "Conqueror," pictured here.

The "Chieftain"—latest addition to the British family of battle tanks. All the illustrations to this article are by the author.

velopment of the major armoured fighting vehicles at present in service. The most important is the Centurion battle tank which also forms the principal heavy tank of many overseas countries including Australia, Canada, the Union of South Africa, Israel, Denmark, the Netherlands, Switzerland, Jordan, Egypt and Iraq.

By 1961 this excellent fighting vehicle had been produced in ten different marks, including the 1945-produced Mark I, mounting a 77 mm. (17 pdr.) high velocity gun; the 20 pdr. (83 mm.) Mark III which appeared in 1948, and proved so reliable during the fighting in Korea; the Mark V, also armed with the 20 pdr. high velocity gun, which made a brief appearance at Suez, and finally the latest Marks IX and X, both of which appeared during the 1959–60 period. They mount a 105 mm. gun of exceptionally high performance which is probably the most efficient gun mounted on any fighting vehicle today. This is demonstrated by the purchase of large numbers to equip the latest United States battle tank (M 60), and the new battle tank at present under development in the Federal German Republic.

In terms of fire power alone the Centurion is well equipped to engage in combat the best of any other major power. So far as defensive specifications are concerned, every precaution has been taken to provide a well-balanced and satisfactory armour, adequate for the duties expected of a medium high speed battle tank. The power unit consists of a 650 b.h.p. 12-cylinder V-type petrol engine, designed and originally manufactured by Rolls-Royce, which provides for a maximum speed of 20–22 m.p.h. The crew of four consists of Commander, Gunner and Loader, who are accommodated in the turret or fighting compartment, and the Driver, who occupies a compartment forward of the turret in the hull superstructure. In addition to the main armament, a coaxial machine-gun provides protection against infantry attack, while a second rifle-calibre machine-gun may be fitted to the Commander's cupola providing further protection against ground or air attack.

Many new support vehicles have been fitted to the Centurion chassis. These consist of earlier marks which may become obsolete or redundant with combat units. All are designed for a specific task and will provide an entirely new generation of armoured vehicles when fitted with a redesigned and rebuilt fighting compartment.

The Centurions, named after the brave professional soldiers who invaded our island 2,000 years ago, have a fine battle record. In Korea, they fought with distinction and earned high praise from all the contingents of U.N.O. who depended on them for support.

During this period the United States Army was experiencing teething troubles with its new battle tank the M46 Patton, which mounted a slightly larger gun than the Centurion and cost more than twice as much to manufacture. About this time, says a story which originated in Korea, a section of British Centurions passed a pair of American Pattons, one disabled by a broken track and the other providing support in case of need. As the first Centurion passed, greetings were exchanged, along with an inquiry from an American crewman for a "swap".

One of the Britons humorously suggested a basis of "two for one", meaning two M46 Pattons for one Centurion. A chance encounter later in the day brought the two United Nations' tank crews into contact again and the offer of an exchange was renewed. A demonstration of the British vehicle was offered to the interested American crews, and this was eagerly accepted by all the Americans present, who drove from the British camp crammed aboard the Centurion. When an inquisitive British officer asked why there were two American tanks in camp, and why one of the Centurions had left there in the hands of U.S. troops, a nearby soldier suggested that "an exchange had been made on a two-for-one basis".

The American troops soon returned the borrowed vehicle, but the supporters of the Centurion were quick to appreciate the prestige value of the statement, and for the remainder of the Korean campaign the official rate of exchange in friendly tanks became "two for one" in favour of the British.

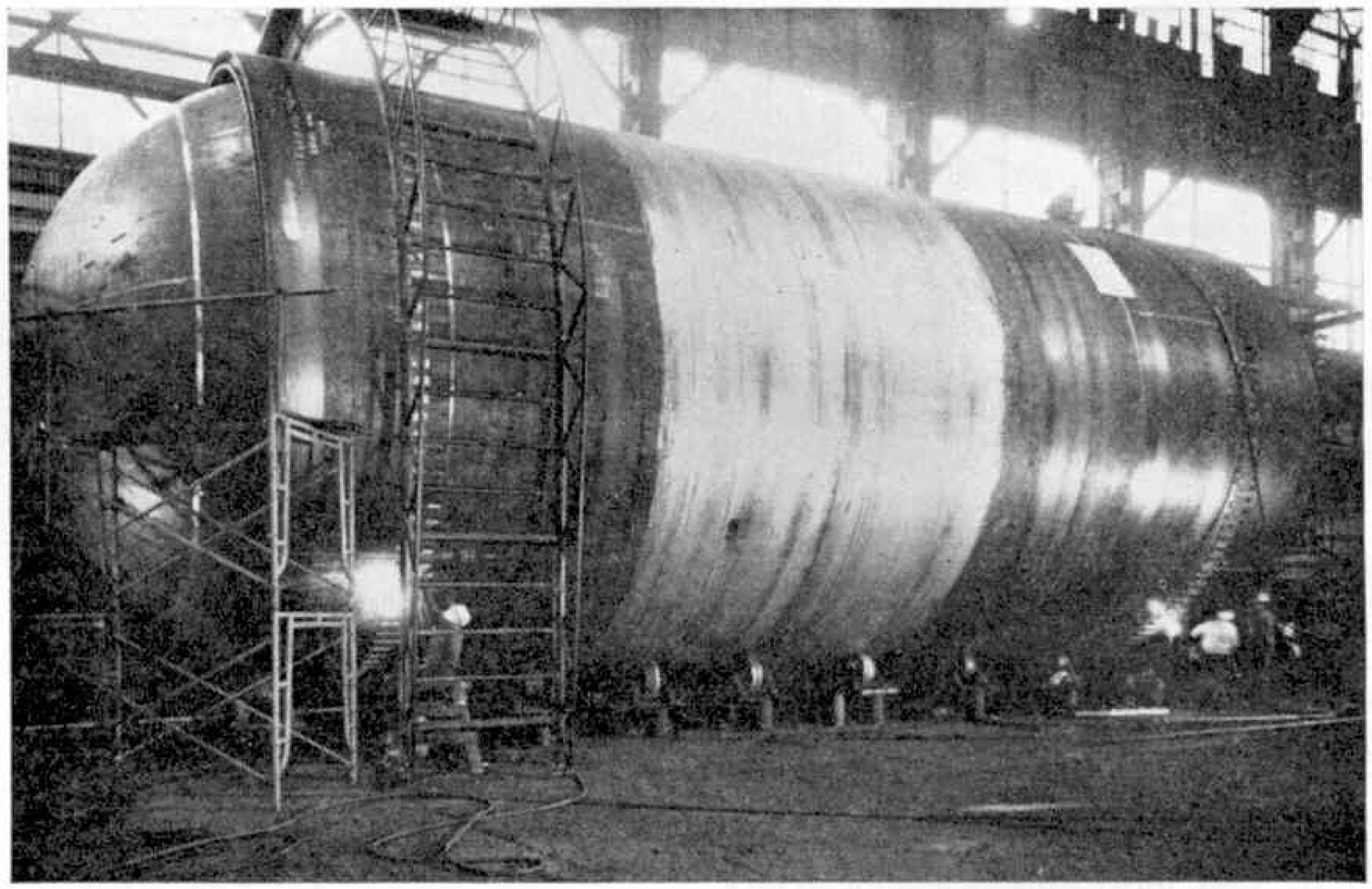
A small number of Mk V Centurions' were also landed at Suez, in 1956, and served in the capable hands of the 6th Royal Tank Regiment.

The Conqueror is a 65-ton monster officially referred to as a "heavy gun tank", but although fifteen tons heavier than the Centurion, and mounting a huge 120 mm. high velocity gun in a fully enclosed turret, it is reported to operate at speeds comparable to those of the lighter vehicle. In addition, a much thicker armour basis provides a high degree of protection against the heaviest known anti-tank weapons. This is reported to reach a maximum of almost 200 mm. (approximately eight inches). In spite of this huge amount of armour protection, the Conqueror is able to keep station with lighter vehicles on account of its magnificent engine, developed by the Rolls-Royce Company, which consists of a 12-cylinder V-type petrol injection unit developing 810 b.h.p.

Although the Conqueror has never actually served under combat conditions, the most realistic tests have been simulated at the F.V.R.D.E. proving ground, and these have produced a most efficient fighting vehicle. Crew positions are almost identical to those in the Centurion, although a much roomier turret enables the Commander to sit directly behind the main armament for better observation. This also enables him to view both sides of his vehicle—a most important factor when operating against enemy infantry.

The third and last vehicle of the latest tank series is the new, Chieftain, which was the star attraction at the 1961 tank demonstration at F.V.R.D.E. A magnificent armoured (*Continued on page 317*)

A SOLID ARGUMENT FOR CUTTING THE COST OF SPACE TRAVEL!



This 24 ft. diameter solid rocket casing will never be fired. It was made for transport trials only. Aerojet-General Corporation picture.

AT first sight, liquid propellent rockets appear to be more suited to space propulsion than do solid propellent rockets. A solid propellent motor is uncontrollable once ignited, the propellent is more expensive (a typical high performance solid propellent is about five times the cost of a liquid oxygen/liquid hydrogen mixture) and the weight of the engine is greater.

The wide use of liquids in large boosters would appear to confirm this view, but a growing circle of experts consider that space flight could be made less costly by the use of solid boosters. To offset the high propellent cost is the lower cost of the motor itself—a shell for the solid compared with the expensive complex of tanks, pipes, valves, pumps and combustion chamber of the liquid. A solid vehicle to do the same job as "Saturn" would be perhaps twice as large but the cost would be only one half to three-quarters that of the liquid propellent version. Although this comparison looks very convincing, it must be remembered that a great deal of the cost of a launching can be accounted for by the ground handling equipment, and for the larger solid this also would be more expensive. Additionally, it may not be possible to transport the filled rocket from factory to launching site, and thus filling facilities might be needed on site.

The largest solid so far fired is one of 10 feet diameter made by Aerojet and giving well over a million pounds of thrust. Our first picture, looking rather like an outsize boiler, is a 20 foot diameter, 60 ft. long case which has been made to see what problems would be involved in transporting such a rocket. Its weight, empty, is 94 tons; it will never be filled and fired.

"BACK-PACK" FOR SPACE

Of the many space-suits under active development, perhaps the furthest advanced is the Chance Vought, shown in our second picture. It does, in fact, comprise two separate items, an insulated cover-all suit for protection, and a "space-pack" for propulsion.

A man working on the sun side of his space-craft would be subject to temperatures as high as 250 degrees F., while on the opposite side the temperature could drop to −250 degrees F. Even when he is not in the shade of his ship, one side of the space-man will be very hot and the other extremely cold, and his suit must be designed so that it causes him to suffer as little discomfort as possible, while still being flexible enough to enable him to work. The lightweight Chance Vought suit has an outer fabric covering which absorbs little of the sun's radiation; at the same time an air-circulation system within the suit allows comfortable body temperature to be maintained.

The space-pack is a complete miniature propulsion and automatic control unit.

SPACE NOTES

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

Propulsion is by means of small jets using decomposed hydrogen peroxide. Movement in any direction can be controlled manually from a waist-mounted control panel, or alternatively a given attitude can be held on automatic control. Jets are positioned at the level of the shoulder and of the legs, and are flush with the pack to prevent them being caught up on life-lines or external parts of the space-ship. The fuel is supplied from a small pressurised tank and the complete pack weighs 120 lbs.

ATOMIC ROCKETS

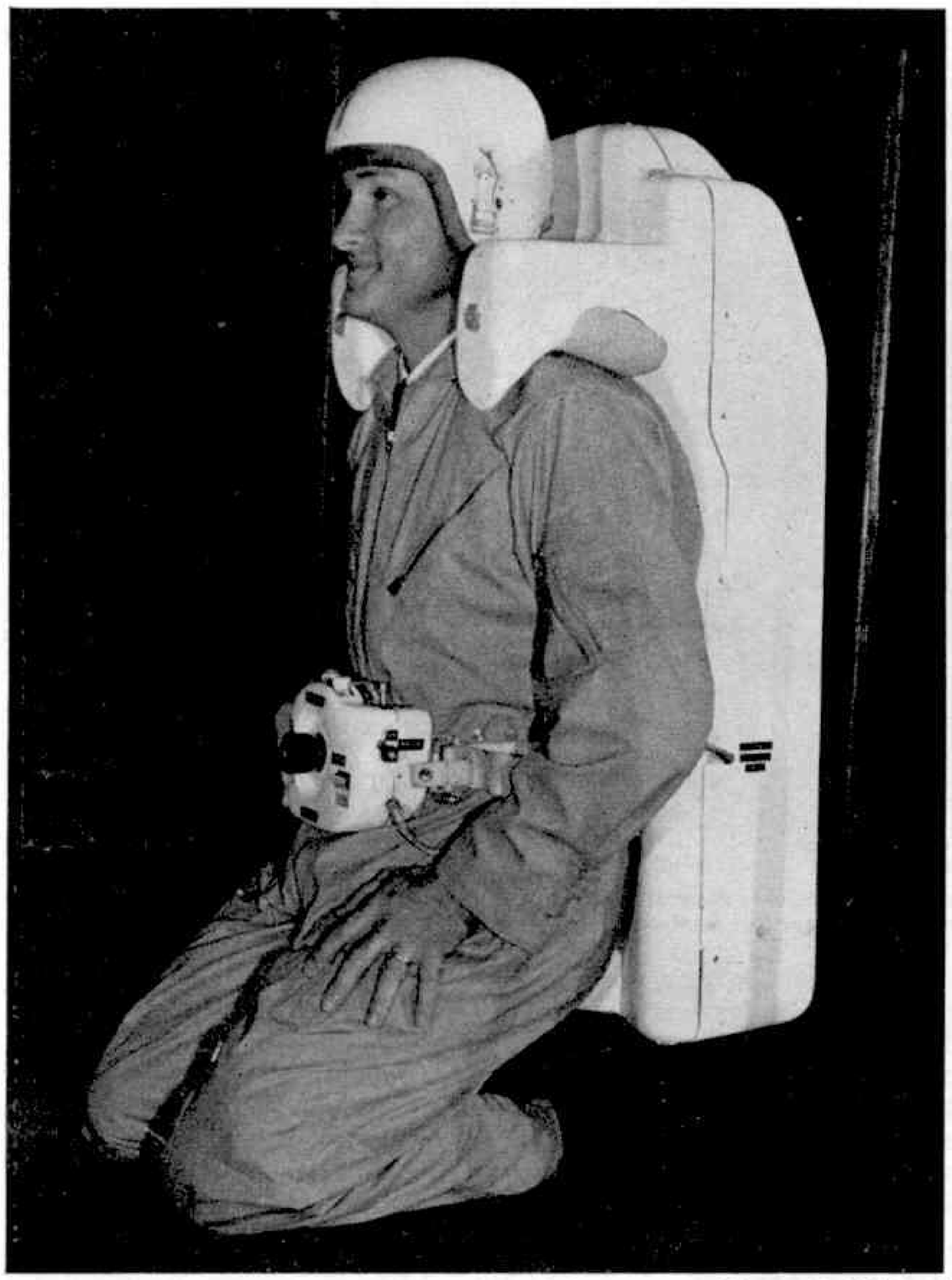
For many years now the U.S. Atomic Energy Commission, in conjunction with N.A.S.A., has been developing a nuclear-powered rocket motor. In this, the propulsion gases are produced by heating hydrogen in a nuclear reactor instead of by combustion as in a conventional chemical rocket.

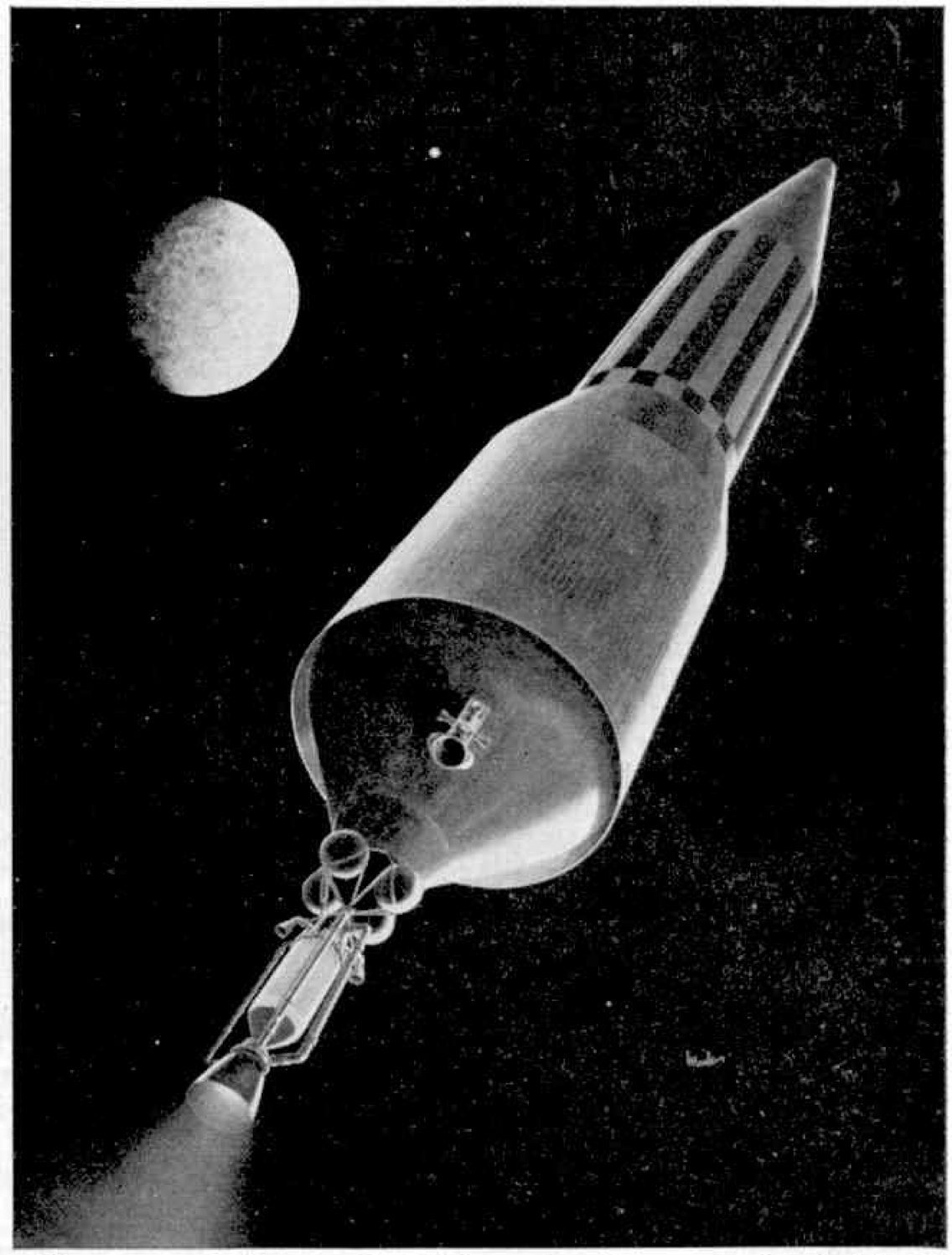
The problems both of developing large rockets and nuclear reactors are immense, and it is little wonder that the two together have proved a formidable task. One of the biggest difficulties has been that of keeping the reactor core within the rocket chamber. The high temperatures, combined with the high gas velocity, have tended to blow fuel elements and insulation out of the nozzle. Such rocket motors are extremely expensive and progress has been very slow. The last test made was on November 30 last year, and during the test so much internal damage was done that it is likely that the six firings scheduled for this year will be curtailed.

Before last November's firing it was hoped to launch a nuclear rocket by 1967, but it is very dubious now whether this date will be met unless much more effort is put into the programme. The vehicle to carry the nuclear rocket is already being developed, and is known as RIFT (Reactor-In-Flight Test).

EXPLORING JUPITER

So far, we have had Moon probes, Mars probes and Venus probes. But what of the other planets? The Sun has nine major planets; Mercury is nearest to the Sun, then come Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto. In the next few issues of Space Notes we will review our knowledge of





The space-pack shown on the left has automatic or manual control for its propulsion unit. (Picture by courtesy of Ling-Temco-Vought Inc.) Above: When it is ready, the first nuclear rocket motor will be flown in this RIFT vehicle. (Illustration by Lockheed.)

some of these other planets, and examine the possibilities of exploring them.

Jupiter is the largest of the planets with a diameter of 88,700 miles (Earth 7,926 miles) but its low relative density of 1.3 (Earth 5.5) gives it a surface gravity only 2.64 times as great as the Earth. Even this gravity however, will make it a very difficult planet for humans to explore. A man has already lived in a 2g centrifuge for 24 hours without protective clothing and was able to carry out normal living activities. However, such force saps the energy and will-power, and it is fairly definite that colonies will never be set up on Jupiter's surface.

Seen through the telescope, the surface of Jupiter is golden, with many dark bands parallel to the equator. It is covered with cloud which could well be ammonia crystals suspended in hydrogen and helium.

There are two theories about the structure of the planet. One is that under the hydrogen atmosphere there is a layer of ice and under that a rocky core. The other theory is that there is no true "surface", and that the hydrogen becomes denser as one goes down, finally becoming a metal-like solid towards the centre.

There are twelve Jovian satellites, two of which—Io and Europa—are similar in size to our own Moon, and these might, in the distant future, be used as bases for manned exploration of Jupiter's surface. But long before this (say in ten years' time) we can expect unmanned probes using electrical propulsion to be sent. The time for the one-way trip on a minimum-energy basis would be 33 months.

A Trip up the Dart—

(*Continued from page 294*)

narrow stretch of water curves to the right and a broader one to the left. The steamer draws across to the left, then, to everyone's astonishment, turns sharply to the right into the narrower stream. If we could come here at low tide we should see the reason for this, for the broad left-hand stretch of water is, in fact, only a two-mile creek (Bow Creek by name), its length making it the longest tributary of the Dart River.

The narrow stretch of water into which we have sailed is known as Duncannon Reach, and soon, to our right, we see why Duncannon is called the smallest village in Devon, for it consists of only four houses, served by a foot track from the outskirts of Stoke Gabriel.

Following the river's twists and turns, we continue past the well known Sharpham Wood, where a number of herons are visible, and we glimpse, too, the occasional blue flash from a kingfisher. Eventually we round Sharpham Point, where the river becomes even more confined and our ship enters the long reach to Totnes, with its red sandstone church tower soon a conspicuous landmark on the horizon.

As we near Totnes, the tree-lined slopes give way to more protective hills which embrace the town. Our steamer draws up to the quay and our guide tells us that we have travelled the Dart's twelve-mile stretch of navigable water. There are, however, still some 30 miles of moorland stream before the river's source is reached at Cranmere Pool, in the midst of Dartmoor.

The sudden rising of the moorland stream to flood level after heavy rain, says the guide, has given the local people a saying:

"River of Dart, O River of Dart
Every year thou claimest a heart."

After a journey such as we have made, we realise there are more ways than one of claiming a heart.

CENTENARY OF SWISS TRAVEL

Travel a hundred years ago—this Swiss Federal Railways train of the 1860's is still operational and will be used for the re-enactment this summer of the first conducted tour of Switzerland.

EXACTLY one hundred years ago this month, a party of daring English travellers crossed the Alps on the first-ever conducted tour of Switzerland.

Their trip was organised by a certain Mr. Thomas Cook, whose name was to become famous among travellers all over the world. But Mr. Cook only led his party personally on the first leg of their journey; once they were among the mountains he handed over the maps and tickets and left them to continue.

Travelling among the Alps a century ago was nothing like as highly organised as it is today. Yet the intrepid English tourists—seven women and six men—had the time of their lives. By carriage and lake steamer, train and mule (and a lot of the way on foot, too) they enjoyed every minute of it.

Now the whole trip is being re-enacted as a party of modern tourists, wearing the voluminous clothes of their great-grandparents, find out what holidaymaking was like in the mid-nineteenth century.

For the occasion, some long-forgotten forms of transport are being brought out of the museums and put to use again. Most of them will, naturally, be horse-driven—including stage-coaches, a charabanc and a bus.

One novelty will be a sailing barge of unique design, the last of a long line which will be coming out of retirement to take the party for a sail on Lake Geneva, Europe's largest stretch of water. Another boat the travellers will board is one which, since it was ordered out of service a few years ago, has been sailing in a very solid sea—of concrete. Yet it is the most historic craft in Switzerland—the oldest of all Swiss lake steamers. Built in London 116 years ago, she was taken on

By MICHAEL BAUD

a very involved journey across half of Europe, by ferry-boat, river-steamer, train and horse-driven truck, to make her maiden voyage over Lake Lucerne in 1848. Carrying 200 passengers at a time and cruising at twelve knots, she was destined to travel a distance equal to 30 voyages round the world. The ship is now spending her last days, sunk in concrete, as a restaurant for visitors to the Swiss Institute of Transport.

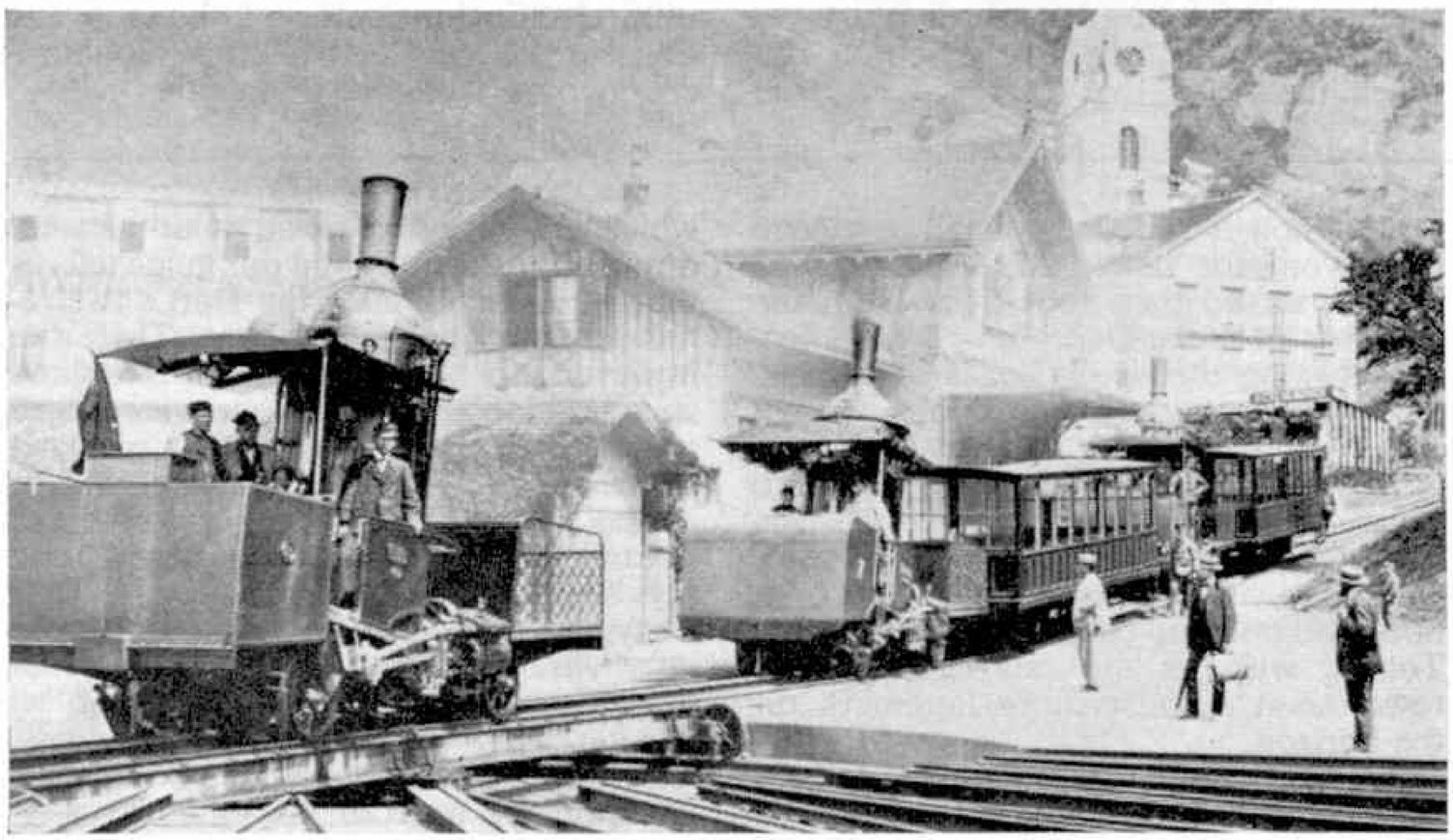
Although electricity has superseded steam on all the Swiss railways, two coal-burning locomotives are being put into working order again for this month's centenary celebrations. One is a Swiss Federal Railways loco. of 100 years ago; another a 50-years-old locomotive—hauling two Pullman cars of the same period—of the trans-Alpine Berne–Loetschberg–Simplon Railway, which is itself celebrating its half-century this year.

Europe's first mountain railway, the line climbing from Lake Lucerne to the summit of the Rigi, was only a dream in 1863. That was the year in which a Swiss engineer called Niklaus Riggenbach took out a patent for his rack-and-pinion system, but it was some years before his dream railway became a reality.

All the same, the Rigi railway is included in the current tour. The party will spend the night at the mountain-top hotel, to be wakened by an alphorn at four o' clock next morning to watch the sunrise—just as their predecessors did 100 years ago, after valiantly climbing the mountain on foot!

Perhaps one of the most unusual means of transport the modern travellers will be using is one which, even today, is still operated in the same way as it was when first brought into use 80 years ago. The Montreux Funicular is a quaint anachronism in a country where every form of travel, from humble chairlift to gravity-defying aerial cableway, is run by electricity. Its motive power is ordinary tap water. The funicular consists of two coaches travelling in opposite directions. Water is pumped into the carriage waiting at the upper terminal; when the brakes are released, the (*Continued on page 317*)

Europe's first mountain railway which climbs to the top of the Rigi. Opened in 1871 it is another historic line which will have a part in this month's celebrations. Both the photographs on this page are by courtesy of the Swiss National Tourist Office and Swiss Federal Railways.



Prizewinners' Parade

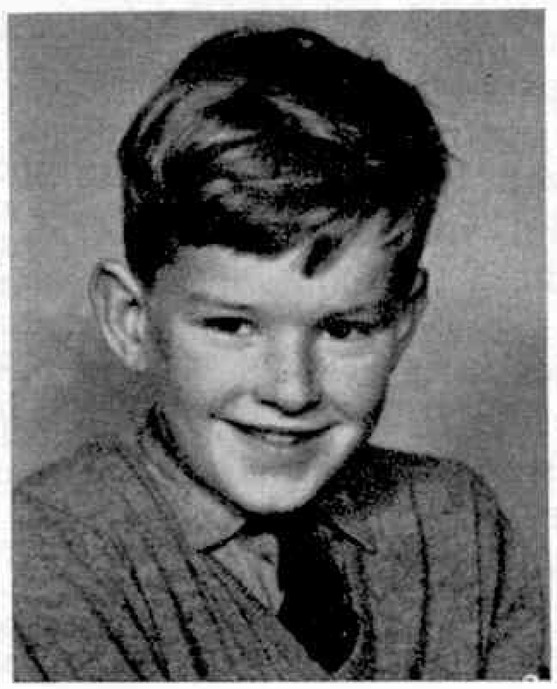
COMPETITIONS are always exciting things. One which was held jointly at Easter by Meccano Limited and J. Lyons and Co. Ltd., owners of the famous Corner House Restaurants, has brought joy to ten young people in this country; another to be held towards the end of this year offers very exciting prizes indeed, not only to youngsters who buy Hornby products, but to the shopkeepers who sell them. The competition is announced in our advertising pages; for full details you should see your Hornby dealer.

The Easter competition was centred on three fascinating displays arranged by Meccano Limited in the huge Windsor Room on the third floor of Lyons' Corner House in Coventry Street, London. One measuring 15 ft. × 5 ft. consisted of the famous "Circuit 24" race game. It was automatically operated with cars hurtling round the track, through chicanes and over flyover bridges in realistic fashion. A second display, devoted to Hornby Two-Rail electric trains, consisted of a double main line track with an elevated section, a large terminal station, sidings and a goods depot. Finally, there was a huge Meccano model of a suspension bridge on which moving tracks carried the latest Dinky Toys models. All these scenes were strikingly illustrated with backdrops. In the competition boys of all ages who had the chance to see them were asked to say in 50 words which of the three they preferred, and to give the reasons for their choice.

Ten prizes were awarded, consisting either of Hornby-Dublo 0–6–0 Train Sets or Circuit 24 "S" Sets, (*Cont. on page 317*)

Eleven-years-old Barry Wilson of Brooklands Avenue, Waterloo, Liverpool (seen above), recently won a prize that would delight the heart of every Dinky Toys enthusiast—one of every Dinky Toys model manufactured by Meccano Limited. His was the winning entry in a competition organised by the "Liverpool Echo", who listed for their young readers ten of the latest Dinky Toys. The cars were illustrated and briefly described, and competitors had to choose the "top eight", in what they considered was the best order of merit. Barry received his prize at the Binns Road factory from Mr. Norman Craig, Sales Director of Meccano Limited.

Here are seven of the ten winners in the Easter competition mentioned above. Left to right they are: Michael Davies, J. R. Hardaker, Adrian Faulkner. (Bottom row) Malcolm Cleveland, Michael Fitt, Graham Mitchell and John Adnett.



AIR NEWS

By John W. R. Taylor

PUSH-AND-PULL 'PLANE FOR THE BUSY EXECUTIVE

Above: Cessna Skymasters in flight. Slim booms carry the prominent tail unit.

Right: Armed with his ancient bow and arrows this Gorokan witch-doctor stood guard over a Bell Iroquois helicopter when it put down in the grounds of a village school in New Guinea.

MANY busy men in industry and commerce who use light aircraft instead of cars for everyday travel are no longer content to fly in single-engined machines. They want the extra performance and safety offered by twin engines. Unfortunately, even the simplest and best of the conventional "light twins" is more complicated and difficult to fly than a single-engined aeroplane. In particular, the pilot must master the art of flying straight and level after failure of one of the two engines.

The new Cessna Skymaster, illustrated at the top of this page, offers all the advantages of a twin-engine aeroplane without the usual handling problems. The reason is that its two 210 h.p. Continental IO–360–A six-cylinder piston engines are mounted in a unique "push-and-pull" layout, fore and aft of the cabin. If either engine fails, which is a very rare occurrence with a modern aero-engine, there is no tendency for the remaining engine to pull the aircraft round in circles or cause the wings to tilt, as both engines are mounted on the centre-line of the fuselage. As a result, the average "single-engine" pilot will have little difficulty in learning to fly the Skymaster.

Cessna began design studies for a new light twin in December 1957, and decided to adopt a "push-and-pull" configuration in January 1960. Work on the prototype Skymaster began three months later and it flew for the first time on February 28, 1961. Since then, well over 1,000 hours of flight testing have been logged with three prototypes and the first production model, and deliveries to customers began two months ago.

Development and production have been made easier by the fact that the Skymaster's main fuselage and wing are almost identical with those of the well-known Cessna family of single-engined high-wing business aircraft. The main difference is in the tail unit, which is carried on two slim booms, on each side of the pusher propeller driven by the rear engine. Up to six people can be carried for 745 miles at 173 m.p.h. on 77 gallons of fuel. Alternatively, the range can be increased to 1,315 miles with auxiliary tanks and reduced payload.

The Skymaster spans 38 feet, is 29 feet 7 inches long and has a loaded weight of 3,900 pounds.

FLYING FLATS

The Blackburn Beverley freighter has been given many names by R.A.F. pilots —not always complimentary, for despite its vast capacity, ability to operate from small unprepared airfields and other qualities, it is not a beautiful aircraft. But the African spectators at a recent air display at R.A.F. Eastleigh, Nairobi, in Kenya, produced the most imaginative name so far. After inspecting the freight hold and passenger compartment of a Beverley of No. 30 Squadron on static display, the onlookers quickly decided that it should be called by the Swahili name *Inaruka-Juu-Ya-Nyumba*, meaning "the block of flats that flies".

It was not the first time that R.A.F. aircraft had acquired a colourful name overseas. Shortly after the war, when the

first Vampire jets were seen in Africa they were named "the father of whistles". Later, in West Africa, Canberras were called "steam chickens".

BIG FELLA MIXMASTERS

Another place where aircraft are likely to acquire fancy names is New Guinea, where some of the natives were head-hunters a generation ago. Today, many of them have still never seen a car or a railway engine, but they are no longer surprised by the huge metal "birds" in which the white men carry them to work or hospital, and bring them food and supplies.

Helicopters are less familiar. So, when two of the R.A.A.F's Bell Iroquois helicopters were sent to New Guinea recently, the natives gazed in wonder at what they named the "big fella mixmasters belongum sky".

The Bells were carried to New Guinea, partially dismantled, in C–130 Hercules transport aircraft, to give their crews training in operation at high altitudes and under tropical conditions.

Bad weather gave the crews a rough, tough time. Heavy mist settled in valleys and passes, limiting visibility and forcing the pilots up to 10,000 feet at times, to ensure safe clearance of mountain peaks. In spite of the difficulties, landings were made on pinnacles up to 7,000 feet high, and winch-rescue exercises were carried out in deep gullies where sheer rock walls hundreds of feet deep made the helicopter the only possible means of getting there.

If the crews expected better weather and a rest on their return to Australia, they were due for a shock. Within a few hours of arriving home, they were despatched with their helicopters to search for people threatened by disastrous floods in South-West Queensland. In four days they flew 2,500 miles, rescuing 93 people and dropping food and medicines to isolated homesteads. It was found that the lifting gear on the rescue hoist was too big for small children, so, whenever there were children to be rescued, a crew-member was lowered from the hovering "chopper" and then hauled up again carrying a child in his arms.

The first of M.E.A.'s two Caravelle 6Ns which was delivered to Beirut in late April of this year. Part of the huge reception party can be seen on the right.

PENNY-FARTHING EXPORTS

Two very unusual vehicles crossed the Atlantic a few weeks ago at 600 m.p.h. inside a Boeing 707 of B.O.A.C. They were penny-farthing bicycles, ordered by an American who had seen an old bone-shaker on display at the Cycle and Motor Cycle Show in London and decided he would like to try his hand at riding one.

The penny-farthings were built by a British firm which recalled one of its former employees from retirement to give advice on design and construction. The bicycles are authentic in size and shape but, unlike the original version, have caliper brakes, rat-trap pedals, fluted cranks, metal rims and other refinements to improve performance and safety.

CARAVELLES FOR M.E.A.

The terminal buildings at Beirut International Airport carry the greeting "Welcome to Lebanon" in French, Arabic and English. This reflects the traditional hospitality of the Arab people; but I was rather surprised during a recent visit to see even the Prime Minister of Lebanon, Mr. Rachid Karame, waiting at the airport to welcome an incoming flight, as I knew the aircraft was not carrying any great international celebrity.

In fact, Mr. Karame was there to welcome the aeroplane rather than those on board it, for this was the first of Middle East Airlines' two new Caravelle 6N airliners and represented an important addition to the company's existing all-turbine fleet of Comets and Viscounts.

The Caravelles are being used on M.E.A.'s medium-length routes, from Beirut to Athens and Cairo, and the first went into service only two days after its delivery. This was achieved by putting selected aircrews through extensive conversion courses during the weeks prior to the arrival of the aircraft. These courses were considerably simplified by the fact that the Caravelles' flight decks are almost identical with those of the Comets which have been in service for more than two years.

Intended to provide transport at over 550 m.p.h. for important members of the U.S. Government, including the President, is this specially-equipped Boeing VC-137C jet transport.

FUTURE PILOTS

Swiss schoolboys who dream of being pilots will have an opportunity this month to see if they have the qualities needed to fit them for command of a jet airliner.

Their national airline, Swissair, has found it increasingly difficult to recruit sufficient aircrew since it began its big expansion about eight years ago; so, from July 15 to 27, it is holding free test courses to discover the suitability of young would-be pilots. Some of the tests will take place in Link trainers and in aircraft.

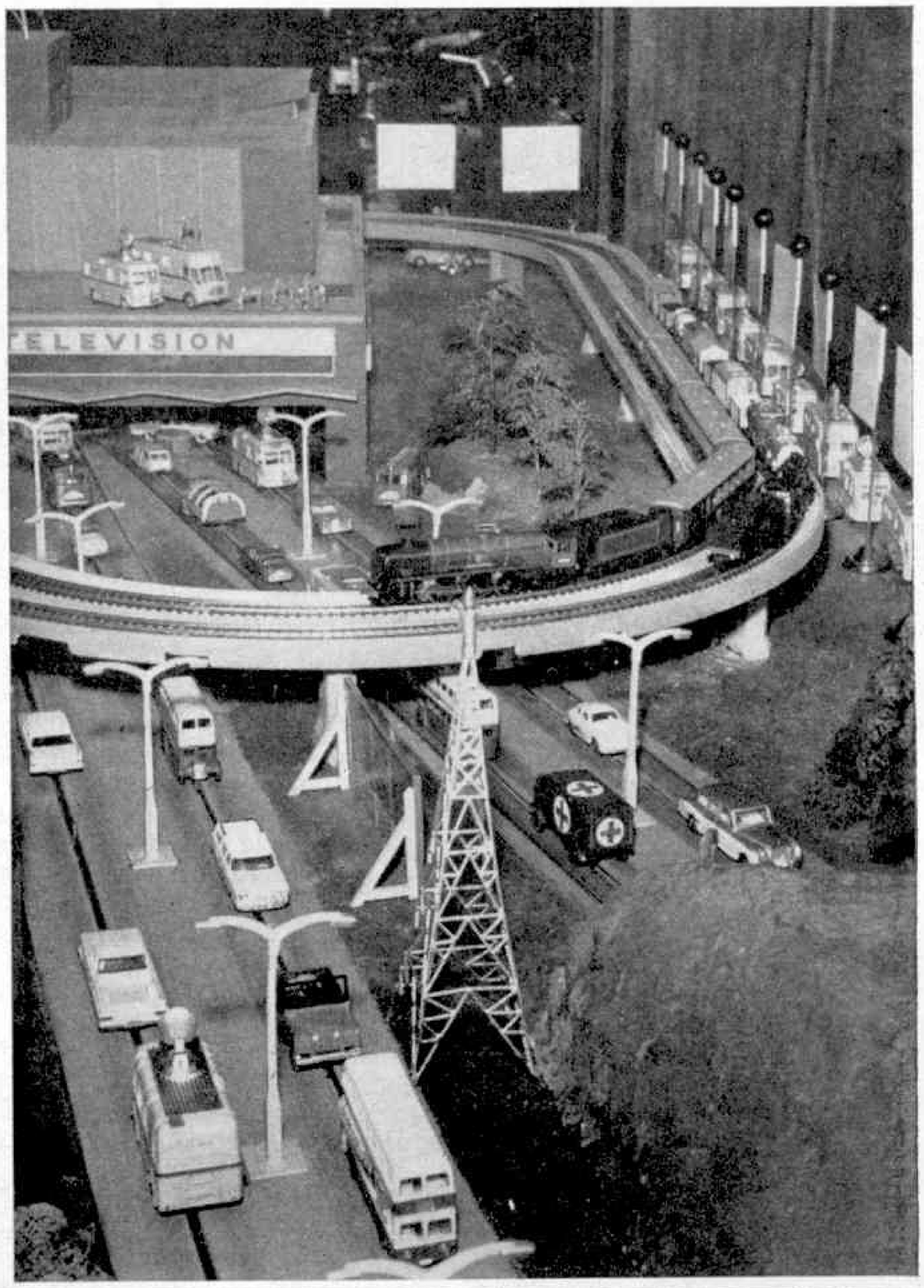
Youngsters who show sufficient promise will be offered the chance of being trained by Swissair, whose jet routes spread across the world as far as North and South America, West Africa and Tokyo.

1,000 JET TRANSPORTS

A remarkable world record was claimed by the Boeing Company on April 11 this year when it completed its 1,000th jet transport. Included in the total are more than 660 KC–135 Stratotanker tanker-transports and C–135 Stratolifter military transports for the U.S.A.F., plus more than 330 commercial 707 and 720 jet-liners.

Boeing's Transport Division has maintained an average production rate of more than twelve jets each month since the first KC–135 rolled from its factory at Renton, Washington, U.S.A., on July 18, 1956. Peak production rate was 25 aeroplanes completed in (*Continued on page 317*)

DINKY TOYS PRESENT THE A.B.C. OF TELEVISION



DINKY Toys Television Vans, cars and other vehicles, travelling round a window display in the heart of Manchester, collectively clock up more than 2,000 miles every week. Their daily "round trip" is in the region of 290 miles—the equivalent of a road journey from Manchester to Dundee, or to Tavistock, in Devon.

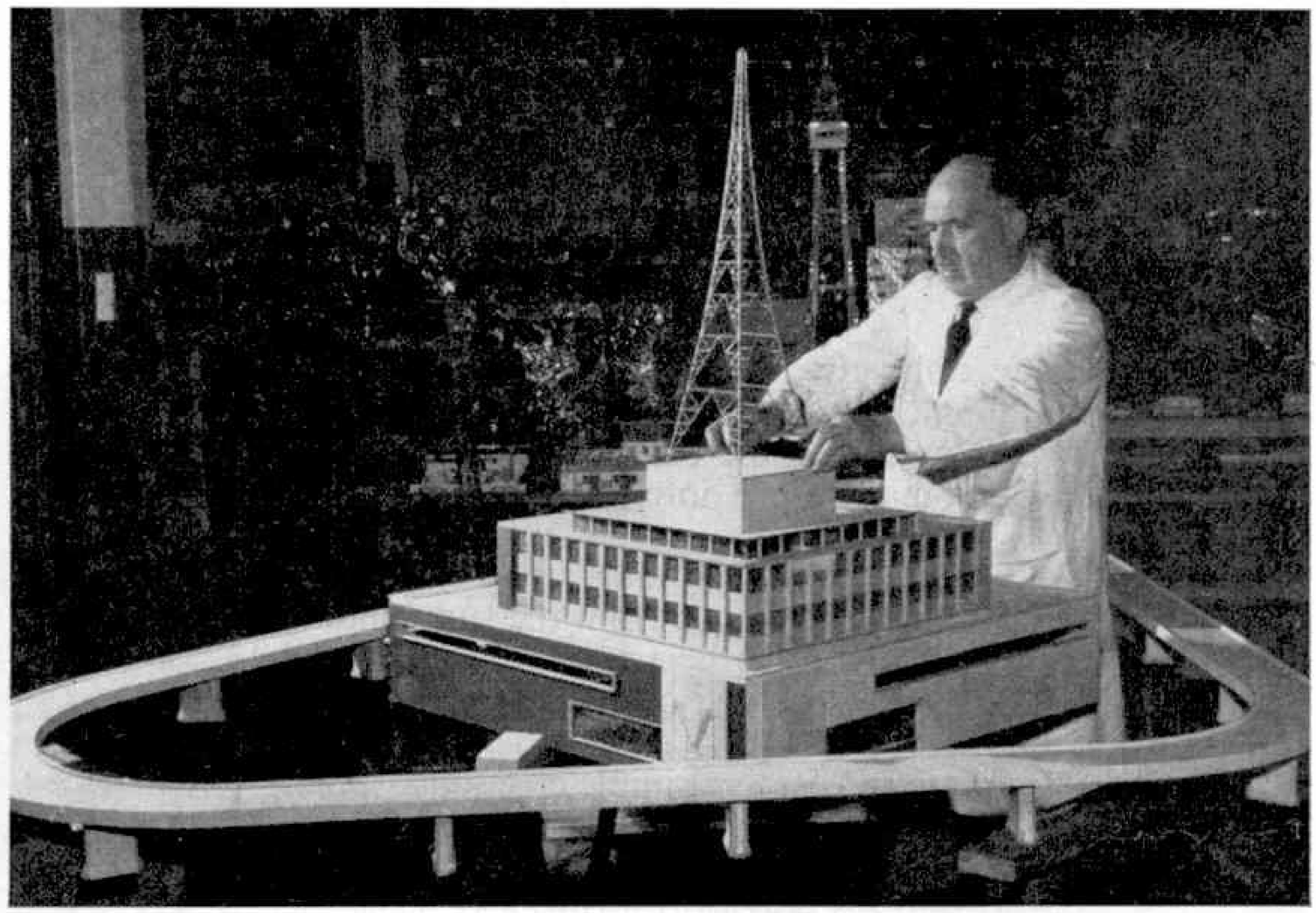
The vehicles—64 of them—are part of a mobile display which occupies the huge ground floor windows of A.B.C.'s

By THE EDITOR

modern block of offices in Mount Street, Manchester. On specially-made conveyor belts they zip along the roads that form a prominent feature of the layout. Trees, hills and villages make it completely realistic, and the centrepiece is a model of a television centre.

Top picture: Dinky Toys A.B.C. Television Vans move along the roads leading to and from the television centre while Hornby-Dublo Electric Trains pass each other on the overhead track which also forms part of the A.B.C. window display. Below (left): Mr. David Burry (Northern Advertisement Manager, A.B.C. Television), watched by the Editor of the "Meccano Magazine", switches on the huge display in the window of Television House. Right: Outside the building, Mr. Burry and the Editor are joined by three onlookers as they admire the display.

They are telling the story in Manchester about the day when three fire engines pulled up outside the offices of A.B.C. Television. A crowd began to gather, wondering where the fire was, but so far as the crowd was concerned it was a "false alarm." The men on the first fire engine, so the story goes, spotted the Dinky Toys–Hornby display in the window and stopped to have a quick look at it. The other firemen, following up, also brought their machines to a standstill for a moment or two so that they also could get a clear view of the display.



The A.B.C. project caused much activity in the Model Department of the Meccano factory in Binns Road, Liverpool. Mr. Bob Moy, who is in charge of the department, is seen here with the centrepiece of the display, and the elevated track on which the Hornby-Dublo Trains operate, before the final touches were added.

By using Dinky Toys A.B.C. TV Control Room (No. 987) and A.B.C. TV Transmitter Van (No. 988), the exhibition shows, in miniature, how the outside broadcasting division of the company deploys its vehicles from central studios to programme locations on both sides of the Pennines. As many *M.M.* readers know, A.B.C. Television covers the North of England and the Midlands and in point of fact their full-size vehicles have travelled nearly half a million miles in seven years to handle television programmes in places as far apart as the Isle of Man, the heart of Wales or the centre of Yorkshire.

This picture, taken while the streets of Manchester were free from traffic, shows the outline of Television House, the new headquarters of A.B.C. Television. The Dinky Toys and Hornby-Dublo display is in the huge corner window on the ground floor.

To add additional colour to the show, Hornby-Dublo Electric Trains operate on parallel tracks which are carried above the level of the roadways. On one track, the West Country Class *Barnstaple* hauls its load of Pullman Cars; on the other the popular 2–8–0 freight locomotive handles a mixed load of traffic. Each train travels some ten miles every day, and they and the Dinky Toys are the cause of many noses being glued to the window at various levels, since they exert a magnetic influence on onlookers of all ages and sizes!

The scheme originated some months ago, when Mr. Ivor Silverstone, Programme Publicity Executive for A.B.C., visited the Meccano factory with the idea of building up a window display which would coincide with the opening of the fine suite of offices in Mount Street. In conjunction with the experts in our Model Department at Binns Road he planned the fascinating layout which now attracts the attention of thousands of passers-by every week.

A.B.C. television officials tell me that as the Dinky Toys vehicles eat up the miles so they wear out their tyres, just as their counterparts do in actual practice. Fortunately, Dinky Toys spares are not quite as expensive as the real thing!

There is a static display of miniature A.B.C. television vans along the front of the window, and a clever device in the window adjoining shows the locations from which outside programmes are being broadcast from week to week. This is done by means of a vertical map, of transparent material, on which are marked all the principal towns covered by A.B.C. Wherever a broadcast is due to take place, a Dinky Toys television Van is affixed, by a metal clip, to the map at that point. The result is most impressive.

Preparation of the display took some time, of course, but the day came when

(*Continued on page 318*)

THE HISTORY OF BRITAIN'S CROSSES

MANY people only give the village cross a passing glance, although it is usually in the centre of the green or square. However, these old stone columns have a long history and many have interesting features and stories.

In the Middle Ages, the village market was the main opportunity for trading, and people from the surrounding districts used to travel in with their goods for sale, and later return home with supplies of food and clothing bought at the market.

The earliest market crosses were simple erections—often no more than a plain cross, perhaps set on a base of stone

By GEORGE H. HAINES

steps. However, this left the traders and their goods open to the weather and the need for some form of shelter was soon appreciated. The first efforts consisted of a roof built out from the old cross. A good example of this can be seen at Cheddar where the top of the old cross seems to poke awkwardly through the roof of the added shelter At Shepton Mallet there is a better-looking example of this early form of market which was erected in 1500 as a result of a bequest by Walter Buckland, who also left some land to provide for repairs from time to time.

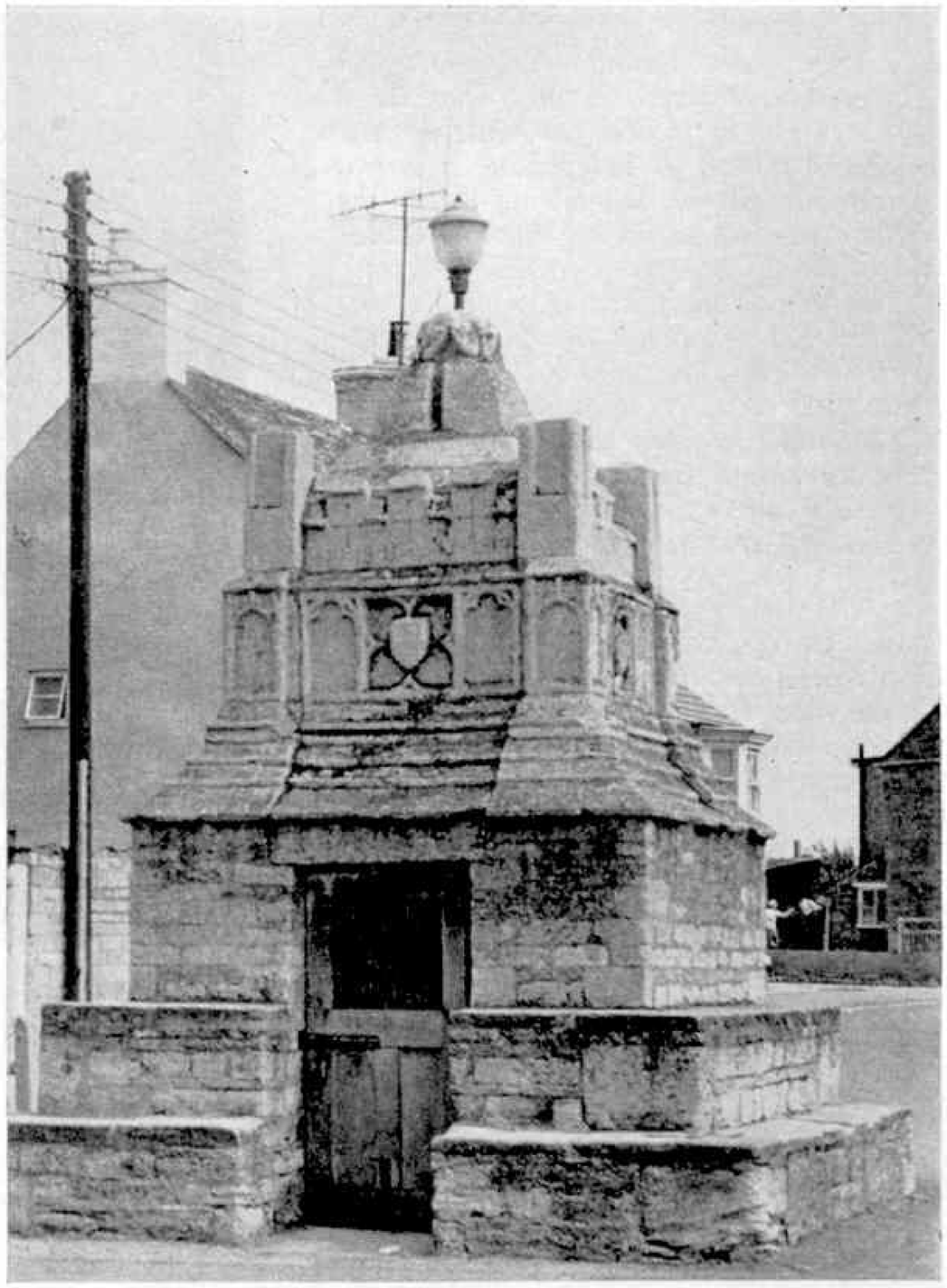
These early designs were gradually improved and some of the later crosses are very beautiful. More importance was given to the roof structure and some of the crosses are like stone crowns. There are especially good examples at Salisbury and Chichester.

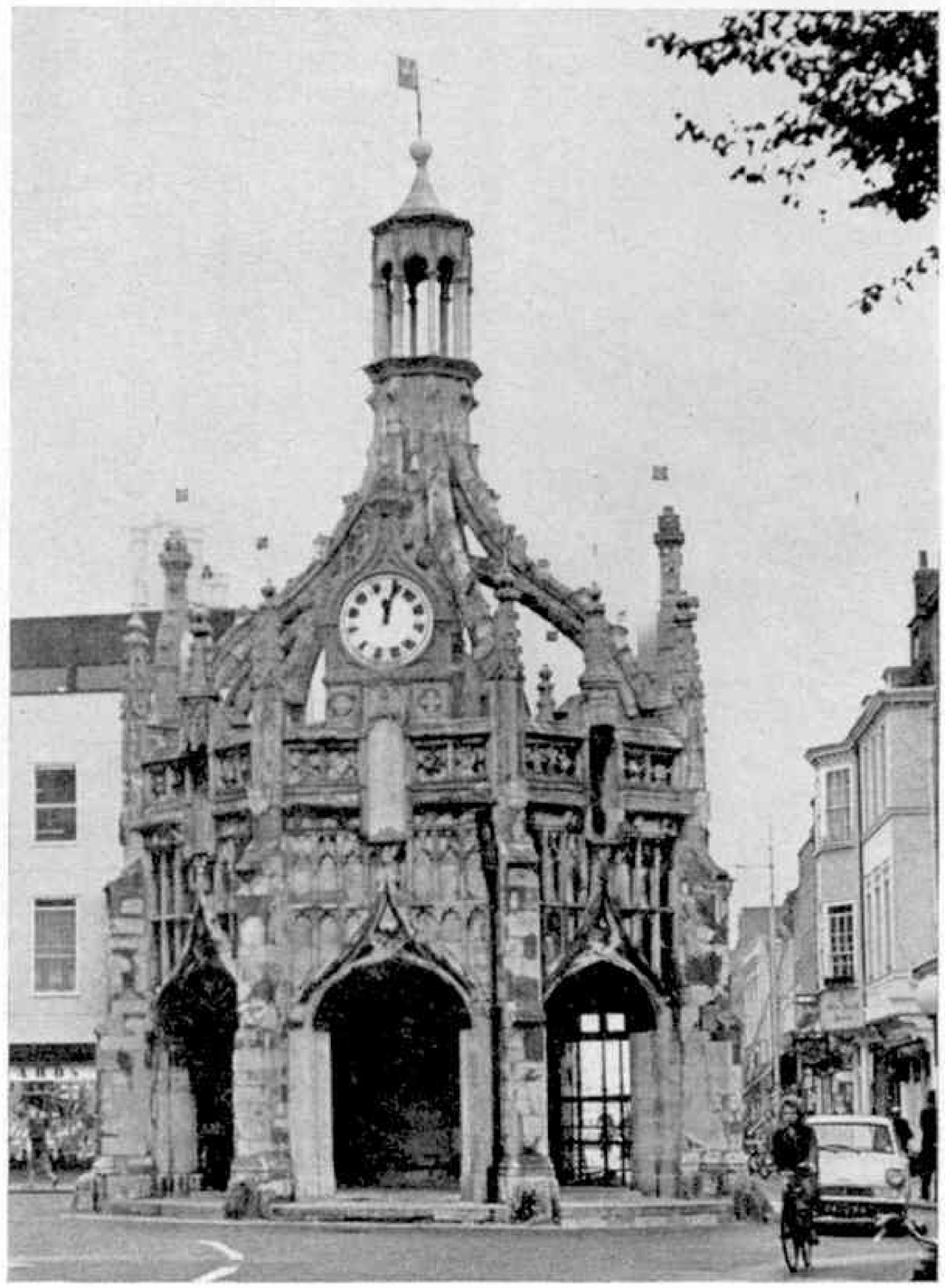
However, erections of this type did not provide room for many people, and later markets revealed little sign of the cross in their design; they were really large roofs set on pillars—although, like the Butter Crosses at Witney and Ludlow, they were still known as crosses. As trade increased the importance of the market grew and at many places, such as Chipping Campden and Ledbury, the market hall is one of the main attractions for visitors.

The cross, as the symbol of Christianity, has been used as a form of memorial from earliest times. Among the most famous are the Eleanor Crosses, erected by Edward I in memory of his queen, Eleanor, who died in 1290 at Harby, in Nottinghamshire. A series of beautiful crosses was set up—one at each of the stopping places of the funeral procession along its route from Nottinghamshire to London. Although these differed in detail, they all had a basic steeple-like pattern, which has since been copied by many others.

There are believed to have been twelve Eleanor Crosses originally, but now only three remain—those at Geddington, Hardingstone (Northampton) and Waltham Cross.

There is a cross at Newark, known as the Beaumont Column, which is sometimes said to be an Eleanor Cross, but it is completely different from any of the known crosses. The true origin of this cross





Top: The cross at Deeping St. James which was converted for use as a lock-up. All illustrations are by the author. The market cross at Chichester (right) is almost like a stone crown.

A bequest made in the year 1500 keeps the cross at Shepton Mallet, seen here, in good repair. This typifies the early form of shelter for traders.

is unknown but it is believed to have been erected in the reign of Edward III (1327–1377) and was probably a wayside cross where travellers could pause to offer prayers.

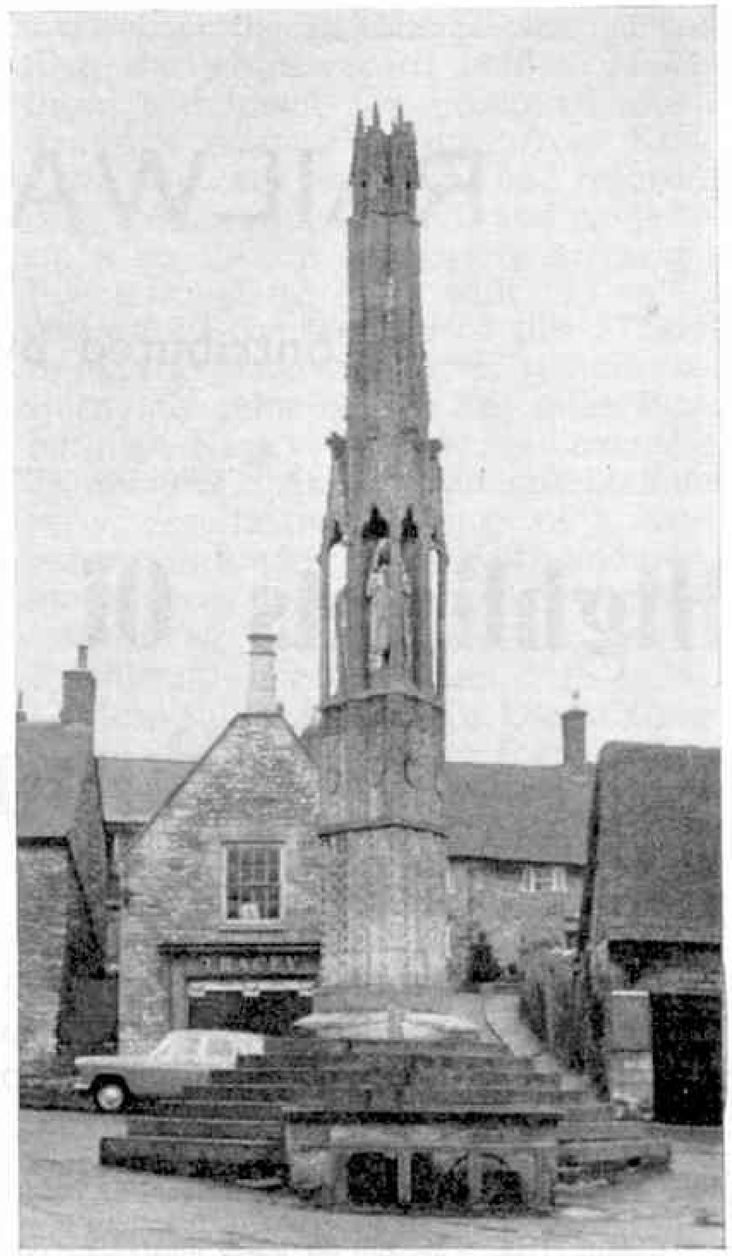
The pattern of the Eleanor Crosses has since been copied in a number of places. One of the finest examples of this design is the Martyrs' Cross at Oxford. This was erected in memory of Nicholas Ridley and Hugh Latimer, who were burned at the stake in 1555, and Thomas Cranmer, who suffered a similar fate in 1556. The cross was erected in 1841 on the tercentenary of the first circulation of the Bible by royal authority among the laiety. To mark this fact the figure of Cranmer holds a Bible bearing the date 1541.

Another cross of somewhat similar pattern is at Banbury. This is so famous in the nursery rhyme that it could be expected to be very old but, in fact, the original cross was destroyed in the seventeenth century and it was not until 1859 that it was replaced. Later, in 1914, the figure of King George V was added. This cross stands in the middle of an important cross-roads, and owing to the difficulties which it causes for the heavy traffic there is a possibility that it may have to be taken down, and that Banbury may again be without a cross.

Some of the oldest crosses were erected by the Saxons. These are usually covered with picture carvings which form an intriguing puzzle. It is thought that in some cases the stones were connected with some earlier primitive religion and that they were "converted" to the new faith by being covered with suitable carvings. There are many of these early crosses in Cornwall, but among the most striking are the pair of tall pillars which stand in the market square at Sandbach, Cheshire. It is believed that they were erected in 653 by King Peada of Mercia. Like many other crosses, they were knocked down in the seventeenth century; the stones were taken away and used on various estates—some were even used in a grotto in Oulton Park. However, in 1816 Dr. George Ormerod managed to trace them and with the co-operation of other local people he was successful in collecting the pieces and re-erecting the crosses.

Another very old cross is to be seen in the Valley of the Cross near Llangollen, North Wales. Known as the Cross of Eliseg it was laying in ruins in 1696. Fortunately Edward Llwyd, head of the Ashmolean Museum in Oxford, passed by and, noticing that there was an inscription on the stones, made a copy. When this was deciphered it was found to state that the cross had been erected by Concennon in the ninth century in memory of his grandfather who had retaken Powisland from the English. An even more important discovery was that it gave a long and detailed account of his ancestors which linked up many names that are part of the legends concerning the coming of the Saxons, and even provided the first proof that these people had actually existed. In 1779, the mound

The old nursery rhyme has made Banbury Cross famous, but the cross now seen at Banbury is a modern one erected during the nineteenth century. The figure of King George V was added in 1914.



The Eleanor Cross at Geddington is one of the three remaining crosses erected by King Edward I in memory of Queen Eleanor.

on which the cross stands was opened and was found to contain a skeleton. The skull was gilded for protection and then replaced. The column itself was also re-erected at this time, but the inscription is now so weatherworn that it is unreadable.

Not all crosses are surmounted with the usual crosspiece. In some of the older crosses there is a circular halo round the head; others are decorated in different ways, possibly with a lantern head—there is a good example of this style at Ampney Crucis, in the Cotswolds. This cross has a strange story for it was missing for many years and then, about 1854, when the church was restored, the head of the cross was found in some rubble in a loft where it had apparently been hidden in Cromwell's time. It was later replaced on the pedestal in the churchyard where it can now be seen.

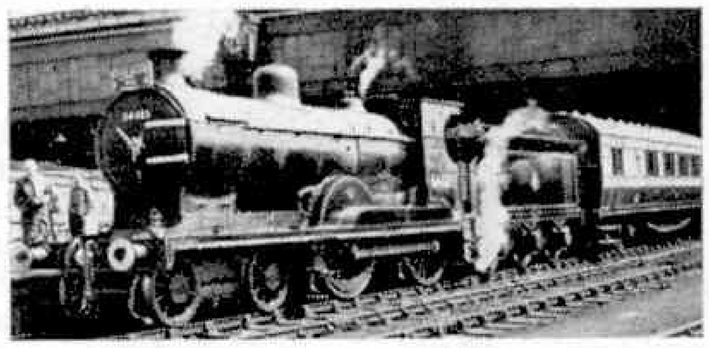
One of the strangest heads is on the market cross at Ripon, in Yorkshire. This has a gilt reproduction of the Wakeman's horn which is blown at 9 p.m. each day in the market square.

In addition to their erection in connection with markets, or as memorials, there were a number of other uses for crosses. Some were erected as preaching crosses in the time before churches were built. Most of these are rather rough wayside affairs, but near the ruins of the Black Friars' Priory in Hereford is a very elaborate Preaching Cross which is almost an open air pulpit. This has an open

(*Continued on page 316*)

RAILWAY NOTES

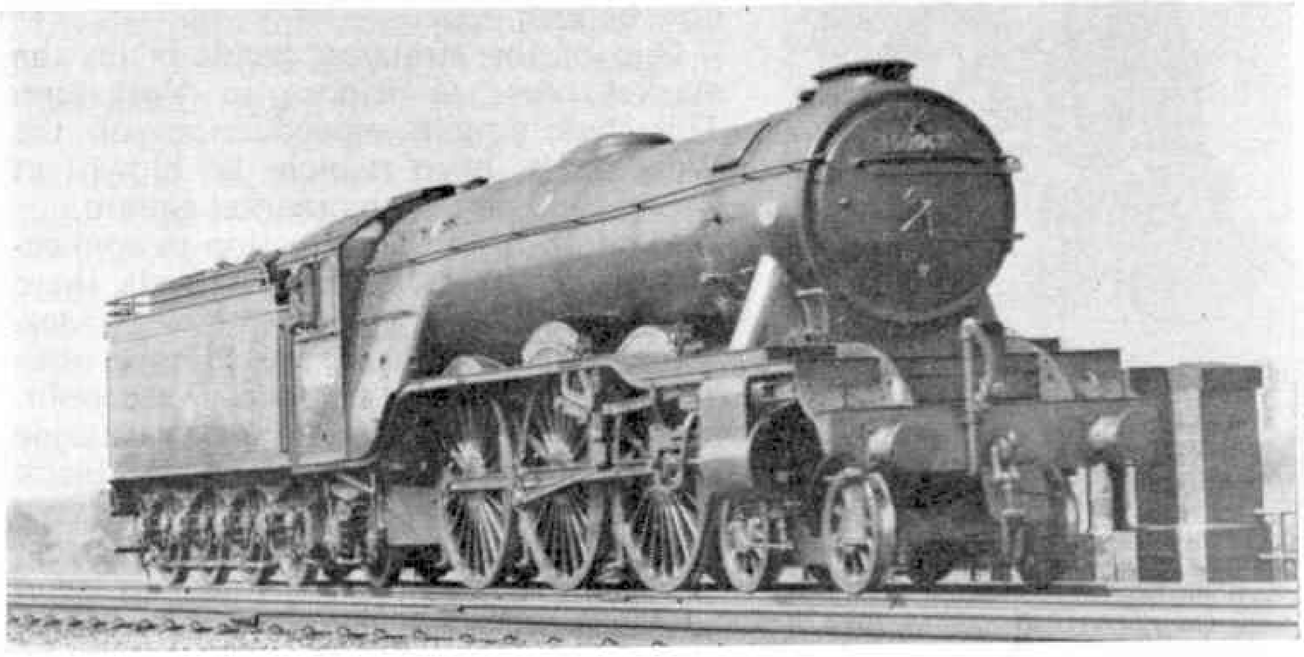
Contributed by R. A. H. Weight



Highlights Of The Summer Timetables

THIS summer, startling accelerations are again a feature of the East Coast route between London and Edinburgh along main lines controlled by the Eastern, North Eastern and Scottish Regions. These improvements are also of considerable benefit to the principal intermediate stations, such as Doncaster, Grantham and Peterborough on the Great Northern Line, where more long-distance expresses, including faster King's Cross–Leeds trains, now call though mostly without increase in overall time. Indeed, some trains are quicker than previously as their haulage is intended to be entrusted almost entirely to diesel-electric locomotives of Deltic 3,300 hp., Brush–Hawker–Siddeley, 2,750 h.p. and B.R./Sulzer 2,500 h.p. Peak classes. The first named are of Type 5, the others of Type 4, power classification.

No. 30911 "Dover" at the head of a Waterloo–Lymington Pier express during the summer of 1962, the last year of one of the final long-distance duties of the Schools class. This and the lower illustration on the next page are by R. F. Roberts.



Pacific No. 60063 "Isinglass" was making a sprightly run "light" towards King's Cross when captured by the camera of G. W. Goslin.

There are now considerable additions to the impressive list of British start-to-stop timings averaging over 60 m.p.h. which I summarised in the April *M.M.* The improved services are not only of great advantage to business men and other travellers, in that they are at more regular intervals than before (with holiday season extras), but they also permit greater and more economical use of locomotives, rolling stock and personnel. Some involve very long daily mileages for engines and train sets. Heavy night Anglo-Scottish sleeping car trains, as well as many of the week-end long-distance expresses to and from King's Cross, are strikingly quicker.

One of the finest services of its kind in the world is offered on ordinary weekdays by the hourly expresses over a distance of 268 miles from London to Newcastle from 8.0 a.m. to 5.0 p.m., then at 6.5. Six of these also go through to Edinburgh or beyond. There is an additional fast summer train at 10.10 a.m. from King's Cross for Newcastle, Edinburgh and Aberdeen instead of the discontinued *Elizabethan*. Southbound services are roughly similar.

Notable schedules figuring in last year's speed-up are continued. These include the *Flying Scotsman* and afternoon *Talisman*, running between London and Newcastle in four hours and Edinburgh in six hours respectively. There are, too, the over-70 m.p.h. start-to-stop timings part-way by the *West Riding*, and *Tees-*

The oddly-assorted couple of 0–6–0s at the head of this enthusiasts' special are respectively No. 52515, the last ex-L. & Y. 0–6–0 (see "Trackside News", May), and a 4F Standard 0–6–0 of the former L.M.S. Photograph by C. Ord.

Tyne Pullman, many very fast Darlington–York runs, and so on.

L.M.R. DIVERSIONS

As rebuilding and demolition work is in full swing at Euston, and while construction and equipment operations continue on each side of Rugby, to prepare for electrification of the main lines towards Euston, most of the services between Euston and Manchester and Birmingham–Wolverhampton will for some time be diverted respectively to St. Pancras and Paddington. An exceptional development in this connection is the diversion of a number of southbound sleeping-car and other long-distance night trains which would normally arrive at Euston, either to Marylebone terminus—by way of Bletchley – Verney Junction – Calvert—or via Willesden Junction to the through West London Line station at Kensington Olympia. The last-named is normally more concerned with parcels, milk, freight, through inter-Regional traffic and the like.

The fine service of faster trains to and from St. Pancras–Leicester, Nottingham–Derby–Manchester, etc. introduced last winter, and described in these notes in November 1962, continues. Some of the "quickest-ever" expresses mentioned last April on the W.R.–L.M.R. north trunk route between Paddington–Birmingham–Wolverhampton–Shrewsbury, are now faster still. Without increase in through journey times several, including the mid-day luxury "Blue Pullman", call additionally at High Wycombe, Bucks., nearly 28 miles from Paddington. High Wycombe is an important home-county centre in itself, but the stops there are to make connection with a coach service to and from London Airport, Heathrow, thus "cutting off a corner", avoiding central London and reducing rail–air travel times between the Midlands and many parts of the world.

The W.R. summer timetable has an attractive redesigned cover (so has the N.E.R. book) and contains much useful information, while train tables and so on are presented in clearer, easier-to-follow form than hitherto.

New Inter-City diesel multiple-unit train sets, many including buffet cars, incorporating greater comfort and some of the latest ideas in bogie design, heating and ventilation, have been introduced for the comparatively long journeys from Cardiff to Birmingham–Derby; or to Bristol and the West of England. Accelerations are featured, too. I hope to make reference in subsequent issues of the *M.M.* to other routes, and give more operating detail.

SOME GOOD STEAM RUNS

Although, to the regret of many the ex-L.N.E.R. Gresley A3 and A4 Pacifics, built between 25 and 40 years ago, are disappearing from the active list and from most of the regular duties along the Great Northern Line, they have lately been providing many excellent runs. These prove that they had sometimes plenty in hand on the schedules laid down for steam operating, and even when they were working as substitutes for diesels, except on the highest-speed timings.

To take the famous streamlined A4s first, the world record holder, *Mallard* (now withdrawn for preservation), on Saturday *White Rose* duty from King's Cross to Leeds and back, had recovered delays due to repair work and made five stops on the up run before arriving at Peterborough to time, with "11-on" or 400 tons. The last lap of this 372-mile round trip made in just over 10 hours was splendidly achieved, the 76½ miles Peterborough–King's Cross being covered in 78 minutes. Arrival was five minutes early, despite two slowings of a severe nature, with good uphill work and maximum speeds up to 76 m.p.h.

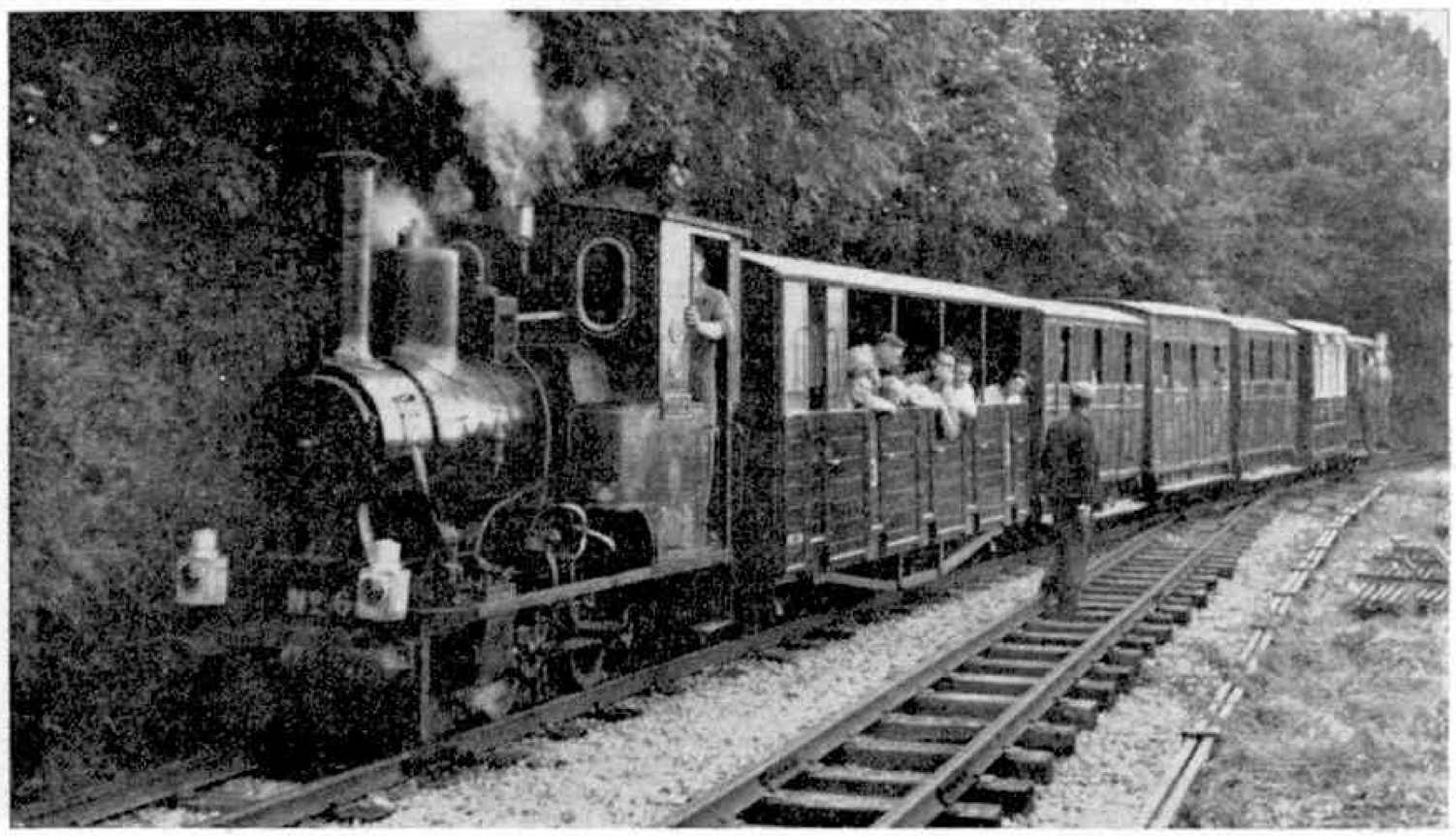
Then No. 60029, *Woodcock*, with a considerably heavier train, "13-on" or 470 tons full, was taken by Driver Green, of Peterborough, down to that city from King's Cross in 78¼ minutes, arriving comfortably within the quickest allowance of 79 minutes then applicable to weekday expresses of that type, and well within the week-end service allowance. There was a signal check just before the top of the long initial rise to Potters Bar; otherwise all was clear, with speeds up to 84 m.p.h., then a gentle finish.

Two more brief stories feature rejuvenated A3s originally built in the 1920's. No. 60067, *Ladas*, was master of the usual 11-coach load of the *White Rose* on its non-stop northbound run to Doncaster reaching there in 160 minutes with six minutes in hand, in spite of diversions to the slow line for several miles in the country north of Huntingdon, with continuous speed reduction.

No. 60063, *Isinglass*, illustrated this month making a fast "light engine" run on a busy day to work a relief express back from London to Grantham, was the first Pacific on which, as a privileged observer, I made a long footplate journey, over 30 years ago. On that occasion we had to take 16 coaches from King's Cross to Doncaster, with two stops. It was fairly hard going as far as Grantham in those days of the original lower-pressure

(*Continued on page 316*)

A well-filled train at Brynglass on the narrow-gauge Talyllyn Railway, headed by the 0–4–0 tank locomotive No. 6 "Douglas".



TRACKSIDE NEWS

By "PLATELAYER"

THE top illustration this month shows a trainload of 350 tons of iso-octanol, which is a plasticiser alcohol, leaving the I.C.I. works at Billingham, en route to Middlesbrough Dock for shipment to Australia.

The liquid is pumped from the tank wagons direct into a deep tank on board the vessel. The tank wagons, of 27½ tons capacity, were specially designed for this traffic, and are used solely by I.C.I's Heavy Organic Chemicals Division.

The vehicle in front of the diesel locomotive is of special interest. It is a diesel locomotive brake tender, the purpose of which is to supplement the braking power of the locomotive. The tender bogies appear to be of ex-London and North Eastern Railway origin.

* * * *

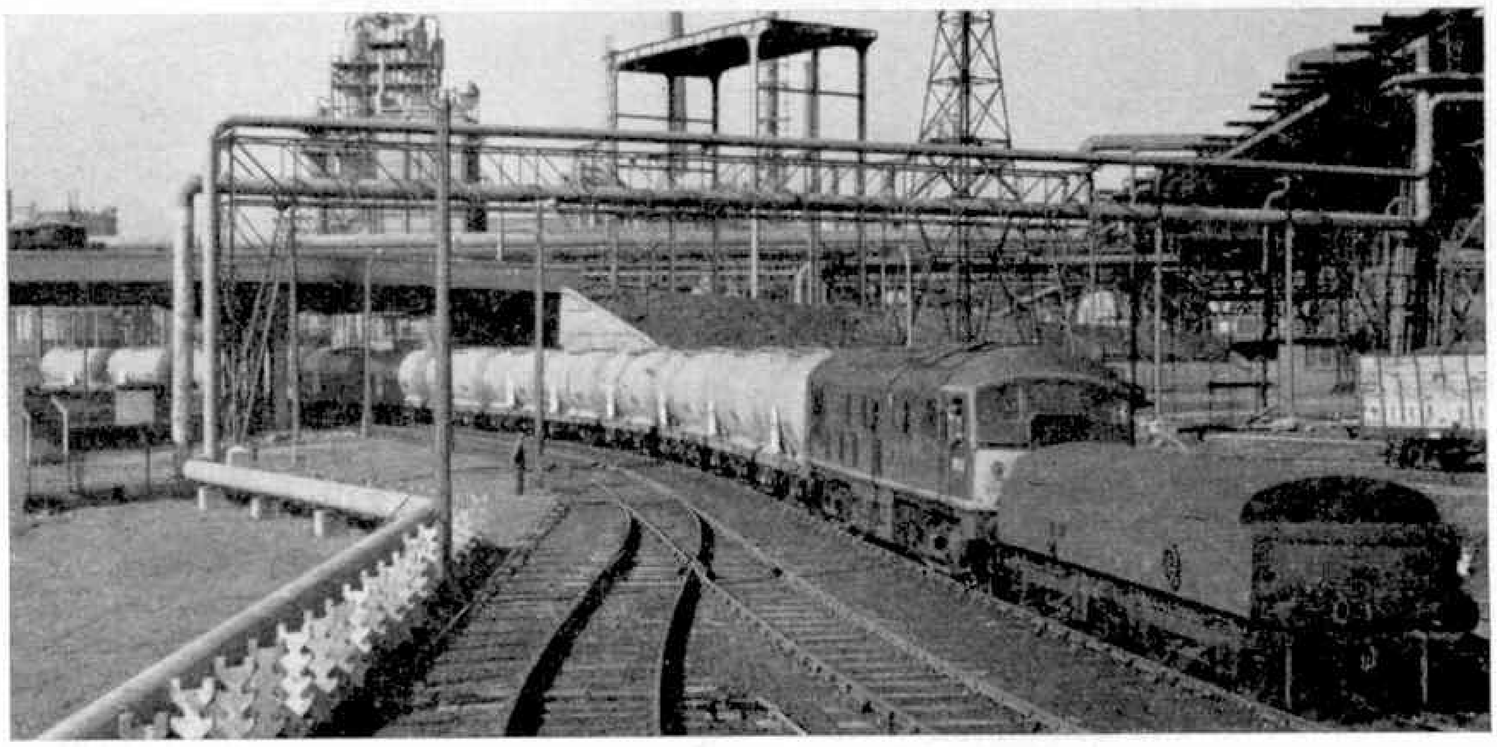
Three of the photographs in this month's Trackside News show examples of different types of signals that were used at various times on our railway system. Each of them formerly belonged to a different pre-grouping railway company, and the signals will no doubt be considered by many as oddities in this day and age.

One of the illustrations at the foot of this page shows an unusual signal box that used to be seen in London Road Station, Manchester (now Piccadilly Station). The signal box, as can be seen from the photograph, straddled the track by means of a typically Victorian girder structure. The whole edifice must at one time have looked most imposing, but in the picture it looks somewhat dilapidated. The bracket signal in the right foreground, though typical of London and North Western Railway practice, was distinctive in being electrically operated and it included miniature starting and shunting semaphores.

The signal on the left of the picture is a Great Central specimen, electro-pneumatic in operation. Contrast its fittings with the L.N.W.R. example.

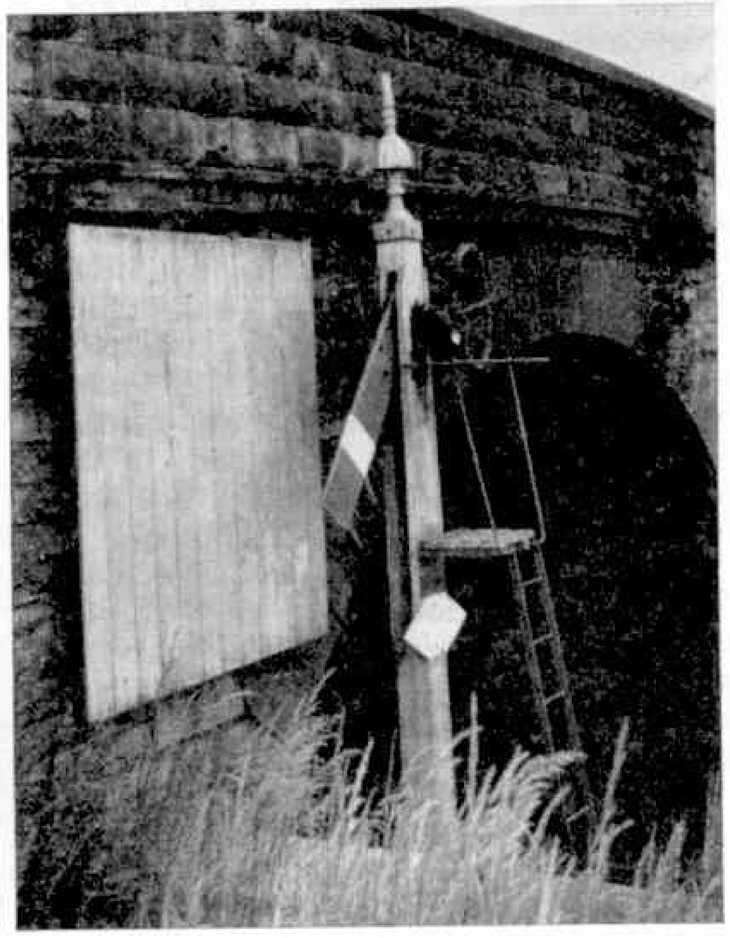
Our third photograph shows a North Eastern Railway "slotted" signal. This, as the name implies, has a post which is slotted to receive the inner end of the signal arm. This form of signal is typical of the former North Eastern Railway practice and there must be few, if any, left in existence. The spectacle plate is fixed to the same spindle as the arm and partially rotates when the signal arm is raised or lowered.

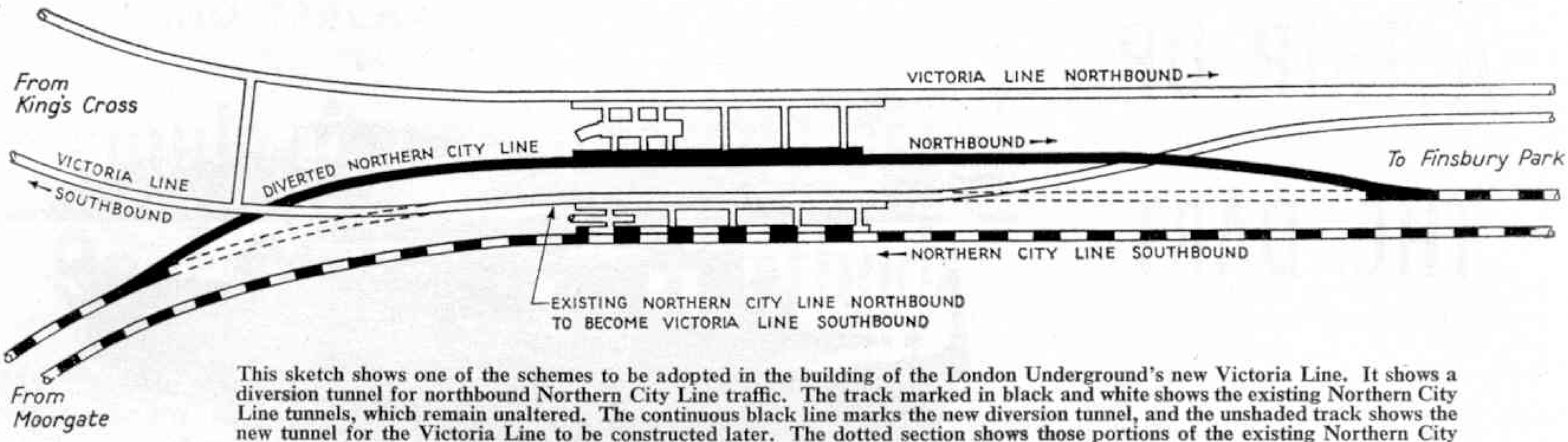
The signal shown in our final picture consists of an L.N.W.R. post, and other fittings, to which an upper-quadrant



Specially-designed tank wagons carrying a load of iso-octanol leaving the I.C.I. works at Billingham on their way to Middlesbrough Dock for shipment to Australia. Picture by courtesy of British Railways.

Below: The old signal box at the former London Road Station, Manchester, to which "Platelayer" refers in this month's notes. Picture by W. S. Garth. (Right) A North-Eastern Railway "slotted" signal which was at one time common in the N.E. area. B. C. Bending took this photograph.





This sketch shows one of the schemes to be adopted in the building of the London Underground's new Victoria Line. It shows a diversion tunnel for northbound Northern City Line traffic. The track marked in black and white shows the existing Northern City Line tunnels, which remain unaltered. The continuous black line marks the new diversion tunnel, and the unshaded track shows the new tunnel for the Victoria Line to be constructed later. The dotted section shows those portions of the existing Northern City Line tunnel which will be abandoned at a later date. Illustration by courtesy of London Transport.

semaphore has been fitted. It illustrates a practice adopted by many railway companies under certain circumstances. This is the custom of fixing the distant arm to the signal post as a permanent warning, leaving the home signal arm above it to rotate freely. Thus the driver of the train will automatically proceed with caution to the next set of points or signals.

* * * *

The London Midland Region of British Railways inform us that a new system of dealing with applications to visit motive power and electric traction depots has now been introduced. In future, applications should be addressed to the officer in whose area the depot is situated. A list of these is available. I have a copy by me and if readers wish to know the address of the officers concerned, I can provide them.

Visits are restricted to parties of no fewer than ten people and no more than 30, and British Railways add that in the interests of safety no one under the age of sixteen will be allowed to visit a motive power depot or electric depot unless accompanied by an adult.

An L.N.W.R. signal post to which an upper quadrant semaphore has been fitted. Picture by W. S. Garth.

* * * *

The special seat reservation system which guarantees passengers a comfortable journey even at holiday times was so successful last year that the Scottish Region of British Railways will once again offer the facility this summer from four Glasgow stations—as well as extending it to other main line stations in Scotland.

The introduction of calculated train control for second class seats on certain trains will avoid overcrowding and unnecessary queuing. All that is necessary is for a passenger to buy a rail ticket, and a train control ticket will be issued from the railway free of charge. If the train chosen is full, an alternative service will be offered. Only passengers bearing control tickets with a special coding number will be allowed to join trains operated on this system.

* * * *

London Transport recently placed two engineering contracts, totalling more than £1,000,000 with two firms—F. J. C. Lilley (Contractors) Ltd., of Glasgow, Marples, Ridgway and Partners, Ltd. of London, for station and tunnelling works to be carried out at Highbury and Victoria for the new Victoria Underground line.

A £682,000 contract has been placed with F. J. C. Lilley Limited, to build a half-mile section of running tunnel and one station tunnel at Highbury. Marples, Ridgway and Partners, Limited have a contract worth £467,000 to complete the first stage of the construction of the new Underground station at Victoria, the terminus for the line.

The new tunnels at Highbury Station will be used by northbound trains of the Northern-City Line which have to be diverted in order that their present platform can be used by southbound trains on the Victoria Line. This re-arrangement is necessary so that cross-platform interchange can be provided at Highbury between the northbound and southbound services on both lines.

The work on the two tunnels, connecting passageways and an 80-ft. long concourse, will take about eighteen months.

Contracts for other engineering work in connection with the Highbury Station scheme, including the construction of the northbound Victoria Line Station tunnel and platform, will be placed in due course.

The scheme for the new Underground station at Victoria will be carried out in two stages over a period of four years. The contract for the first stage of the work has been placed as noted previously and will involve the construction of stairs, subways and a shaft for a bank of two escalators to link the existing District Line platforms, which are to be lengthened by 68 feet at their eastern end, with those of the Victoria Line. This is being done so that passengers will no longer have to use the narrow "cat walks" to enter and leave the front and rear portions of eight-car trains. The work will not interfere with the train services.

The first stage, necessitating a small alteration to Wilton Road at the approach to Victoria Street, is to continue day and night. The carriageway will be widened, taking advantage of the wide pavement at this spot, and the work will include diversions of some gas and water mains, and electricity and Post Office cables which lie beneath the road. A shop at the junction of the above two roads will be demolished so that part of the District Line tunnel arch can be removed and a new roof constructed over the lengthened station.

The second stage of the Victoria scheme, for which contracts have yet to be placed, will start later this year and will form a major part of the new underground station project. This will involve the construction of the new Victoria Line station itself, and the building of a large new sub-surface ticket hall beneath the Southern Region Station forecourt and the bus terminus. This hall will be connected with the main line station by stairways, with the Victoria Line platforms by escalators and with the present District and Circle Lines ticket hall by a new subway.

A TRIP UP THE DART

DESCRIBED BY R. E. TOOP

"TRIP up the Dart, sir? Departing today at 11.15". We see the paddle steamer *Princess Elizabeth* at the quay and many other small craft dotted about Dartmoor Harbour. A glance at our watches tells us we have another hour before the steamer leaves, so we book our tickets before exploring Dartmouth, a town which retains many features of past days.

No brief inspection such as this can possibly cover all that ancient Dartmouth has to offer, but we find time to wander through the Butterwalk, built between 1635 and 1640, and to notice the British Railways Station which does not possess any trains, since these terminate on the far bank of the river at Kingswear, the connection being made by the British Railway ferries *Humphrey Gilbert* and *Adrian Gilbert*. We look towards the sea from the cobbled Bayard's Cove—most of whose buildings belong to the seventeenth century—and see Kingswear and Dartmouth Castles standing guard at the entrance to the Dart estuary. The hour passes all too quickly and we make for the landing stage where the steamer is anchored.

The British Railways ferry steamer "Humphrey Gilbert" which operates between Kingswear and Dartmouth. Illustration by courtesy of British Railways.

The West of England has many famous rivers, but the Dart is one of the best known and on this fine sunny morning there is hardly a seat to spare as *Princess Elizabeth* casts off and hoots at several small pleasure craft which are busily plying their trade. Our progress takes us towards the centre of the river and, just ahead of us, the Dartmouth upper ferry, or floating bridge, conveys cars and lorries bound for Tor Bay and beyond. We look to our left and high on the hill can see the imposing façade of the Royal Naval College built early in the present century to replace the old naval training ship *Britannia* which served for some 60 years.

* * * *

On either hand of the river bank are shipbuilding works where many light ships, pilot boats, and so forth are constructed. Then the tree-lined hills begin to close in on either side and we cannot help noticing how their branches seem to be cut in a perfectly straight line. That is because they fringe the highest point to which the river rises at high tide, and therefore continued growth is prevented by the salt water.

We skirt the estate of Greenway House, associated in past days with Sir Humphrey Gilbert, who was the coloniser of Newfoundland, and with Sir Walter Raleigh. Almost opposite the house, in the centre of the river, a danger post marks the whereabouts of Anchor Stone, visible only at low tide. There are many stories attached to this stone such as its use as a ducking stool in days long ago, when punishment needed to be given, or the place where Raleigh smoked his first tobacco — to quote two local tales.

From that point, the estuary suddenly widens and on our left is the village of Dittisham, famous for its plum growing and the steepness of its main street. On each bank of the river now there are thatched cottages to be seen, while between Greenway and Dittisham is a privately sponsored ferry (a flat vessel propelled by a motor boat) which is, in fact, the only other ferry now operated on this river.

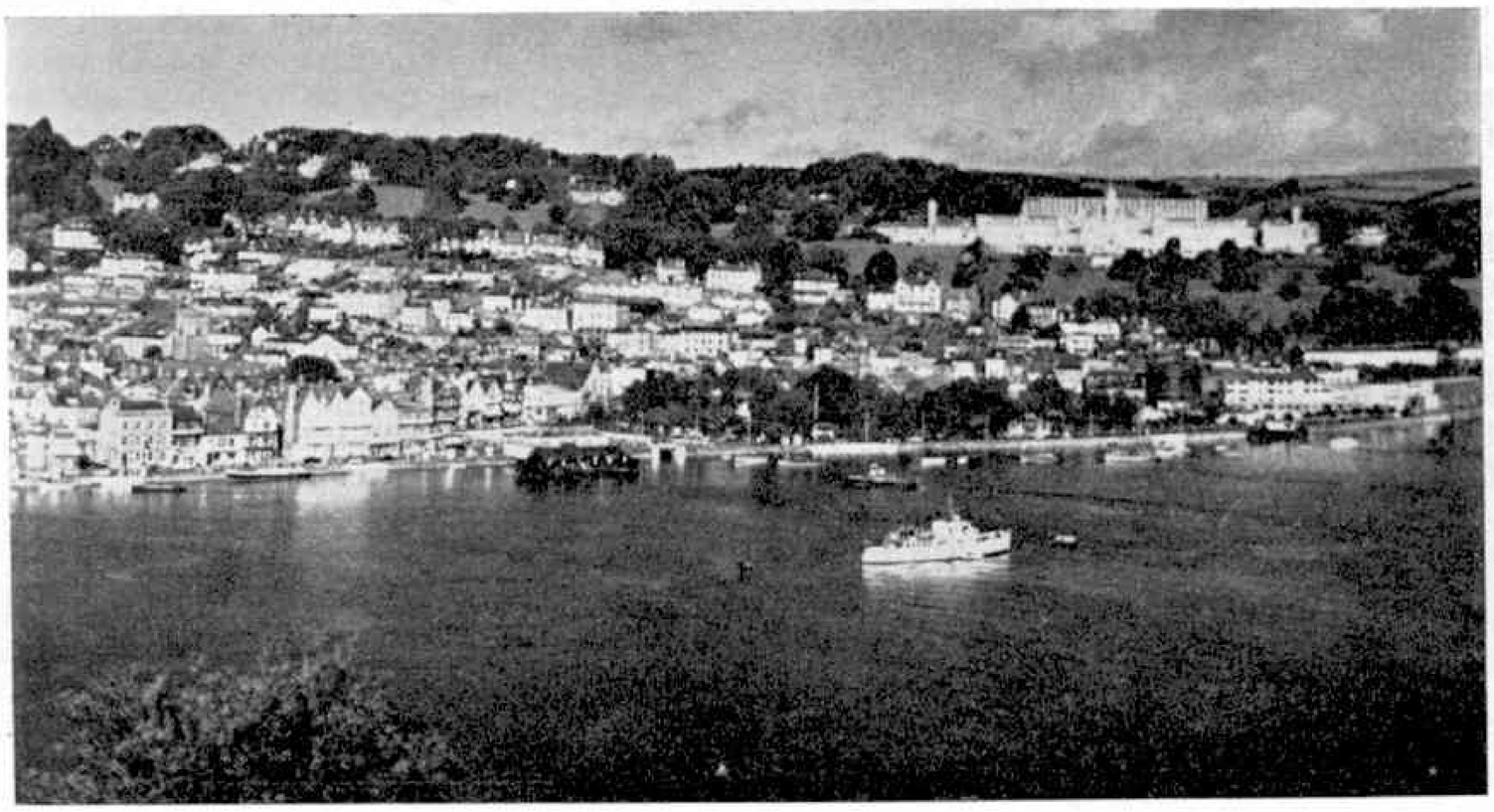
Having passed these two villages the steamer reaches a part of the river appropriately named "Broad Stream" with Galmpton Bay stretching away to the right. Here the river assumes its greatest width, being approximately one mile across at its widest point. A long left-hand curve takes us into that portion of the river known as "Long Stream" and high up on the right-hand bank is Sandridge Park, the birthplace of John Davis, the Arctic navigator. To the left is a glimpse of Higher Dittisham.

Continuing up stream we see an estuary on our right and almost at once the square tower of Stoke Gabriel's church comes into view. Here is the centre of the Dart salmon fishery, and if any proof of the village's antiquity were needed, one has the "Church House Inn" dating back to 1111, a cobbled alley leading to the church and, inside the church itself, the 1716 "Vinegar Bible", so called because it has the word "vinegar" instead of "vineyard" in St. Luke's Gospel.

If we glance backwards to our left, Dittisham church spire can be seen in the far distance, and nearer at hand are cider apple orchards; then our attention is suddenly drawn to the scene ahead as a

(*Continued on page 281*)

A panoramic view of Dartmouth taken from the Kingswear side of the river. The Royal Naval College can be seen in the top right-hand corner. Photograph by the author.



Formula One: Different Views On Fuel Injection Methods

SWISS engineer Michael May, who left Porsche last year, is very happy in his new job with Ferrari. For a long time he has been specialising in fuel injection, and since last October has worked on a Bosche fuel injection system for the new Ferrari engines, which has helped to give the Formula One Ferrari a much-needed shot in the arm.

Before joining Porsche, May worked with Mercedes-Benz who were the first to use fuel injection in their Formula One machines. The system developed for Ferrari is not unlike that used on the successful W.196 Mercedes-Benz Grand Prix cars of eight years ago and relies on direct injection to each cylinder, instead of port injection, as favoured by many British engineers.

A few years ago I asked Dr. Rudi Uhlenhaut, chief of Daimler Benz experimental department and responsible for the construction and development of their racing cars, why he preferred direct injection. His answer was simple enough: it produces more power provided that it can be made to work satisfactorily in a given engine design. On the other hand, direct injection is far more sensitive to changes in air temperature and humidity than port injection, so it means that engines need to be tuned more closely to suit local conditions wherever they may be racing.

The length of the ram pipe is another important factor that affects the amount of power developed. Uhlenhaut told me that however exact they were in calculating the length of the ram pipe, the results were never so satisfactory as when using trial and error methods.

Earlier in the season, John Surtees, Ferrari team leader, told me he was still not entirely satified with the handling of the 1963 V–6 fuel-injected Ferrari, although by the time the words appear he will most likely have the new V–8 machine with much modified chassis and smaller body. Surtees was banking on having it in good time for the French Grand Prix, due to be run over the very fast Rheims circuit on June 30.

This is a favourite circuit of mine. From high up in the stands opposite the pits it is possible to see more than half the 5.1 miles course and thus follow the race very closely. Lap speeds approaching 130 m.p.h. are expected from this year's Formula One machines. Most of the leading teams this year will use fuel injection instead of carburettors; a new B.R.M. with monocoque-type centre section chassis may also make its appearance in this race.

* * * *

I have recently been driving the new Cortina that owes a good deal to the inspiration supplied by Colin Chapman. This is the new Gran Turismo version of the 1500 c.c. Cortina.

The 1½ litre, five-bearing Cortina engine has been tweaked up from 59.5 b.h.p. to 78.5 b.h.p. nett. This enormous increase in power has been achieved by pushing up the compression ratio to 9 to 1, fitting a different camshaft, larger exhaust valves, and a good four-branch exhaust manifold to get spent gases away more quickly. The carburettor has been changed to a double choke Weber, while to cope with the extra power, 9½ inch front disc brakes are fitted and the suspension is stiffened and given new damper settings.

On the road, the G.T. Cortina goes like a scalded cat; in the lower gears it is very necessary to keep an eye on the rev. counter mounted on the steering column, where it is virtually under the driver's nose.

In bottom and second, the rev. counter needle can be up in a twinkling to its maximum reading of 7,000 r.p.m., rather suggesting that the car is a little under-geared on these two ratios, whereas it will not pull anything like these revs in third and top.

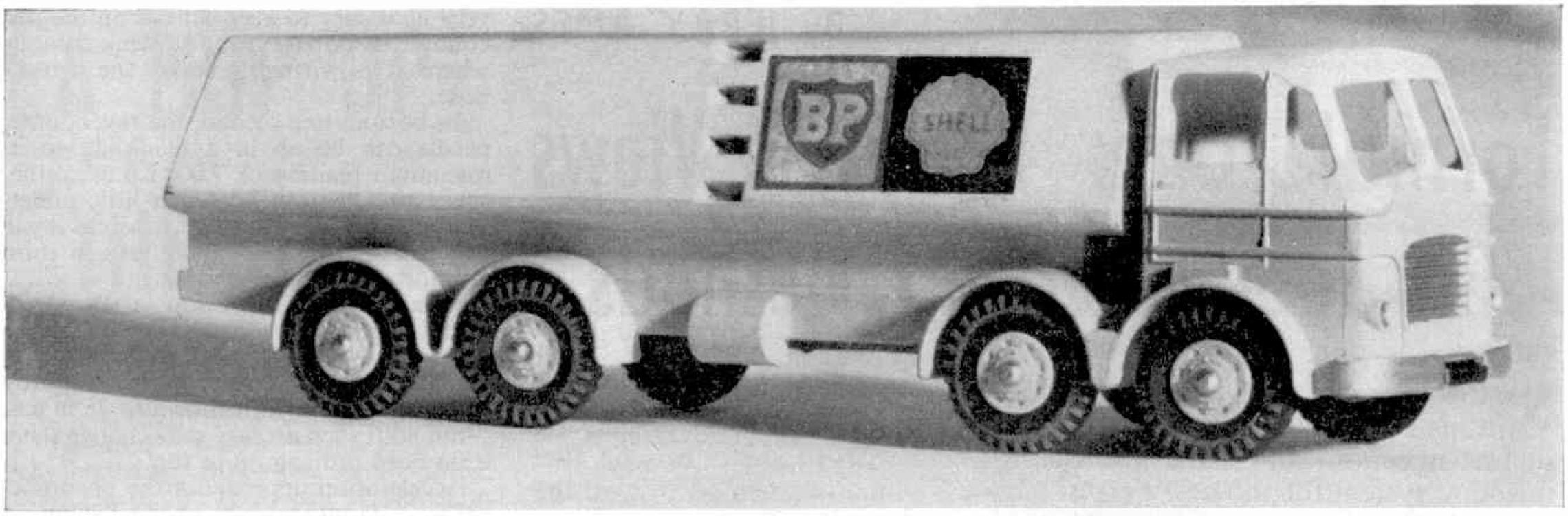
Maximum speed in top is 93 m.p.h. Third takes it to 82 m.p.h., second 51 m.p.h. and bottom 32 m.p.h. For a 1½ litre car of this type top gear is fairly tractable—it will come down to 26 m.p.h. —but with such an easy gear change there is no need to hang on to top.

Acceleration approaches the phenomenal for a family saloon. The G.T. Cortina will go from standstill to 50 m.p.h. in just over nine seconds and on to 60 m.p.h. in thirteen seconds. When the car is driven hard, fuel consumption is quite satisfactory at 27 m.p.g., while at lower touring speeds it can be improved to 31 m.p.g. and the larger, more powerful, brakes are well able to cope with the additional performance; they are smooth in operation and need only moderate pedal pressures.

Externally, the Grand Touring Cortina appears no different from the De Luxe model apart from the addition of G.T. badges on the rear quarter panels, but its road performance leaves no doubt as to its identity. Apart from its high top speed, 0–60 m.p.h. is achieved in thirteen seconds, and cruising speed is over 80 m.p.h. To cater for this greatly increased performance 9½ inch disc brakes are fitted to the front wheels, and the suspension has been stiffened.

At speeds above 80 m.p.h. one can feel a fair amount of axle movement, unless the road is dead smooth. The effects of small gusts of wind can also be felt at high speeds, while flat out cornering with a modicum of understeer is quite good. Rear axle bounce has been subdued, but it is almost impossible to eliminate it entirely with a conventional rear springing. Within this limit, handling and riding are good.

The Ford Cortina G.T. is not a competition car but a delightful family saloon. Mine was a four-door model with strong appeal to drivers who want modern-type performance with good equipment.



A close-up of the Shell–B.P. Fuel Tanker, showing its modern outline.

New-Style Fuel Tanker and A Handy Trailer Set

DINKY TOYS NEWS

By The Toyman

A FINE new commercial vehicle and a neat trailer unit based around an already-popular Dinky Toys model are the attractive offerings to collectors this month.

The commercial vehicle, which you see illustrated in the two pictures on this page, is a Shell–B.P. Tanker which offers many uses on a Dinky Toys layout. The tank itself on this impressive vehicle has been drawn up from the full-size counterpart manufactured by Alfred Miles Limited, of Brockworth, Gloucestershire, and is extremely modern in appearance.

The model is numbered 944 in the Dinky Supertoys list. The tank, in yellow and pale grey, carries the distinctive Shell and B.P. emblems on both sides, and at the rear. Naturally, our miniature does not hold any fuel, but you may be interested to learn that the prototype is capable of holding anything up to 4,000 gallons.

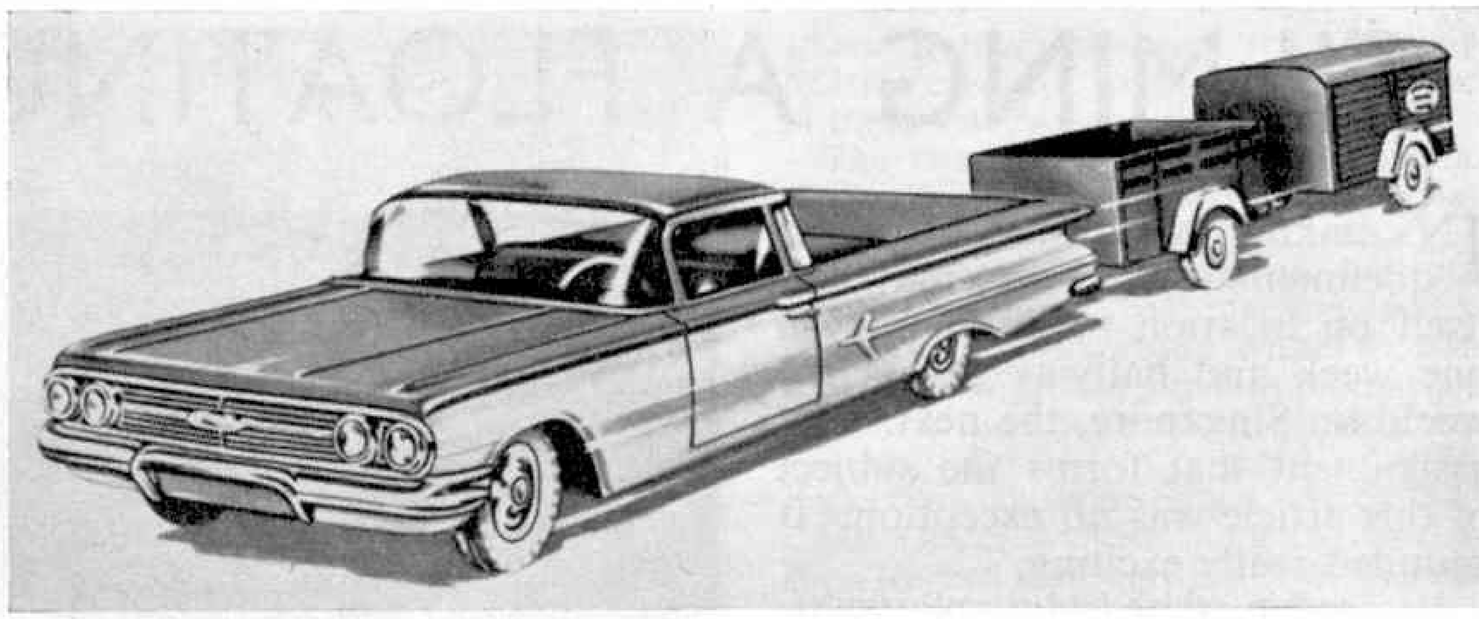
In this illustration a Shell–B.P. Fuel Tanker is drawn up at a wayside garage. This is the sort of scene you can build up quite simply with some of the latest Dinky Toys models, a Petrol Pump Station (No. 782 or 783) and one or two items from the Pavement Set (No. 754).

The chassis of the vehicle is also in grey and the whole presents a very striking appearance. The model is described as a fuel tanker, and on a recent visit to Liverpool Airport I saw one exactly like it in use there, but while a tanker of this nature can find its place in schemes built up on aircraft routine, there will be thousands of Dinky Toys collectors who will want to use their model more on the lines of a petrol tanker. Many readers have written asking us for a new vehicle for use with either the Shell or B.P. Petrol Pump Stations we manufacture, and one can well visualise the new Shell–B.P. Tanker being pressed into service for this purpose. It certainly will fit perfectly into any garage scene, as the bottom illustration on page 296 so effectively shows.

I sometimes wonder if people realise just how much our cars and lorries have to rely on the tankers that provide fuel, whether it is petrol or Derv. In almost every country of the western world the number of automobiles is increasing rapidly. Statistics tell us that in America, for example, there is one car to every three people. Even in Britain it is estimated that there is one car to every nine people, and when you weigh up the population of the British Isles you have some idea of the vast number of cars that occupy our roads.

Moving on now to our second model, it is about this time of the year that many schools break up for the long summer holiday, and the six or seven weeks that follow will be the time when most families pack their bags and move away to the countryside or seaside for a few days' relaxation, hoping, of course, that they will be among the lucky ones who get some of the sunshine which has been so scarce in this country in recent years.

One type of holiday that is becoming more and more popular with motorists is camping, where the holidaymakers travel from place to place by car during the day and use tents for sleeping at night. The principal setback to this type of vacation is that a great deal of equipment must be carried, especially if the whole family is involved, but unfortunately most family cars do not have enough room for equipment as well as people. Quite a number of motorists, however, manage to overcome this difficulty by trailing a trailer or trailers behind the car.



An artist's impression of the Chevrolet Pick-up and Trailers—one of the Dinky Toys releases for this month.

With our second introduction for July, *you* can go camping in Dinkytoyland, for we have harnessed two realistic and extremely novel little trailers to a model which is already one of the most popular in the range—the Chevrolet Pick-up. We considered that this was the most useful vehicle to introduce for this purpose since it fits into such a wide range of layouts. The complete set, numbered 448 in our list, is termed "Chevrolet Pick-up and Trailers".

As I have already said, the Chevrolet has been popular with our collectors for some time, and no doubt a number of you will know its history. But for the benefit of those readers who missed the issue of the *M.M.* in which the details of the actual vehicle appeared I will repeat some of them here. It is manufactured by the Chevrolet Motor Division of General Motors Corporation in Detroit, Michigan, U.S.A., and is powered by either a 170 h.p. turbo-fired V–8 (series 12) engine or a 135 h.p. Hi-Thrift 6 (series 11) engine, as required by the purchaser. Overall dimensions are: length 17 ft. 6¾ in.; width 6 ft. 8¾ in.; height 4 ft. 10⅜ in.; wheelbase 9 ft. 11 in.; maximum track 5 ft. ¼ in. It has a three-speed synchromesh gear-box and a fuel tank capacity of seventeen gallons.

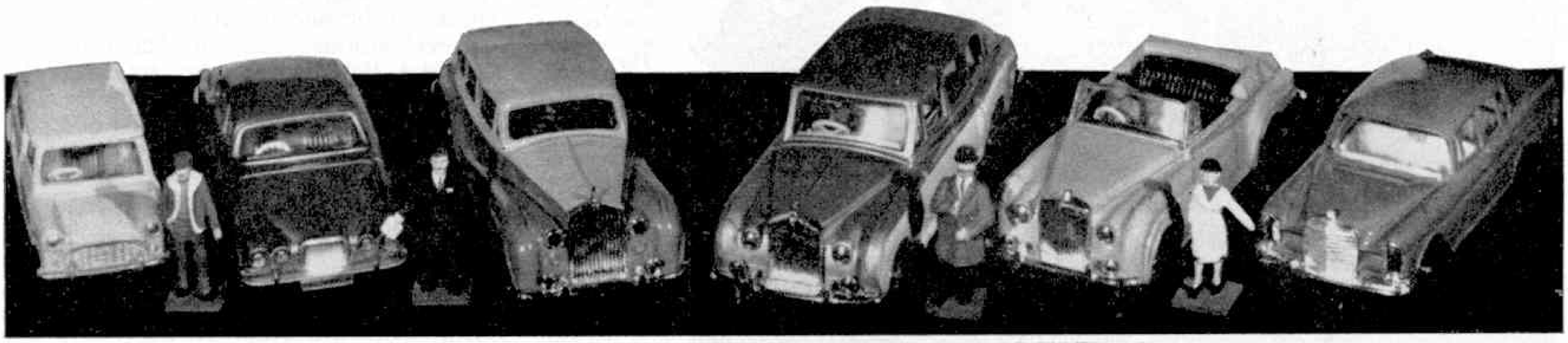
To turn now to our two miniature trailers—both of these sport an eye-catching red finish with silver mudguards and both are fitted with white rubber tyres. Here the similarity ends, however, as one of the trailers is open while the other is fully enclosed. The upper portion of the sides and back of the open model is slatted—like that of a farm produce wagon—and the rear door of the enclosed trailer opens so that miniature loads can be packed inside. The latter also sports two yellow transfers, one on each side, with the words "Acme Trailer Hire" printed on them in black lettering.

A few final words now about a whole host of new releases—six in all—one of which is shown at the foot of this page. You will gather from this illustration that the releases in question are Gift Sets each containing a number of Dinky Toys and/or Supertoys. These models have been specially grouped together under one heading because of their relationship with each other and, in my opinion, one of the best things about these sets, which come in sturdy, reinforced-cardboard showcase boxes, is that you can make a complete scene with just one of them, thanks to the way in which the models they contain have been selected. All the sets are depicted on the inside back cover of this month's *M.M.*

This is the time of year when many youngsters like to make use of Dinky Toys models in outdoor scenes and there is no doubt that lots of good fun can be enjoyed in this way. Given the right weather you can have a glow of inward satisfaction which matches the glow of your sunburned face as you operate your Dinky Toys in true-to-life outdoor fashion. But there are some simple precautions you should observe if you plan to use your Dinky Toys on the sands, or on soil, to

(*Continued on page 318*)

This array of quality cars forms the Mayfair Gift Set, one of several new sets now on sale all consisting of popular Dinky Toys models. The vehicles from left to right are: No. 199 Austin 7 Countryman, No. 142 Jaguar Mk. X, No. 150 Rolls-Royce Silver Wraith, No. 198 Rolls-Royce Phantom V, No. 194 Bentley Series S Coupe and No. 186 Mercedes-Benz 220 SE. Figures from the Service Station Personnel Set are also included.



FILMING A FLOATING SCHOOL

IN making sponsored films, a documentary film unit may find itself on location in Southampton one week and halfway across the world, in Singapore, the next. The assignment that forms the subject of this article was no exception. It sounded really exciting.

A troopship, which had recently undergone a £1,000,000 refit, had been converted into a floating school to take children on educational cruises at low cost. Geography was to take on a new meaning;

By

NEIL EWART

"Dunera" (12,620 tons), seen here in the Grand Harbour at Malta, was once a troopship. Today, she carries children on educational cruises. Recently, a second schoolship, "Devonia" (12,800 tons), was added to the fleet. All the pictures illustrating this article appear by courtesy of the British India Steam Navigation Company, Ltd.

history, too. Blackboard and text-books were to give way to reality. The owners, the British India Steam Navigation Company, Ltd., required a twenty-minute film to cover one of these cruises made by the 12,620 tons m.s. *Dunera*, to Corunna, Gibraltar, Lisbon, and Lorient. Copies were to be distributed to schools in Great Britain and abroad to encourage other travellers to follow in the wake of these young voyagers.

The skies were grey as we sailed out of Southampton one afternoon in late August. It was cold, and it was raining, but for once the dismal scene that was supposed to represent summer was of little consequence. Within a few hours we would be cruising in the sun.

On board were 800 boys and girls from every type of school, their ages ranging from twelve years upwards. They had come in groups, mostly with their own teachers. A crew of 300, including a resident Director of Studies and his staff, were there to look after their every need.

The ship had the amenities of a small town—shops, library, swimming pool, cinema, dance hall, hairdressing salon, launderette, and its own newspaper. In addition it had a cafeteria, dining and recreation rooms, medical and dental surgeries, dormitories, photographic darkroom, games decks, and classrooms.

As film-makers, on this thirteen-day cruise, we were going to be kept busy. Apart from filming activities aboard, there were visits to four different foreign ports to cover.

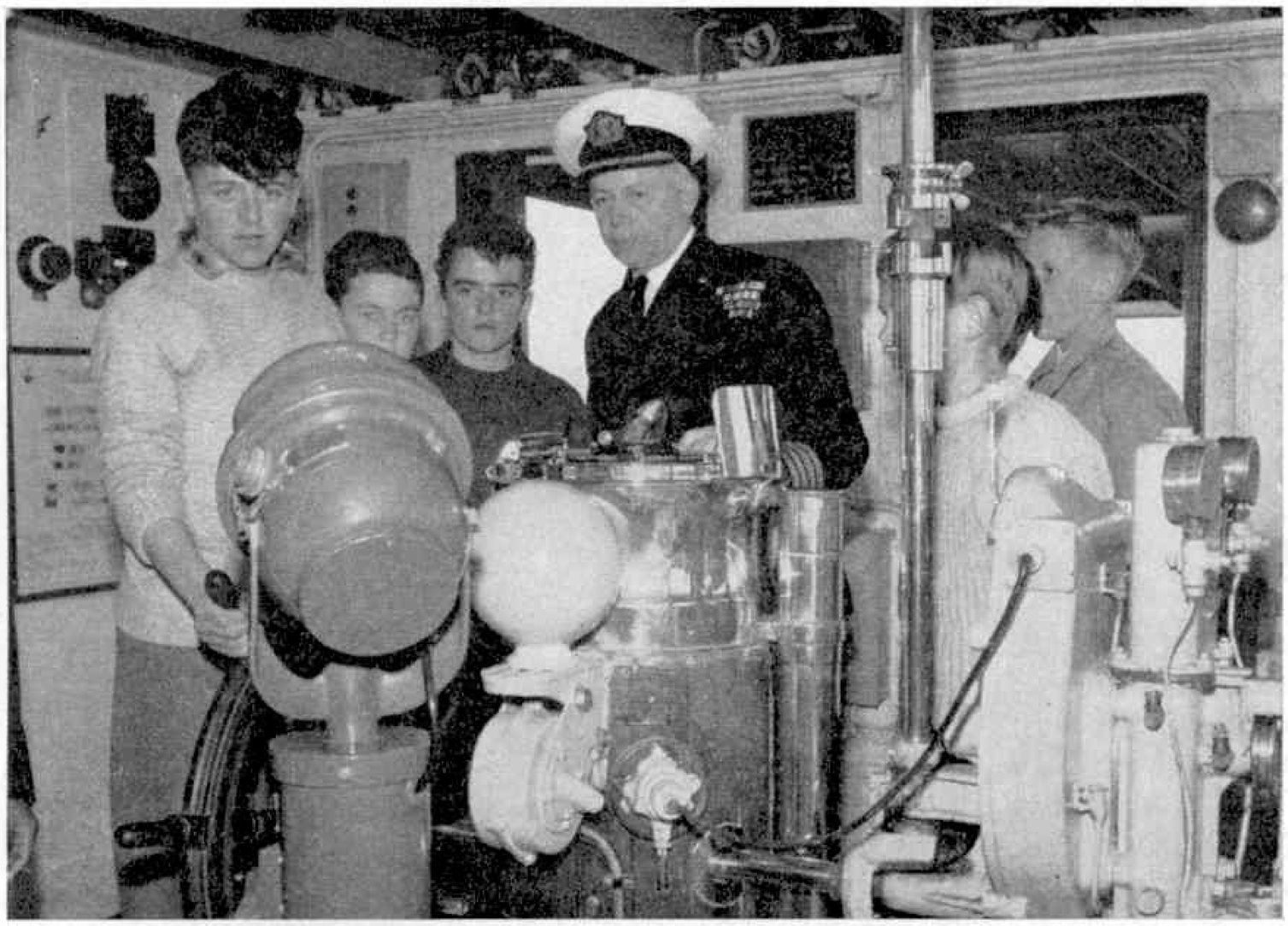
Already the Cygnet Films production team were getting their cameras, tape recorders, and mass of lighting equipment ready for shooting some of the interior shots. Many of the children have travelled 500 miles or more to join the ship and it seemed unfair to expect them to be filmed during their first evening afloat. And so, to give them time to settle in and get their sea legs, we drew up a plan to start filming the following morning. We chose the main Assembly Hall, for there, at the start of every cruise, all pupils are given a talk on orientation by the Director of Studies. A large-scale plan of the ship is shown to them so that they know where everything is, then the cruise itinerary is explained in detail. A talk, and film, on the next port of call follows so that everyone has essential knowledge of the habits and customs of the countries they will be visiting.

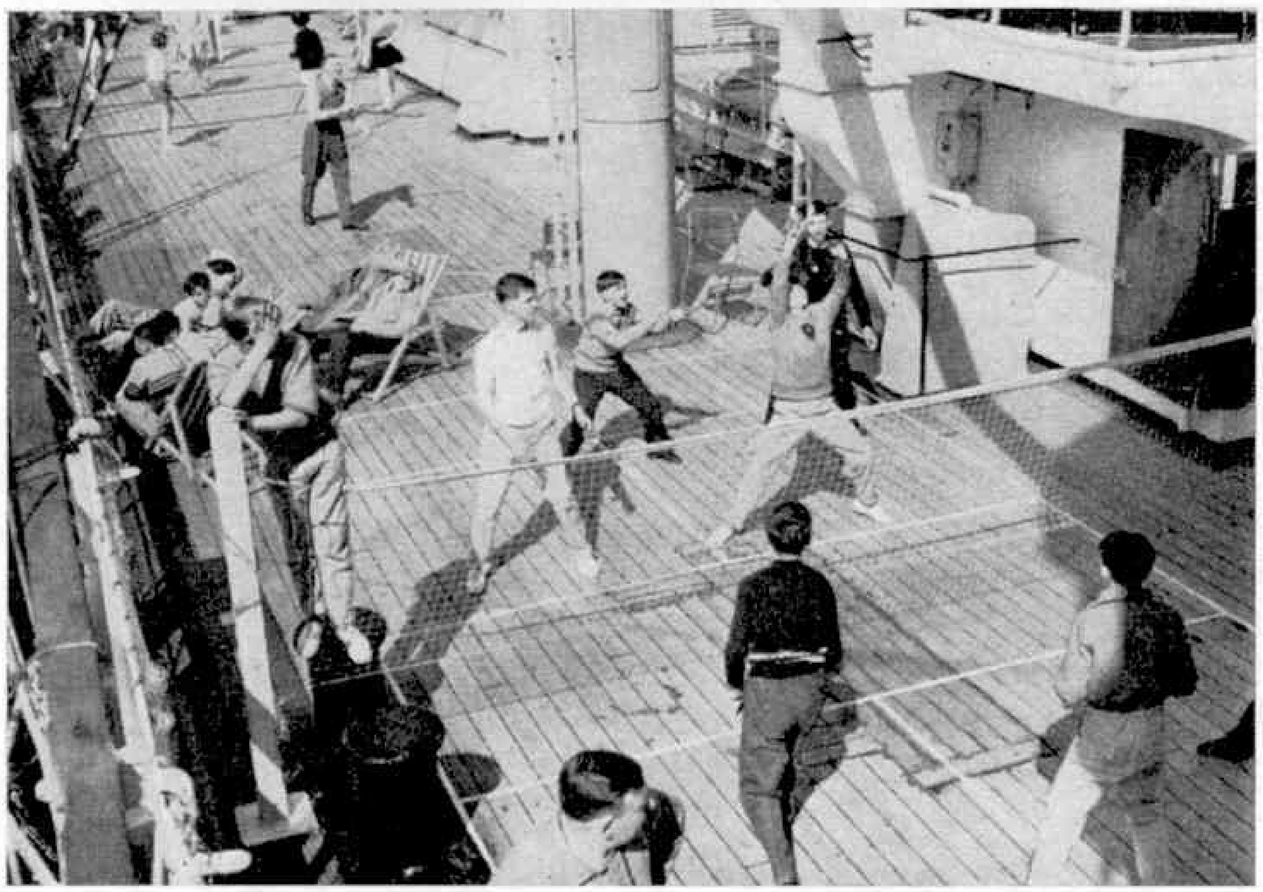
Filming large interiors in colour calls for a great deal of pre-planning, and lighting the set takes time. So, in those first few hours afloat, we had to work far into the night to get everything ready.

As scriptwriter, I had written in a screen-time of sixty seconds to cover this sequence. It took two hours to shoot, the following morning, before the director and cameraman were satisfied. By then, the ship had turned out of the English Channel at Ushant, off the western tip of France, and was heading on a south-westerly course, across the Bay of Biscay, for Spain. Every single porthole in the hall had been closed and covered with sheets of orange gelatine to provide a correct colour balance between our artificial lighting on the set and the daylight coming in from outside. The heat generated from the studio lights became almost unbearable, and the next location suggested itself—the swimming pool!

This provided plenty of action, as did the shots we filmed of the deck tennis, cricket, quoits, hockey, and boxing that were going on in other parts of the ship. While half the children were enjoying

The cruises operate throughout the year and 800 children are carried on each. They bring their own teachers and continue their studies afloat in the classrooms provided.





Above: During educational voyages, there are lessons in Navigation. Visits are made to the bridge — as this illustration shows— and to the engine room. Left: Educational cruises include facilities, aboard ship, for every type of sporting activity, deck tennis, quoits, hockey, cricket and boxing among them. There is even a heated swimming pool.

these sporting activities, the remainder were carrying on their school education afloat in the twelve classrooms. Charles Wolfe's poem on the burial of Sir John Moore at Corunna was being recited, as we filmed, during the history lesson. In a few hours, we would be seeing the spot where this rearguard action, claimed as one of the finest in British military history, took place and we would also see the tomb where Sir John Moore was buried.

We moved on to film a currency lecture in preparation for the visits ashore. At Gibraltar, English currency is used, so there could be no problems there, but in Spain the children would need to know all about Pesetas. They would require knowledge of Escudos in Portugal, and of French Francs at the final port of call in Brittany.

The more we filmed the more we learned ourselves, for, in another classroom, the Chief Officer was giving a lesson in navigation. On the bridge, the use of the sextant in fixing the ship's position was being explained. Then the Engineer came up to tell us that now would be a convenient time to film one of the visits to the engine room. The problems of filming in a ship were now beginning to make themselves felt. For instance, the bridge was a long way from the engine room and getting the equipment down there was anything but convenient. Having arrived there, it took some little time to set up the lighting. Great care was needed as this part of the script called for very precise detail. *Dunera* is a twin-screw motorship. Her two main engines are of the five-cylinder Doxford type and, with a bunker capacity of 706 tons of diesel oil, she has a steaming range of over 9,000 miles at her service speed of 14 knots. Usually, boys have the monopoly where technicalities are concerned; to provide contrast, we focused our camera in these sequences on the girls.

The next Summons was to Lifeboat Drill. This is held at intervals during each cruise and when you least expect it! Fortunately, our cameraman had just finished loading a fresh magazine and so he was up on deck, ready, within seconds. The line of lifebelted pupils at this particular muster station would have done justice to any Guards' Company awaiting inspection—or so it seemed. As the Staff Chief Officer walked along the row we soon learned that there is a right way and a wrong way of doing everything—especially when it comes to putting on lifebelts.

The next shot, although I had not written it into the script, was a high-angle view from the mast head fo'rard. There was one way, and one way only, of getting up there—in a wicker basket on the end of a rope! I was thankful I was a scriptwriter, and not a cameraman. He looked a lonely figure as he spun round and round in the slipstream at the top. How he ever managed to film under such conditions I will never know, but film he did, and he obtained some excellent shots. These bird's eye views as we sailed along managed to capture the spirit of the ship, and the activity on board, in a way that would have been impossible by any other means except, perhaps, by filming from a helicopter. They provided a highlight to the film.

At each port, coaches were waiting to take the 800 children on organised shore excursions. The cost is included in the cruise fare and so the money they take with them can be spent in buying presents and souvenirs to take home. As we wanted to film *Dunera's* arrival at Corunna we were picked up by a launch, manned by two charming Spaniards, some distance outside the harbour entrance, and taken on ahead. As *Dunera* arrived at the quay it seemed as if the whole town had turned out to welcome the young ambassadors from England.

After the organised excursion to the places of historical and geographical interest, the children were allowed to explore on their own, and they did so in groups, under their Party Leaders. Some went shopping, some bathed. All made for shops selling picture postcards to send home.

While they were occupied in this way we sought co-operation from one of the pavement cafés and asked the waiter to bring out 24 Coca Colas; then we hijacked an equal number of *Dunera* pupils to walk into the picture and sit at the tables. Most of the townspeople wanted to get in on the act, as well. It was all good fun, though, and so we struck a compromise and agreed to film a hundred of the "locals" in a crowd scene as our pupils walked through one of the shopping centres towards the camera.

After a display of Galician Folk Dancing, put on specially for *Dunera* at

(*Continued on page 317*)

SPECIAL JOB FOR THE NEW

HORNBY GOODS SET

A Scheme For Industrial Train Working

THE introduction of the new Hornby Electric Tank Goods Set, based on an 0–4–0 Tank Locomotive to haul two open wagons and a short guard's van opens up a completely new aspect in model railway layout and operation. An example of this is provided by my own L.N.E.R. (Longdon, Newborough & Easthyde Railway) Hornby-Dublo layout, into which

By S. F. PAGE

one of these sets has been introduced for industrial working in conjunction with the branch line working.

When a paper mill on the layout started planning considerable modernisation and extensions. these developments called for sidings to serve both incoming materials and the dispatch of products.

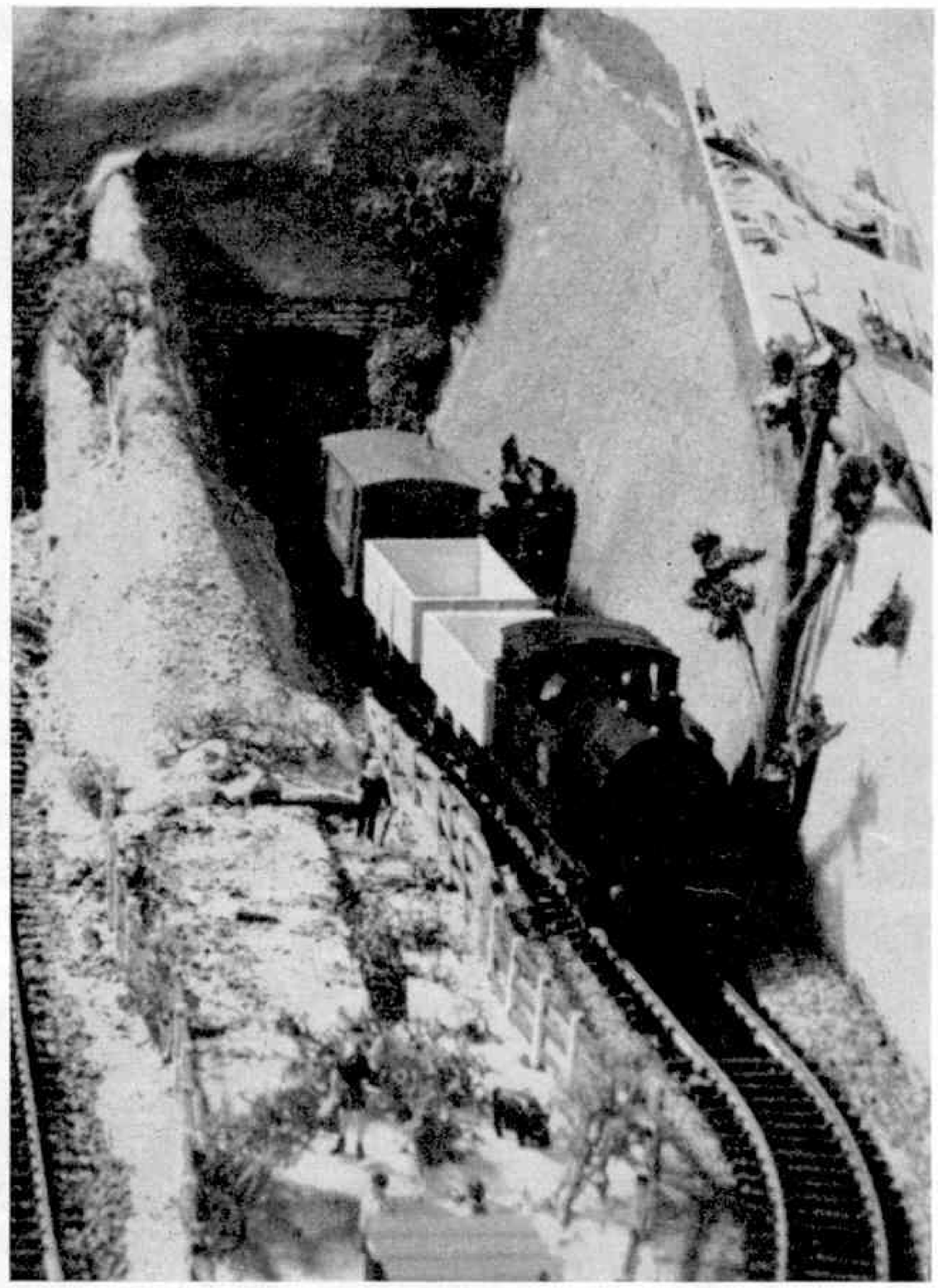
On a model layout, a paper mill constitutes an unusual lineside factory, but the industry is one which admits a wide range of railway traffic operation so that much interest is added to the layout.

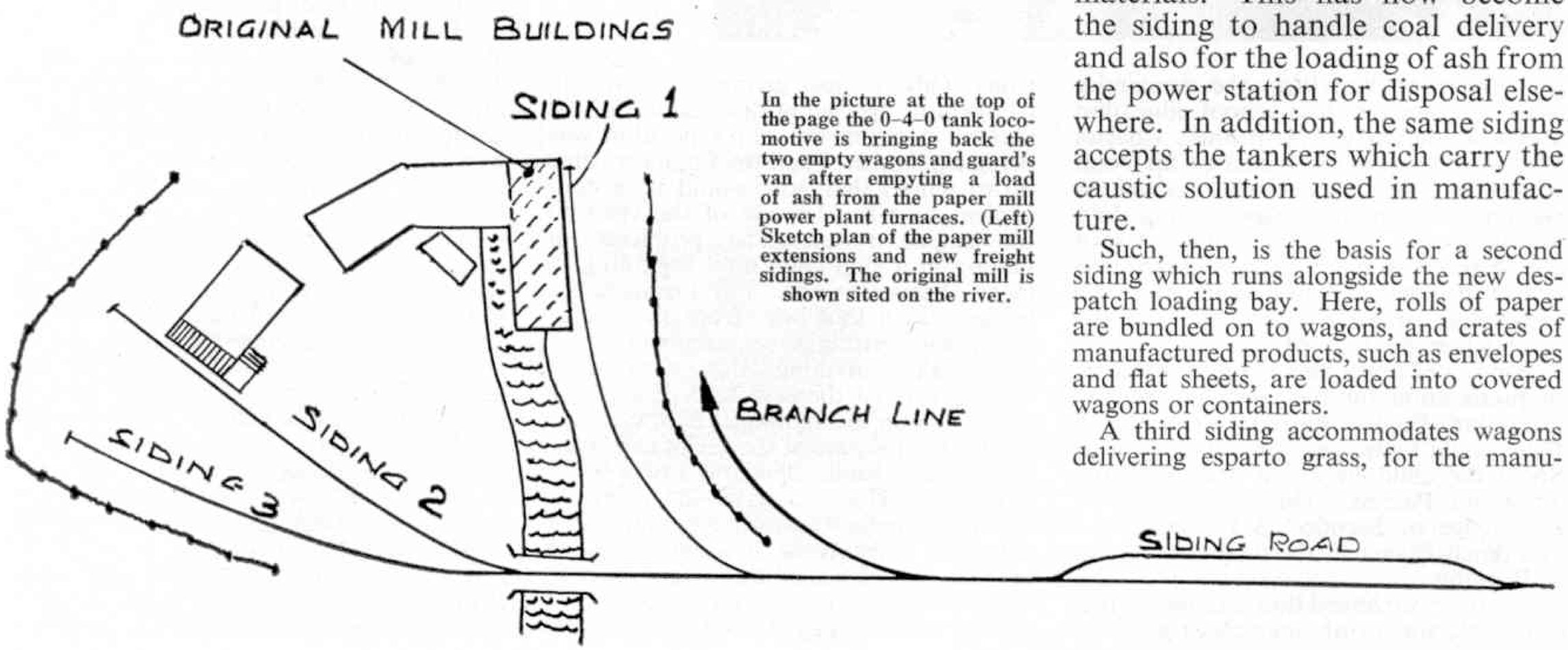
Water is essential in the manufacture of paper, so that original mill buildings are sited on the bank of a river, and raw materials, as well as coal, are delivered by barge. Not far from the mill is a well-used branch line, and planning of the new industrial track and sidings was guided by giving access to this branch line.

Before the new power station and factory buildings were started a siding was laid in to bring building materials. This has now become the siding to handle coal delivery and also for the loading of ash from the power station for disposal elsewhere. In addition, the same siding accepts the tankers which carry the caustic solution used in manufacture.

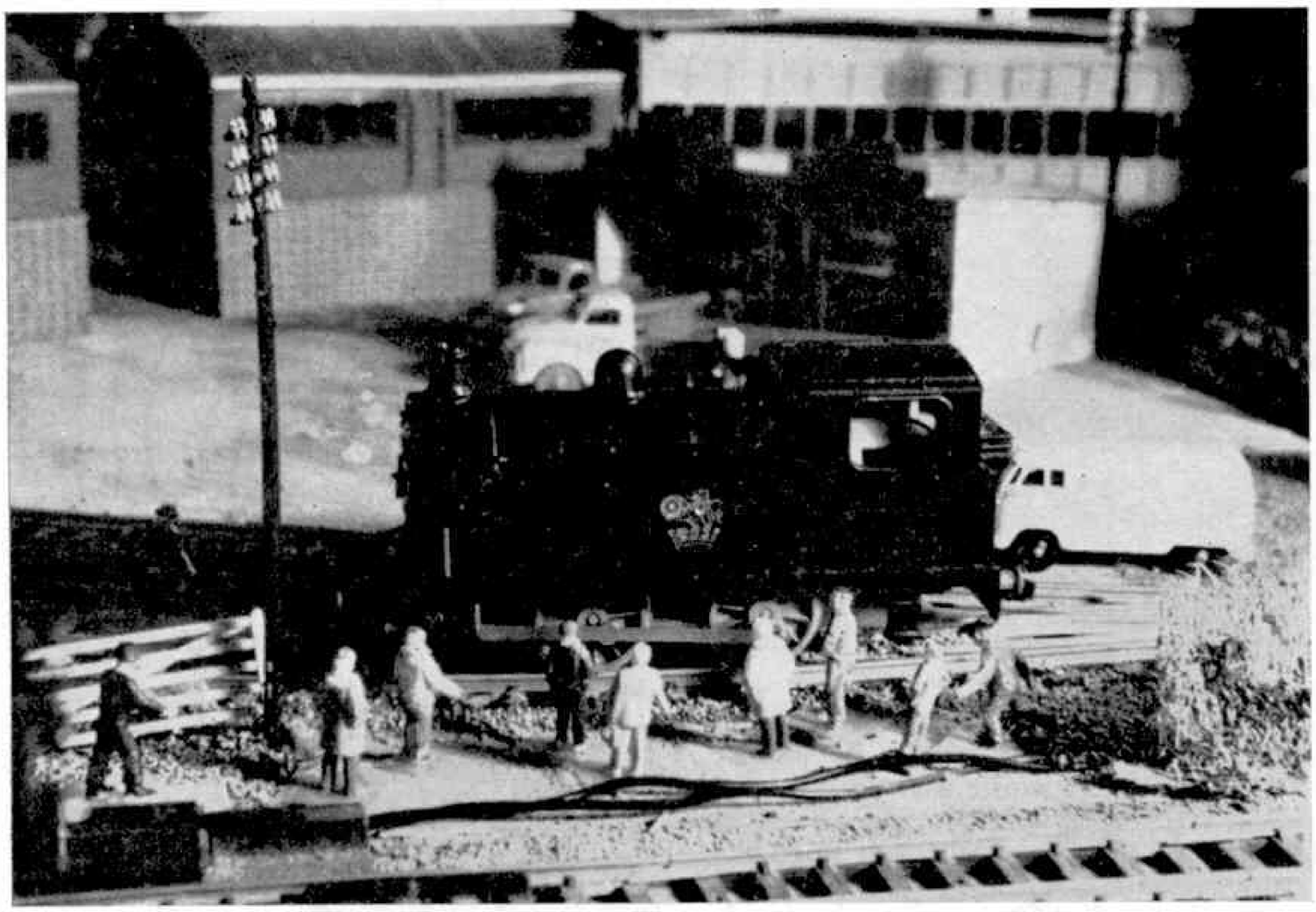
Such, then, is the basis for a second siding which runs alongside the new despatch loading bay. Here, rolls of paper are bundled on to wagons, and crates of manufactured products, such as envelopes and flat sheets, are loaded into covered wagons or containers.

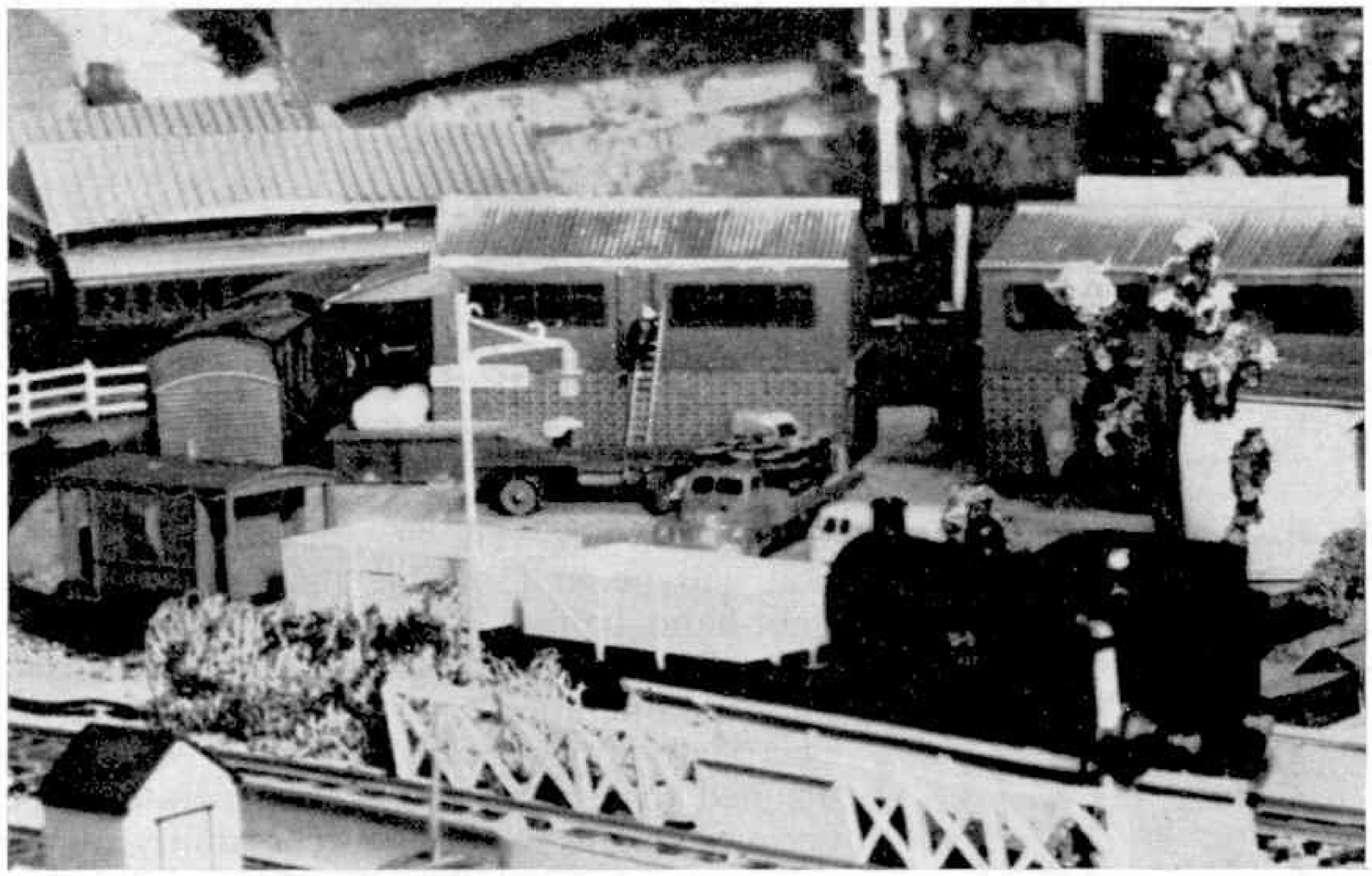
A third siding accommodates wagons delivering esparto grass, for the manu-

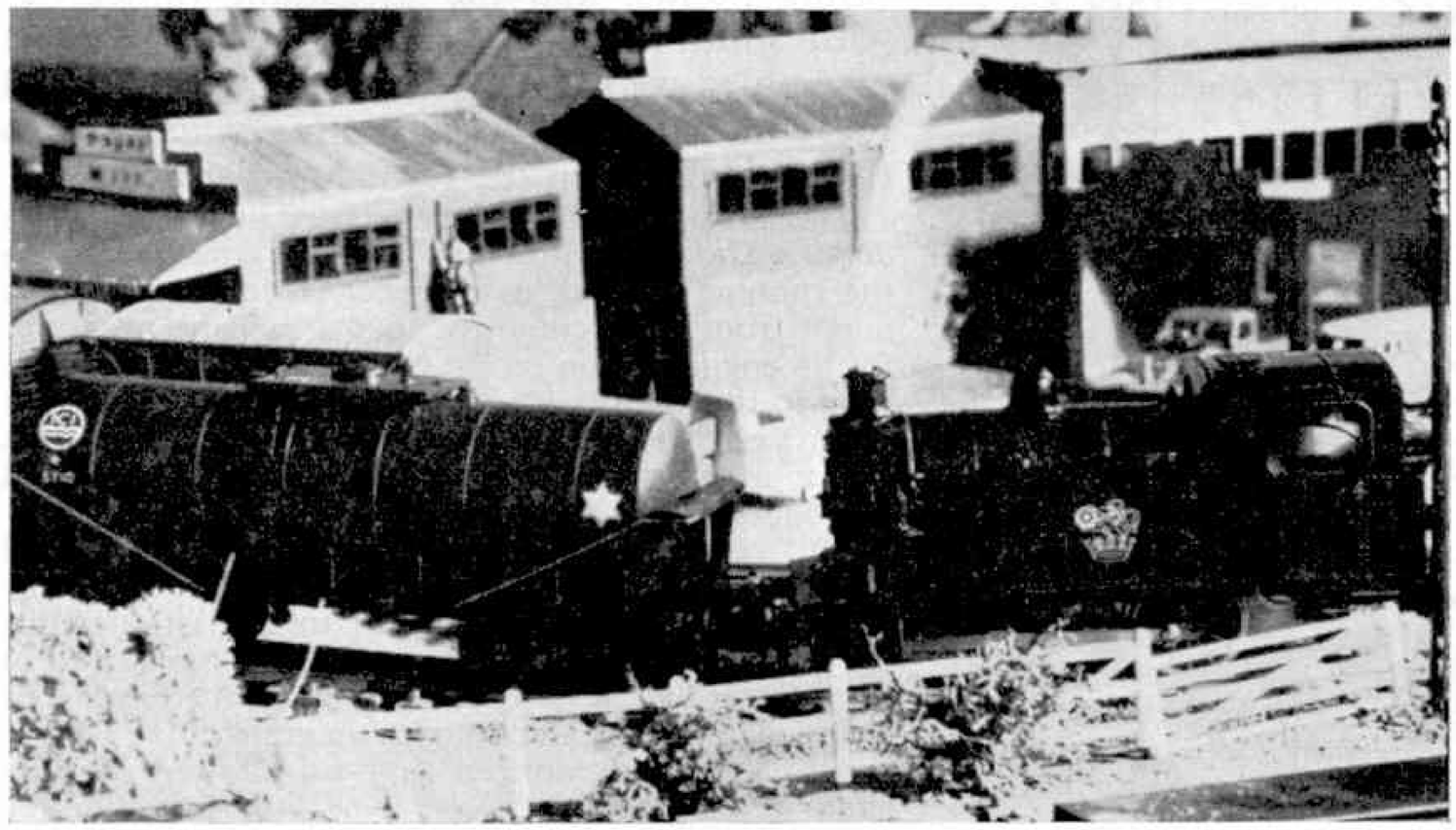




In the picture at the top of the page the 0–4–0 tank locomotive is bringing back the two empty wagons and guard's van after empyting a load of ash from the paper mill power plant furnaces. (Left) Sketch plan of the paper mill extensions and new freight sidings. The original mill is shown sited on the river.







Top (left) Delivery of the new 0–4–0 tank locomotive for work in the private sidings of the paper mill attracted considerable attention by those interested in engines. (Centre) Activity in the yard of the busy Canal Wharf Paper Mills of the author's Longdon, Newborough and Easthyde Railway layout. The 0–4–0 tank locomotive brings in empty open wagons to Siding number 3. (Bottom) The 0–4–0 tank engine shunts in a full bogie tank on Siding number 3 to the storage tanks which adjoin this siding.

facture of paper, to the overhead equipment which takes the grass into storage. The layout is seen in the attached drawing.

Such a simple track layout opens up great possibilities for correct working based on industrial practice, the 0–4–0 tank locomotive taking care of all wagon movements over the whole siding area. The sidings are electrically insulated from the main layout, and operations are controlled by the Hornby I Power Unit supplied with the train set.

Now let us look at a part of the normal series of operations, which naturally differ from day to day. Esparto grass is brought in wagons by normal locomotives and the wagons are left in the siding road of the branch line. From here, the 0–4–0 Tank Engine shunts them into number 3 siding for unloading. The locomotive then collects loaded wagons from number 2 siding and shunts them to the siding road, waiting there for a train of empty covered wagons. Those for the mill are detached, those standing in the siding road are attached, and the train moves away, leaving the tank engine to shunt the empties into number 2 siding.

Once the open wagons in siding 3 are emptied they must be moved to siding 1 for the collection of ash from the power house. These filled wagons are attached to the guards van and drawn out to a distant siding where the ash can be emptied.

Such operations are extended to regular deliveries of caustic solution in the Tankers (No. 4685) and coal supplies are delivered at regular intervals in Open Wagons (No. 4635).

This application of the new No. 2001 Hornby Electric Tank Goods Set is only one of a series of industrial uses to which it can be put on an existing layout, and no matter how that layout may be arranged, this set will aid definite freight operations and make the whole scheme much more interesting.

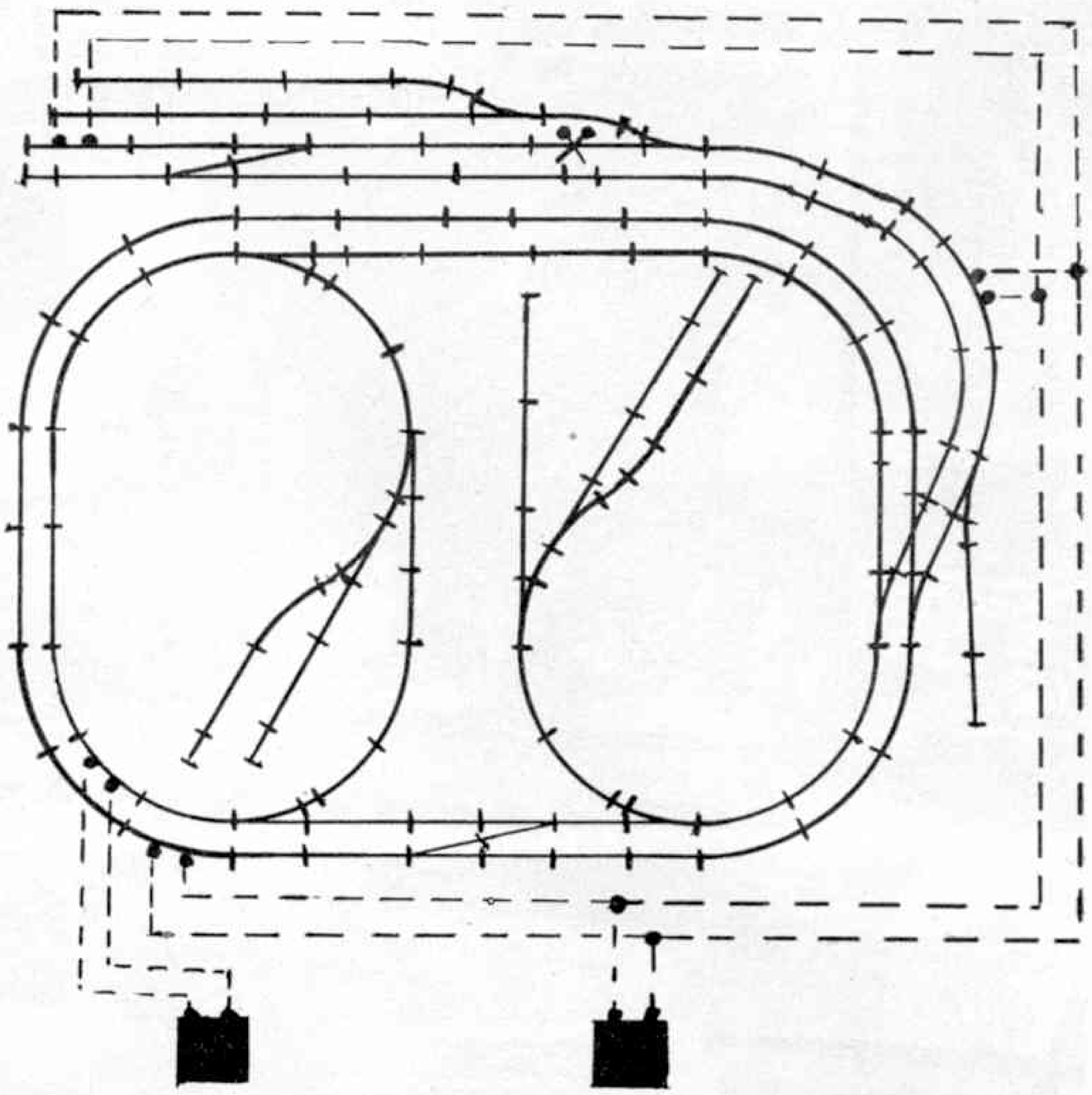
An entirely different working is used in the sidings of my timber mill. This will be described and illustrated in a future issue of the *M.M.*

THE BRITISH LOCOMOTIVE SHED DIRECTORY

(Ian Allan, price 3/6)

The usual annual addition of information has been packed into this useful handbook. The exact whereabouts of every main line locomotive shed and depot in Great Britain is included, thereby making it an invaluable work for the locospotter. A most recommendable publication once again.

Building Up A Two-Rail Scheme In Hornby-Dublo



IN last month's issue of the *Meccano Magazine* I explained the method used to enlarge a basic train set to the relatively simple plan which illustrated the article.

Now I want to show you how to extend the scheme shown last month into the ambitious system outlined in the two sketches on this page.

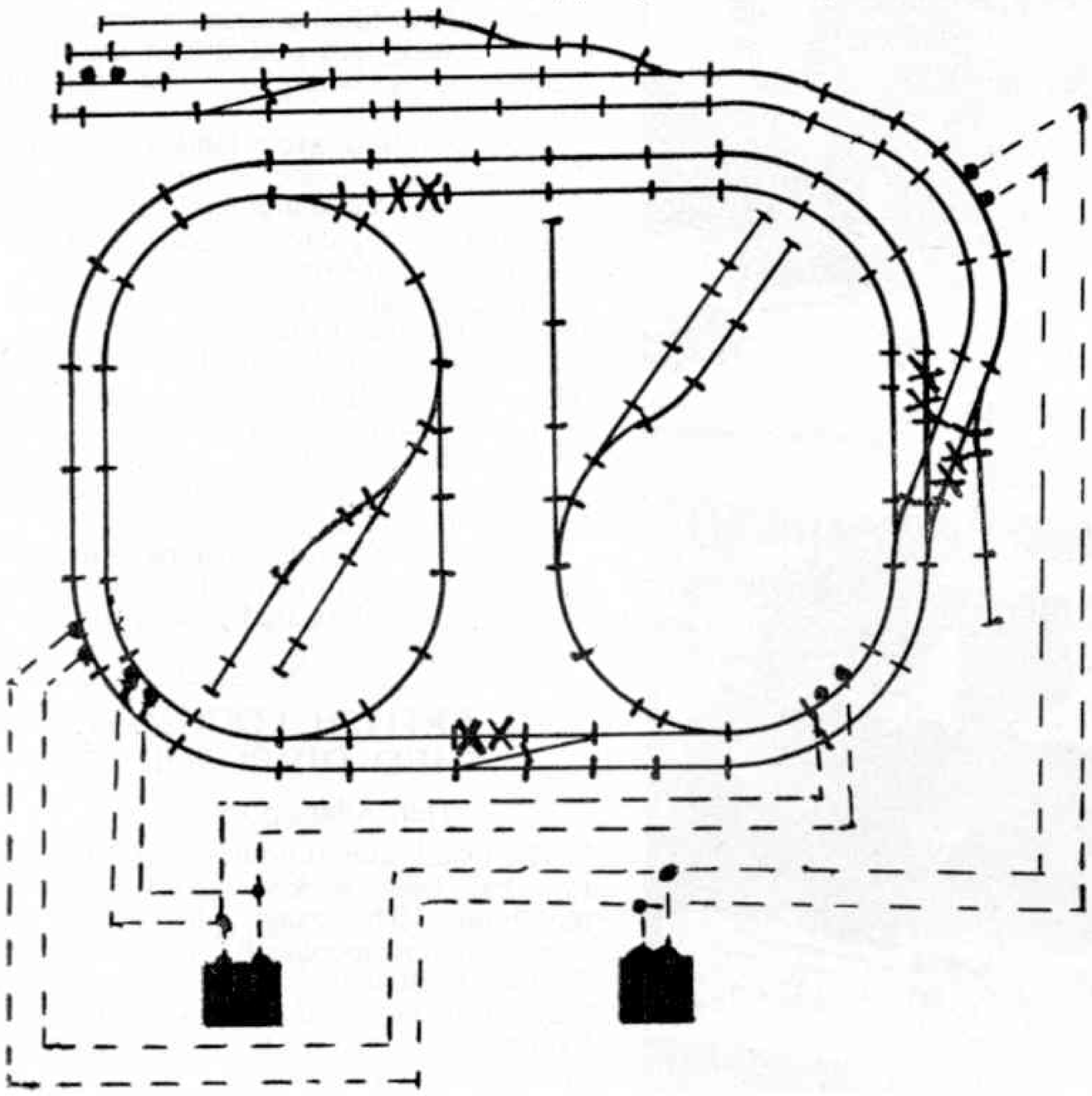
It will be noticed that the sketches are alike, except for the wiring systems, which are

By "LINESMAN"

different in this respect—the top diagram illustrates the wiring diagram as used for Hornby Simplec Points; the lower one that required for live-frog Points.

Let us begin systematically from inside the oval, building onwards until we eventually reach the Terminus shown in the upper portion

FROM THE TRAIN SET ONWARDS



of the drawings. The first phase of construction will be to assemble the sidings in the right-hand half of the inside oval from the parts shown in the diagram. The Points used for this operation may be either hand or electrically operated, although I would be inclined to use the electrically operated type because of the relative inaccessability of the siding points, and the attendant difficulties with shunting. Once the sidings have been assembled we will be able to run trains round the entire inside oval, shunting wagons into the goods yard in the right-hand sidings.

The left-hand sidings may be used as a locomotive depot. The position of this will add considerably to the running interest, as in order to reach the goods depot from the locomotive shed it will be necessary for an engine to run out, reverse and travel down the loop to the main line, where it is once again reversed to proceed to the throat of the goods yard sidings where a train may be shunted and formed, and subsequently run to the terminus.

This construction work completes the inside oval track, so our next step is to build the outside oval. For this it will be necessary for us to use large radius curves. First of all, however, a pair of Points to form a crossover will have to be inserted on the lower half of the plan as indicated in both diagrams.

You may have noticed that we allowed for this later development in plan No. 3 in last month's

ITEMS REQUIRED

The parts list given below covers this month's scheme as built with Simplec Points. If electrically operated points are used No. 1613 switches for operating the points will also be required.

Right-Hand Sidings

3 Right-Hand Points	
2 Curved Rails	2710
2 Curved Quarter Rails ..	2712
4 Straight Rails Two-Thirds..	2702
2 Curved Half Rails	2711
4 Straight Rails	2701

Outside Oval

2 Left-Hand Points	
2 Right-Hand Points	
1 Right-Hand Diamond Crossing	2734
11 Curved Rails, Large Radius	2719
1 Terminal Rail, Large Radius	2720
7 Straight Rails, Two-Thirds	2702
6 Straight Rails	2701

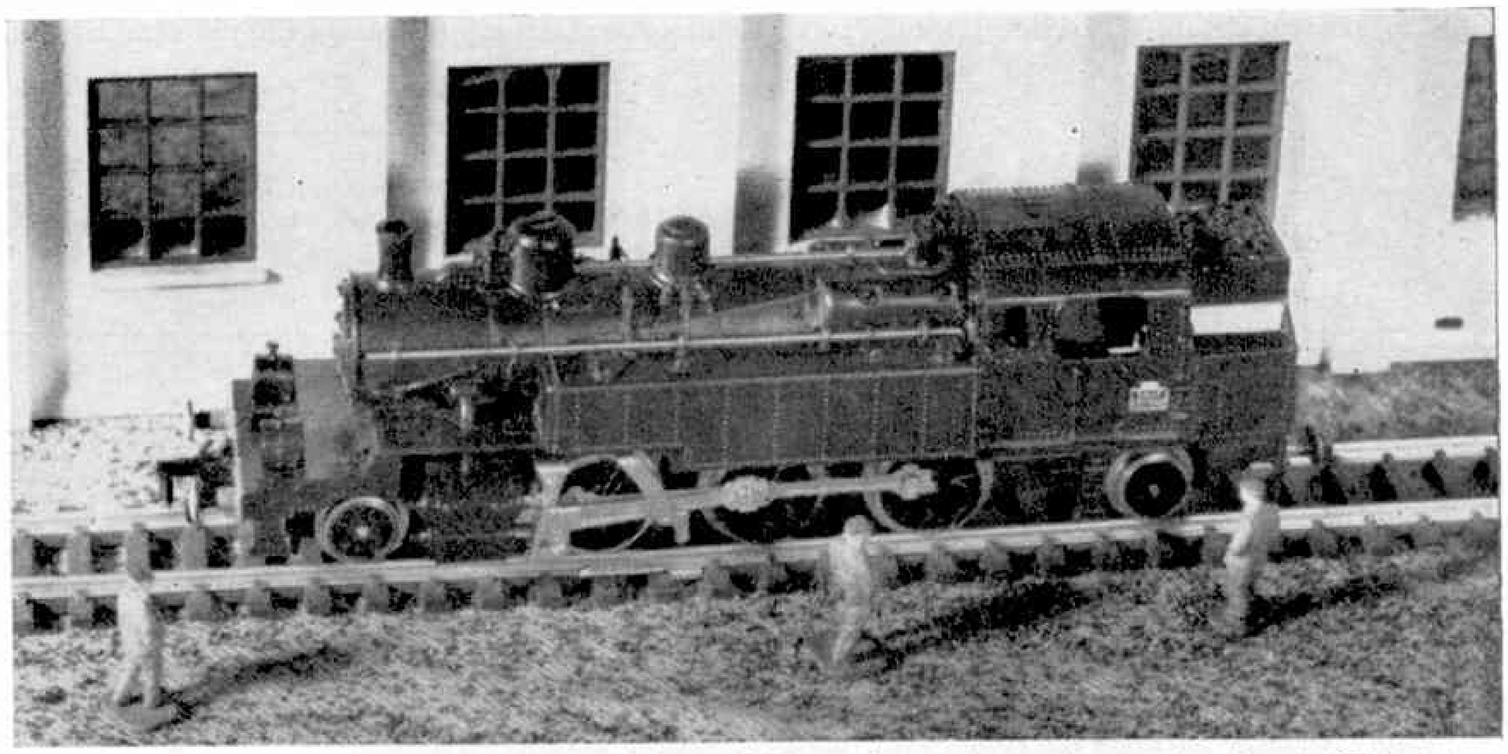
Terminal Station and Approaches

3 Left-Hand Points	
2 Right-Hand Points	
2 Curved Rails, Large Radius	2720
3 Curved Rails	2710
3 Curved Half Rails	2711
1 Curved Half Rail, Large Radius	2722
2 Curved Quarter Rails ..	2712
4 Straight Rails, Two-Thirds..	2702
15 Straight Rails	2701
3 Straight Rails, One-Third ..	2703
2 Curved Rails, Large Radius	2719

notes. There is, about half-way along the bottom part of the oval, one No. 2702 Straight Two-Thirds Rail almost opposite the Point on the outside oval, in the correct positions, in fact, for the two Points that are to form the crossover. As described above, all that is required therefore is to remove the Straight Two-Thirds Rail and replace it with a Left-Hand Point. The remainder of the outside oval may be assembled as shown in our diagram. This ends phase two, thus allowing two trains to be run continuously, irrespective of which wiring system is employed.

At this point, a halt may be called to enable sufficient funds to be accumulated before the work on stage three commences. A little scenery may be built around the existing portions of the layout and at a later date we shall be giving some notes on scenery for the benefit of beginners. You can have a station on the left-hand side of the double oval. It will obviously be a through station, and as mentioned previously the two sidings opposite to it can be made into a locomotive depot.

At the back of the through station a street consisting of half-relief buildings, which will include shops and houses, may be built to add to the scenic effect. Such buildings are obtainable from most model shops at very reasonable prices or it may be that if you are artistically inclined you can create your own background.



"Linesman's" scheme this month includes sidings which can be used as a locomotive depot. This picture shows how the Hornby-Dublo Engine Shed Kit (Two-Road) No. 5005 can be used in this context. The Locomotive which is attracting so much attention from the railwaymen is the HOrnby acHO No. 636 Tank.

The terminal station shown at the top of the diagram is the last stage in the growth of the trackwork. This is assembled as shown in our diagram and wired according to the type of Points being used. The list of parts required for the terminal is shown separately, as are those for the right-hand sidings and outside oval.

Train working may now begin with the added advantage of the terminal station, as this can form a starting point for all operations on the layout.

At the lower left-hand corner of the layout could be another street—at right angles to the road running past the station —which could eventually lead, by way of a road bridge over the track, to the locomotive sheds. Perhaps when we begin our articles on scenic effects we may be able to show you how to treat this section of the layout in such a way as to obtain a natural, everyday effect.

NEW BOOKS FOR RAILWAY ENTHUSIASTS

Railway Picture Gallery by John Adams and P. B. Whitehouse (Ian Allan, 25/–) is a splendid selection of photographic reproductions of railway scenes, and trains at rest and in motion. Some of the pictures are old, some up-to-date, but all capture the spirit of the railway in the era of steam traction. Electrification, with its pattern of overhead wires, just finds a place but the Diesel is entirely absent! Here will be found locomotives ranging from the Talyllyn 0–4–0 Tanks to Super D's, Pacifics in France and Britain, and a superb "Royal Scot" which one can almost hear! There are many more besides, and we recommend this book to all our railway-minded readers, especially those whose interest extends beyond the realm of motive power.

* * * *

In **Model Railways, 1838–1939** (George Allen & Unwin, 25/–), the author, Hamilton Ellis, writes in his engaging style an account of the model railway hobby from its earliest beginnings to 1939. Miniature locomotives, if not miniature railways, have existed for practically as long as real railways have, but not for many years after the building of various early and relatively crude models were miniature railway products manufactured on a scale that put them within reach of the average purchaser.

Much of the progress towards more realistic models was due to the pioneering efforts of various firms and individuals and in the earlier years of this century, up to the 1914 war, some quite remarkable developments took place. Those were the days of railways to larger scales than are common now, but since the early 1920's a general movement in favour of smaller scales, and improved techniques, has resulted in the complete and comprehensive developments with which we have been familiar since World War II.

Quite clearly, a good deal of research has gone into the preparation of the book, which gives us an intriguing account of the models, both hand-made and manufactured, that pleased the enthusiasts of days gone by. Many of those shown in the illustrations and referred to in the text rank as collectors' pieces.

* * * *

The Railway Book by John F. Anderson (Museum Press, 12/6) fills a long-felt need for a fairly comprehensive study of the civil engineering aspect of British Railways. Written in non-technical language it is ideally suited to the younger enthusiast. It explains the various processes and different types of equipment, and clarifies the more complicated issues, such as signalling systems.

The book is illustrated throughout with line sketches. Each chapter is sub-divided into paragraphs, each paragraph bearing the heading of one particular item of railway engineering, and thus a ready-reference system is available to the reader, making the book a source of knowledge invaluable to the enthusiastic youngster.

WITH THE SECRETARY

Club and Branch News

CLUB NOTES

WELLINGTON SECONDARY MODERN SCHOOL (BURY) M.C. — Accumulated funds have enabled the Club to purchase several Meccano No. 1A Accessory Outfits, and they were immediately in great demand. Some excellent model-building is being carried out. The Secretary and Raymond Chadwick, the Treasurer, using Mr. Kempster's large Meccano Outfit, have built the helicopter model from Book 5, and have added a motor to the model. It was shown to Mr. Barrett, the Headmaster, who was very pleased with it. Another Meccano model built by the members, which has aroused much interest, is that of the Go-Kart illustrated in the *M.M.* of April this year. *Secretary:* Mr. Barry Senior, 53 Woodman Drive, Bury, Lancs.

AUSTRALIA

MAYLANDS M.C.—Good progress was made by the respective groups with their model-building for the Factions Exhibition referred to in last month's report. The Black and Gold group, however, changed their subject to a miniature reproduction of the Alcoa bauxite refinery now being built at Kwinana. The Mount Lawley Rotary Club has sponsored the Maylands M.C. Puppet project by guaranteeing payment of an instructor for ten weeks, and the Club have been fortunate enough to secure the services of Mr. Madigan, of the Arts and Crafts Department of the local Education Department.

During the Easter break the Club had their first cycle run of the year. Twenty members took part, several of them having to cycle several miles before the event. The party rode to Sorrento Beach. *Secretary:* Mr. Trevor Criddle, 17 Kenilworth Street, Maylands, Western Australia.

NEW ZEALAND

CHRISTCHURCH M.C. — The model-building competitions have been resulting in some outstanding models, and the standard of construction continues to be very high. Bulldozers, trucks, dragline excavators, and front-scoop loaders were among the models built for an *Earth Moving Machine* competition, and at the next meeting an interesting talk on machines of this type was given. In mid-March members were busy with their models for the Club display at the Riccarton High School Fair, when they put on a very successful display of working models which attracted much attention. A Hornby layout was also featured.

The Club display at the Addington School Fair about a fortnight later was, if anything, even more successful. This display had rather a military air about it, as the subject of the Club model-building competition the evening before was *Army Models*, excluding trucks, and the excellent array of models built for it was incorporated in the Addington School display. This Fair also included models by members of the school, and other hobbies were represented, one being models of vintage cars. There was also a Hornby layout. *Secretary:* Mr. Peter Satterthwaite, 7 Hina Street, Riccarton, Christchurch 4.

ST. JOHN'S M.C.—Members have been busy building models for a competition which calls for models of a detailed character. At one meeting a game of Rugby League football was played between the Sprockets and Washers sections, and after a close game the Sprockets won by 20 to 19. *Secretary:* Mr. M. J. Salinger, 8 Maheno Street, Dunedin, New Zealand.

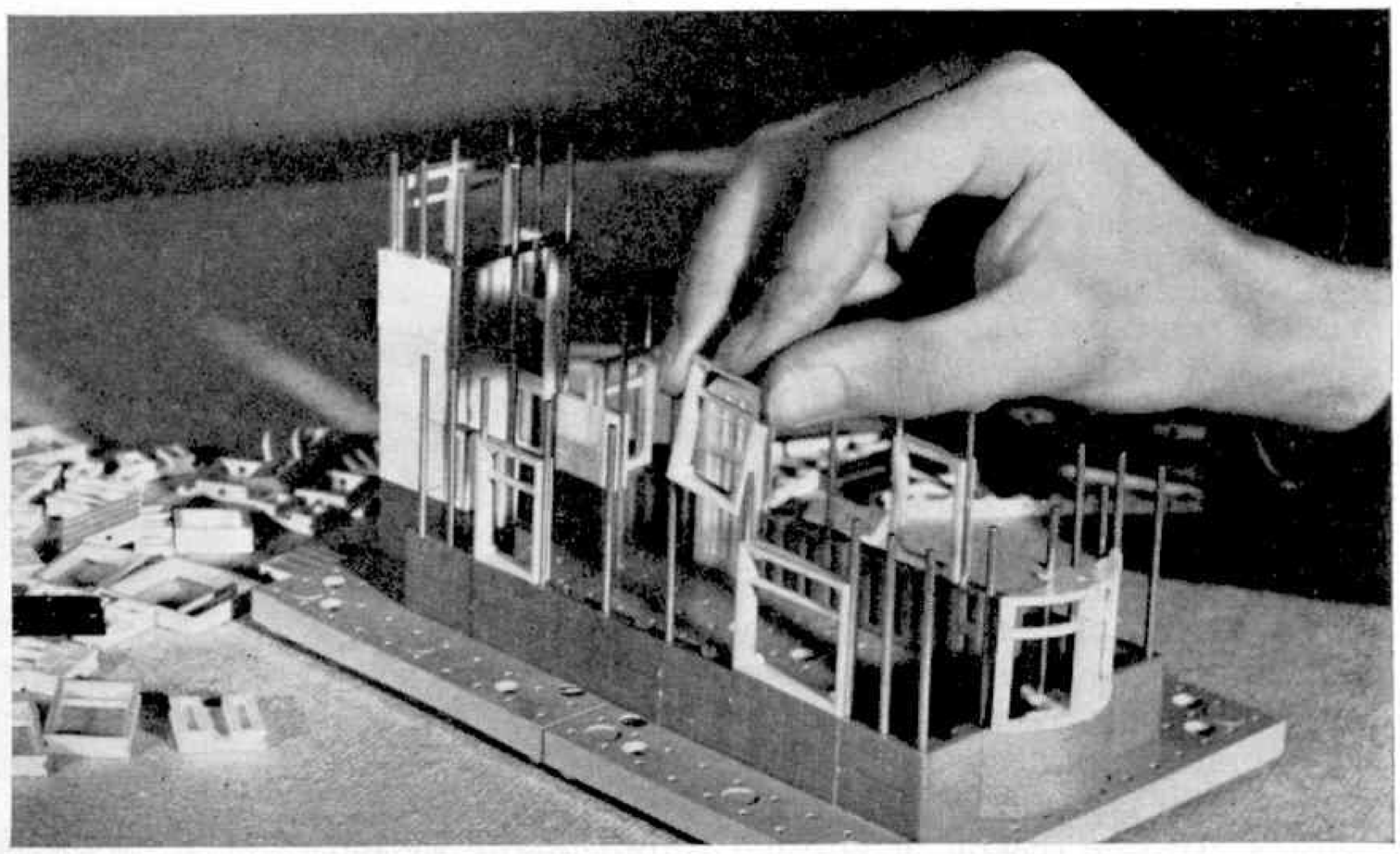
Enthusiastic members of the Wellington Secondary Modern School (Bury) Meccano Club enjoying an after-school session of Meccano model-building, under the friendly guidance of Mr. J. A. Kempster, the Leader. The girls are just as keen as the boys. Illustrations by courtesy of Tillotsons Newspapers Ltd., Bolton.

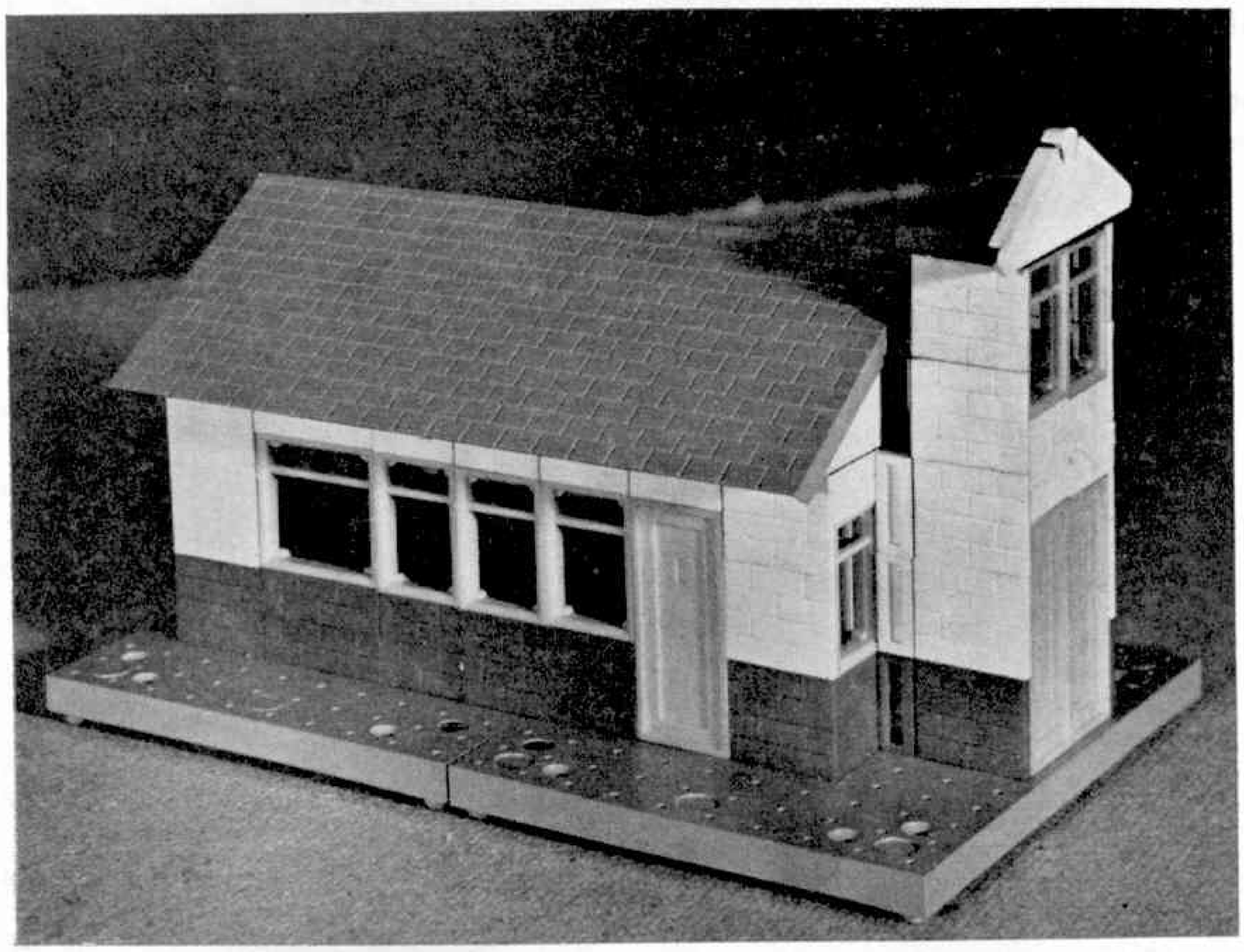
BEGINNING THIS MONTH

A New Series For The Bayko Builder

By

"ARCHITECT"

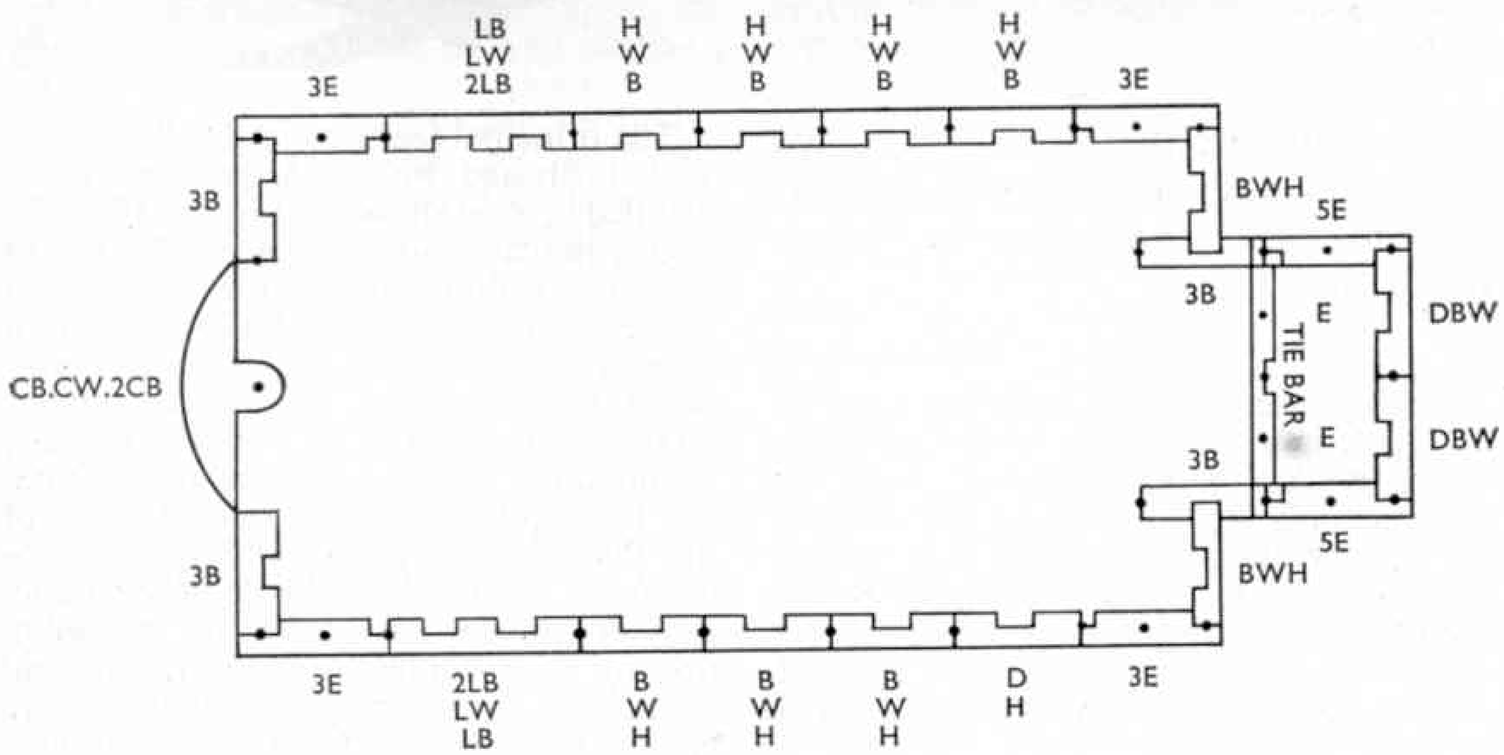




THE Editor has received many requests for notes on building with Bayko to be included in the *Meccano Magazine*, and has asked me to write what will, I hope, develop into a series of articles on this fascinating instructive hobby. I must add that this is something of an experiment, and I should be glad to have readers' views about it.

A building for which there are many inquiries is a church which can be constructed from Bayko, and I thought there could not be a more suitable building with which to begin this new section.

The building shown here is the modern, prefabricated type of church, and it can be built with outfit No. 13. The building plan, familiar to all Bayko modellers, is shown at the foot of the page. In the picture at the top, the builder is sliding a window into position between the appropriate rods. Notice the tie-bar, at the top of the tower, which holds the top layer of bricks in position. The completed church is shown in our second photograph.



PARTS REQUIRED

Description	*No. Required*
Bases, Grey	2
Roofs Type C	2
Roof End Type A	1
Roof Ends Type C	2
End Bricks, Red	8
End Bricks, White	16
Bricks, Red	15
Bricks, White	10
Half Bricks, White	12
Long Bricks, Red	4
Long Bricks, White	2
Doors, Yellow	3
Windows, Yellow	13
Large Windows, Yellow	2
Canopy	1
No. 3 Brick Rods	25
No. 5 Brick Rods	10
Base Links	2
Screws	4
Corner Ties	6
Tie Bars, Straight	8

Old Locomotives Built In Meccano

SINCE the early years of the last century, when the Stockton and Darlington Railway, the first public railway to adopt steam traction, was opened in 1825, and the famous Stephenson engine *Locomotion No. 1* was running over its tracks, the story of the locomotive and its development has been one of absorbing interest. Countless different types have been built, some successful—some failures, for one reason or another—until finally we have arrived at the tremendously powerful electric and diesel-operated locomotives of today.

Sadly, the day of the steam locomotive now seems to be nearing its end in many parts of the world, and the electric and diesel giants of today are taking its place, but as subjects for Meccano model-builders, the steam locomotives are still as popular as ever.

The accompanying illustrations show how wide a field locomotive modelling provides for the keen

By "SPANNER"

Meccanoite who has a fairly large and varied stock of Meccano Parts at his disposal.

Some of the earliest locomotives, such as *Locomotion No. 1*. Stephenson's famous *Rocket* and the *Sanspareil*, built by Timothy Hackworth, are relatively easy to build and it is surprising how realistic the results can be and how much scope there is for individual methods of construction in reproducing the same prototype. In Figs. 1 and 2 for example, you see two models of Stephenson's *Rocket*—probably the most famous locomotive ever built. They are completely different in style, yet both are readily recognisable for what they are. The triumph of the *Rocket* in the historic Rainhill Trials of 1829 assured the future of steam power for rail transport. The *Rocket* was in principle the ancestor of the steam locomotive that we know today, even though its general outline now appears to be much more elementary.

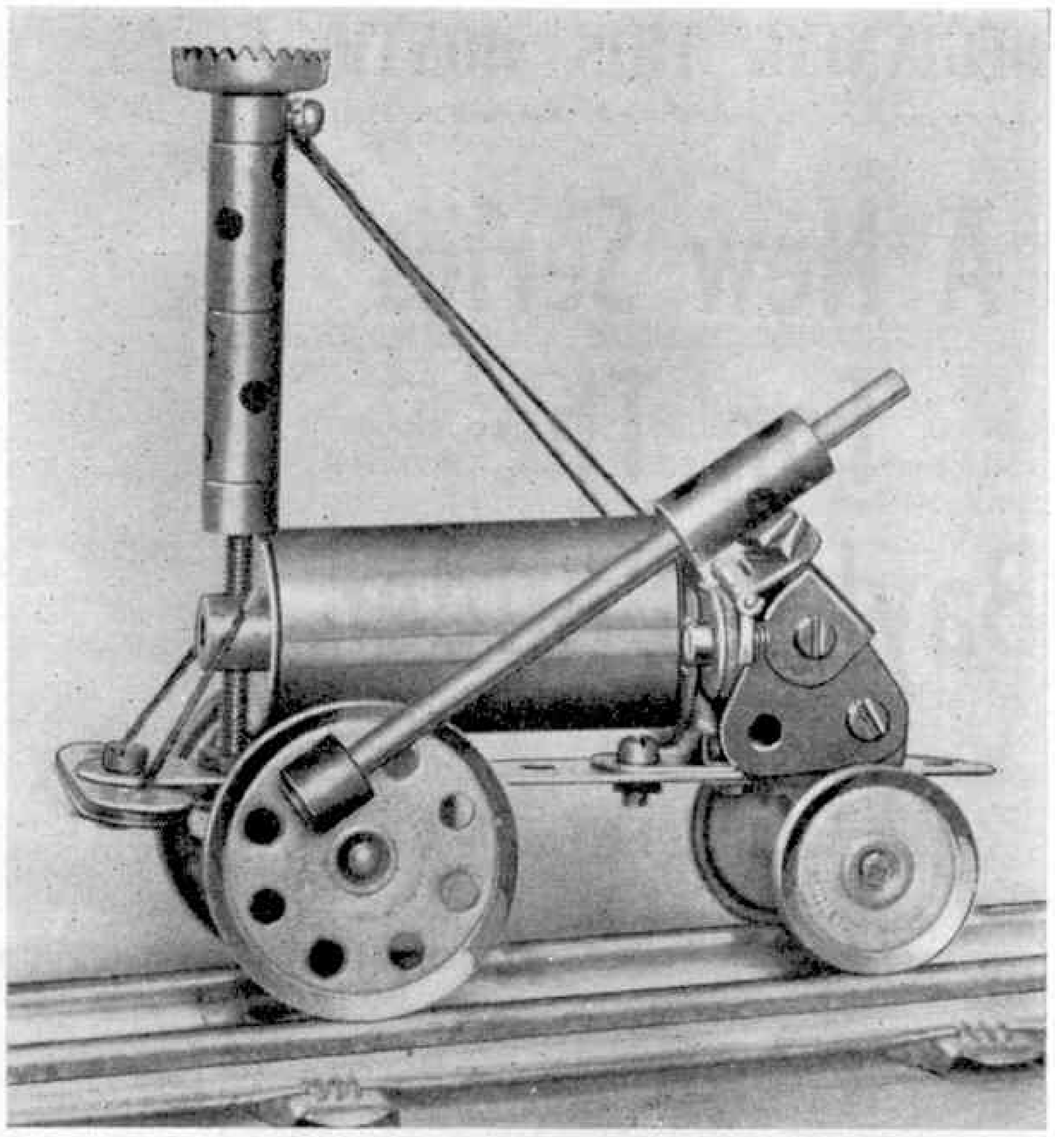


Fig. 1 (Top). This remarkable likeness of Stephenson's famous locomotive "Rocket" was built from a very few parts by T. L. Gardner of Trowbridge.

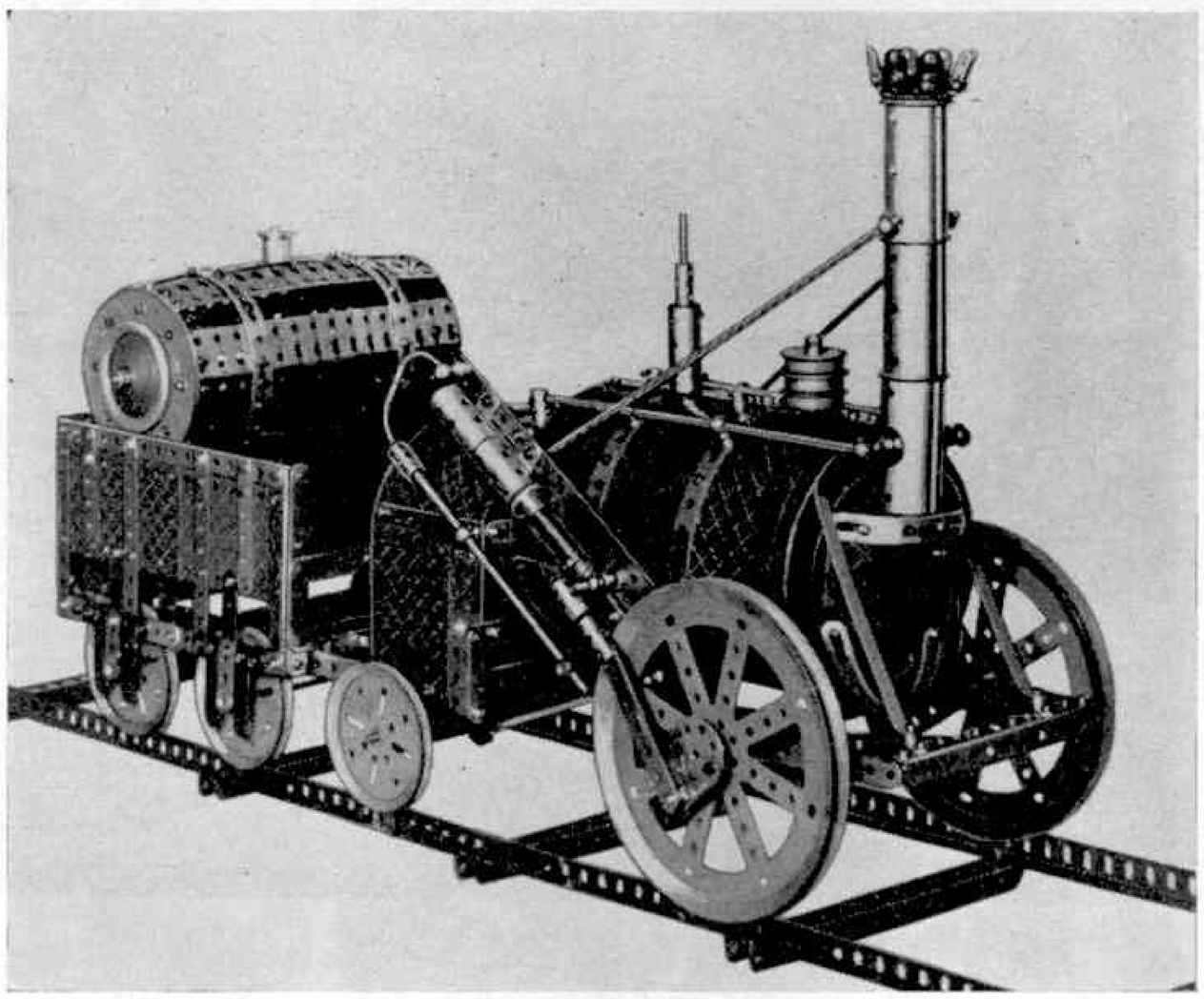
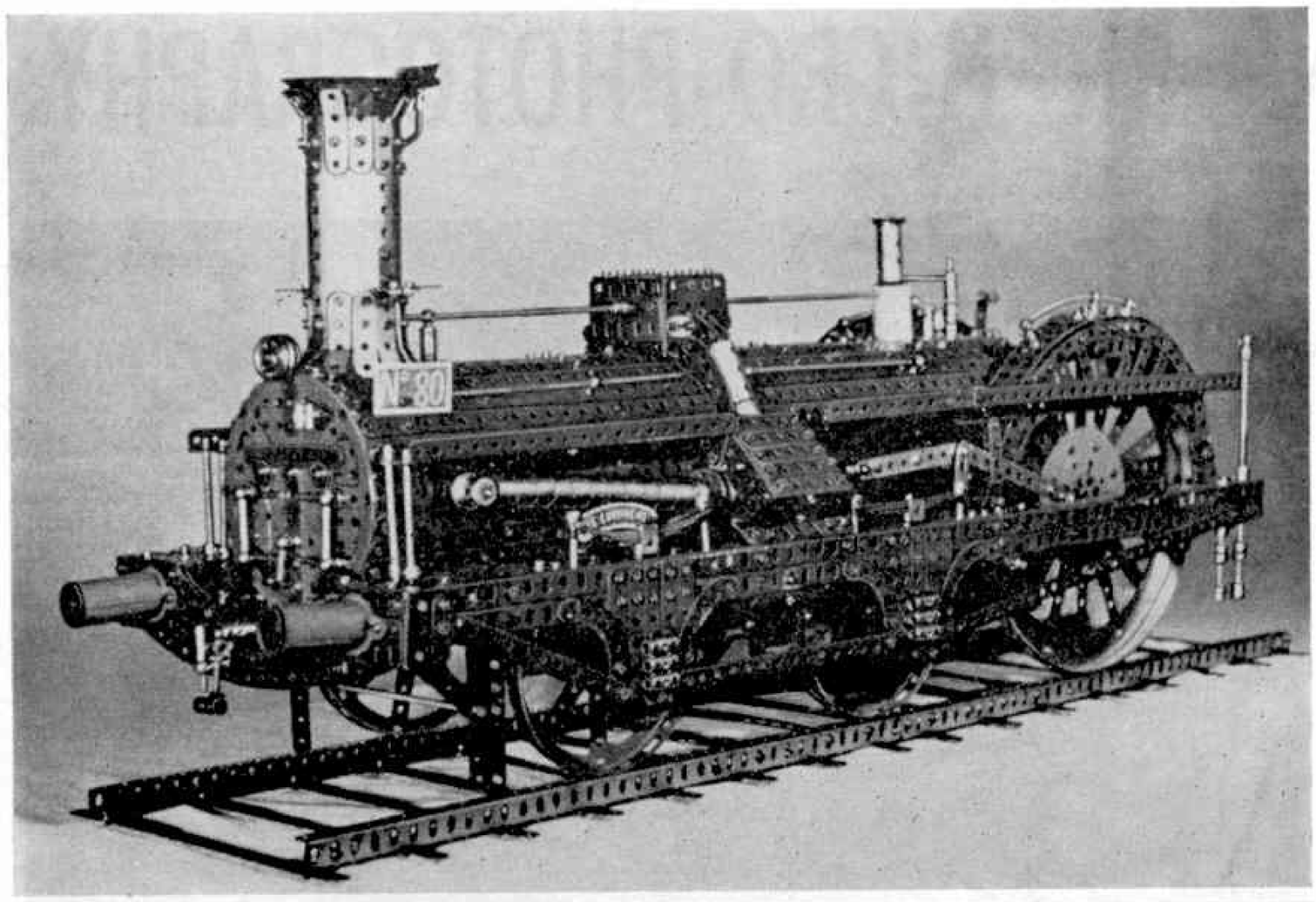


Fig. 2 (Right). A bigger and much more detailed model of the "Rocket", complete with tender. This example was built by John Mathews, Fillongley, Coventry, some years ago.

* * * *

The representation of the *Rocket* shown in Fig 1. is a triumph of simplicity from the Meccano model-building point of view, as only some couple of dozen parts are used in its construction. Yet, by the careful selection of appropriate parts the builder has managed to include in his model the outline and features of the real *Rocket*, as first built, with steeply inclined cylinders and rudimentary smokebox.

The principal features of the *Rocket* are well illustrated by the larger and more detailed version shown in Fig. 2. Here the engine has its tender attached. Owing to the large scale on which the model as a whole is constructed the builder has been able to embody many of the details necessarily missing from the much simpler model seen in Fig. 1. Both models, incidentally, incorporate the ornamental top to the chimney that was a feature of the *Rocket* and various subsequent locomotives. Naturally, the bigger model provided greater scope for the reproduction of the cylinders and the piston and connecting rods, while the exhaust pipes leading from each cylinder to the chimney



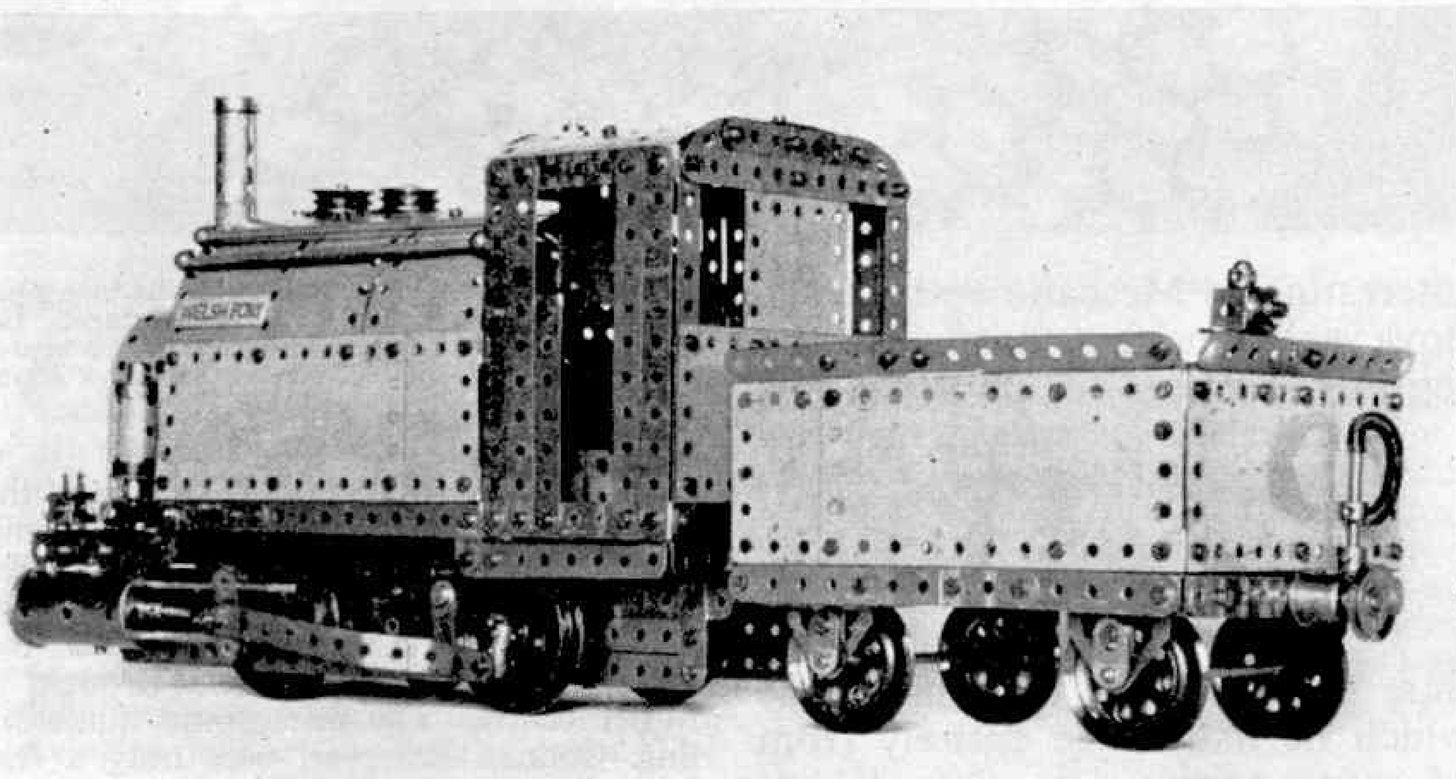


Fig. 3. The model shown in the top picture represents a type of locomotive known as the Crampton from the name of its originator. Its special features are described in this article and the model is the work of E. D. Clements, of Orpington. Fig. 4 (Bottom illustration). The "Welsh Pony", a model built by P. R. Wickham, of Leicester.

are prominently represented.

The tender of this model shows this vehicle in quite elementary form, being virtually a wagon carrying a supply of coke for the locomotive, as well as what looks like a giant cask in which the water supply was contained. This fine old model was built some years ago by Mr. John Mathews of Fillongley, near Coventry, and is constructed in pre-war Meccano, the finish of which at the time, was blue and gold with cross lines on the Plates.

* * * *

The model seen in Fig. 3 is a large-scale representation of a type of locomotive known as the Crampton, from the name of its originator. Although T. R. Crampton was an Englishman, and there were some Crampton locomotives in service in this country many years ago, the design found more favour abroad. French and certain German railways using it extensively for many years. In the earlier days of locomotive engineering many designers were obsessed by what they considered to be the necessity of keeping the centre of gravity low, for safe travelling at speed on curved sections of the track. To make this possible, by lowering the line of the boiler, one of Crampton's schemes was to have the driving axle and driving wheels to the rear of the firebox. The effects of this are very well brought out by various features in the model. Thus, the buffer beam is curved, instead of straight, to allow the smokebox door to be opened, and the whole appearance of the engine, in spite of the large rear driving wheels, is quite squat. The model is well detailed, from the arrangement of the frames, axle boxes and springs of the leading and intermediate wheels to the fittings on the boiler and elsewhere. Notice how the steam pipe from the dome on top of the boiler is carried straight down to the valve chests. These are characteristically inclined and, as is frequent in Continental practice, the eccentrics and motion working the valves are located outside the driving wheels. A point of interest in the construction is the great use made of Strips and Girders and the total absence of Flexible Plates. This contrasts strongly with the construction of the *Rocket* seen in Fig. 2, in which Plates play a major part in the make-up of the model.

* * * *

Fig. 4 shows an effective model of another unusual type—this time a locomotive that formerly ran on the well-known narrow gauge Festiniog Railway in North Wales. It carries the name *Welsh Pony*, the original being one of several of generally similar design. The Festiniog Railway was first opened in 1836, loaded slate trains running downhill by gravity, while the empties were taken uphill by horses. Steam traction was introduced on it just a hundred years ago, in 1863.

The model represents a modified form of the earliest design of locomotives in use and is unusual in having not only a tender, but, in addition, saddle and side tanks on the engine itself. A similar engine, *Prince*, is still working.

The scale adopted for the model made it possible for the builder to produce a well-proportioned job, and you will notice at the rear end a single central buffer as well as the vacuum brake pipe and the characteristic heavy-looking lamp. Another point Festiniog enthusiasts will not miss is the provision of the tall cylindrical sand boxes, something like giant pepper pots, placed in front of the side tanks.

Using Meccano in Micro-Photography—

(*Continued from page 309*)

the number of "clicks" required to raise the specimen to obtain a section of the required thickness can be counted and noted for future use.

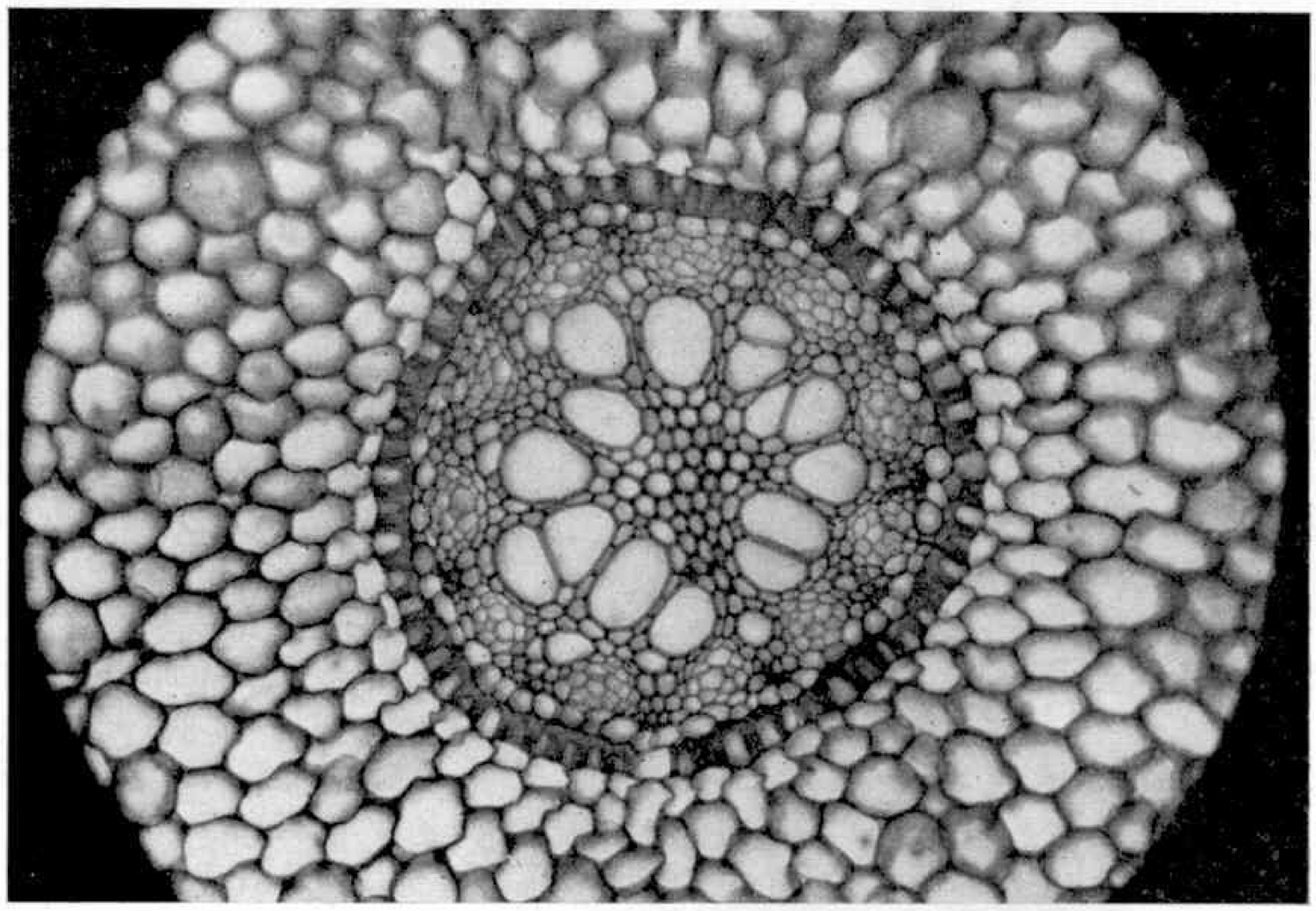
Parts required to build the Meccano Microtome: 5 of No. 3; 4 of No. 4; 5 of No. 5; 2 of No. 6; 2 of No. 8b; 2 of No. 9; 1 of No. 9b; 1 of No. 9f; 1 of No. 12; 5 of No. 12a; 1 of No. 16; 1 of No. 16a; 1 of No. 16b; 3 of No. 18a; 1 of No. 18b; 1 of No. 22; 1 of No. 23a; 1 of No. 25; 1 of No. 26; 2 of No. 27a; 2 of No. 31; 2 of No. 32; 40 of No. 37a; 34 of No. 37b; 8 of No. 38; 1 of No. 43; 1 of No. 48a; 2 of No. 52; 5 of No. 59; 1 of No. 63; 2 of No. 110; 5 of No. 111c; 1 of No. 140; 1 of No. 142c; 1 of No. 147; 1 of No. 148; 1 of No. 163; 1 of No. 186.

Coaster Commentary—(*Cont. from p. 311*)

and a 10 ft. draught. Most of the remaining tankers are under foreign flags, but a few are still trading around these shores. You may have a chance of seeing either type during your holidays, so here are some names to look for: *Drakedene*, *Firmity*, *Gansey*, *Jim M. Longboat* (dry-cargo), *Auspicity*, *Averity* and *Leadsman* (tankers).

USING MECCANO IN MICRO-PHOTOGRAPHY

Portuguese Reader's Ingenuity



A micro-photograph of a section of a lily root taken by Snr. M. L. A. Chanes of Porto, Portugal. The specimen section for the photograph was prepared with the microtome, built from Meccano Parts, illustrated below.

SOME time ago, I mentioned in the *M.M.* a Meccano cord-making machine built by a Meccano enthusiast in Switzerland. He used the machine in connection with his hobby of making scale model ships, and I stated that I should be interested to hear from any other reader who used Meccano to help him with other hobbies.

This remark prompted a Portuguese reader, Snr. M. L. A. Chanes, to write to me and send details of a microtome, an ingenious instrument used for preparing sections of specimens for examination under a microscope, which he had made from Meccano. Snr. Chanes, who lives in Porto, is very interested in micro-photography, and he sent along some samples of photographs he has taken. A specimen section of a lily root is shown at the top of this page, and I think you will agree it is extremely interesting. Even more interesting to Meccano enthusiasts, however, is the fact that in preparing this specimen for photography,

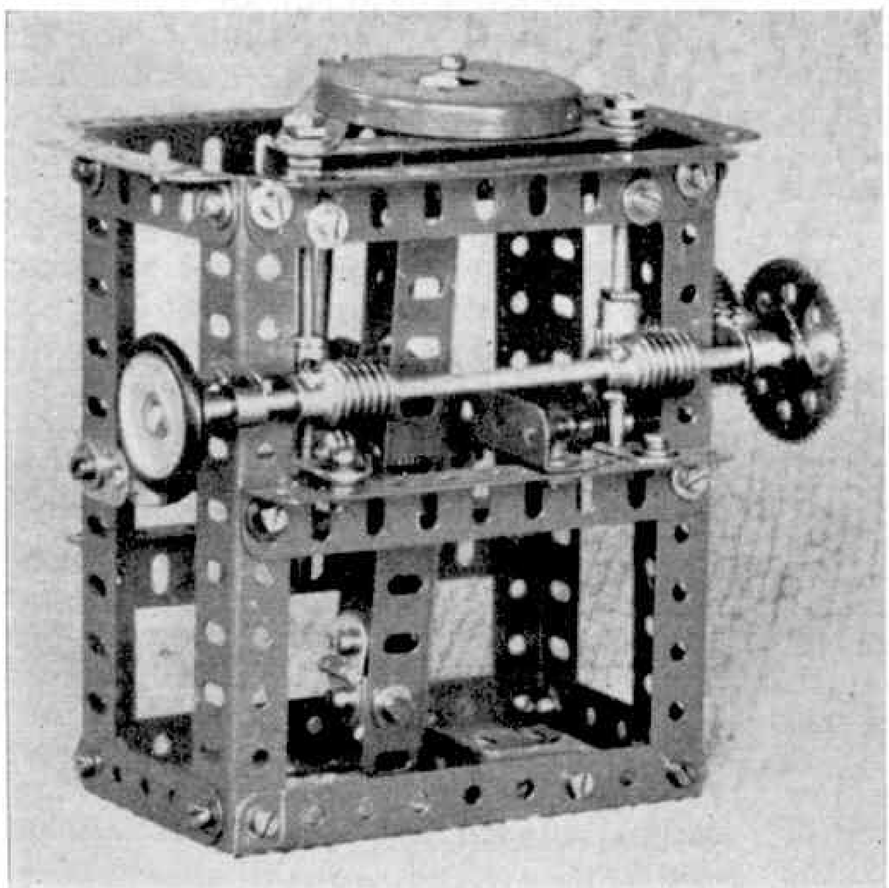
By "SPANNER"

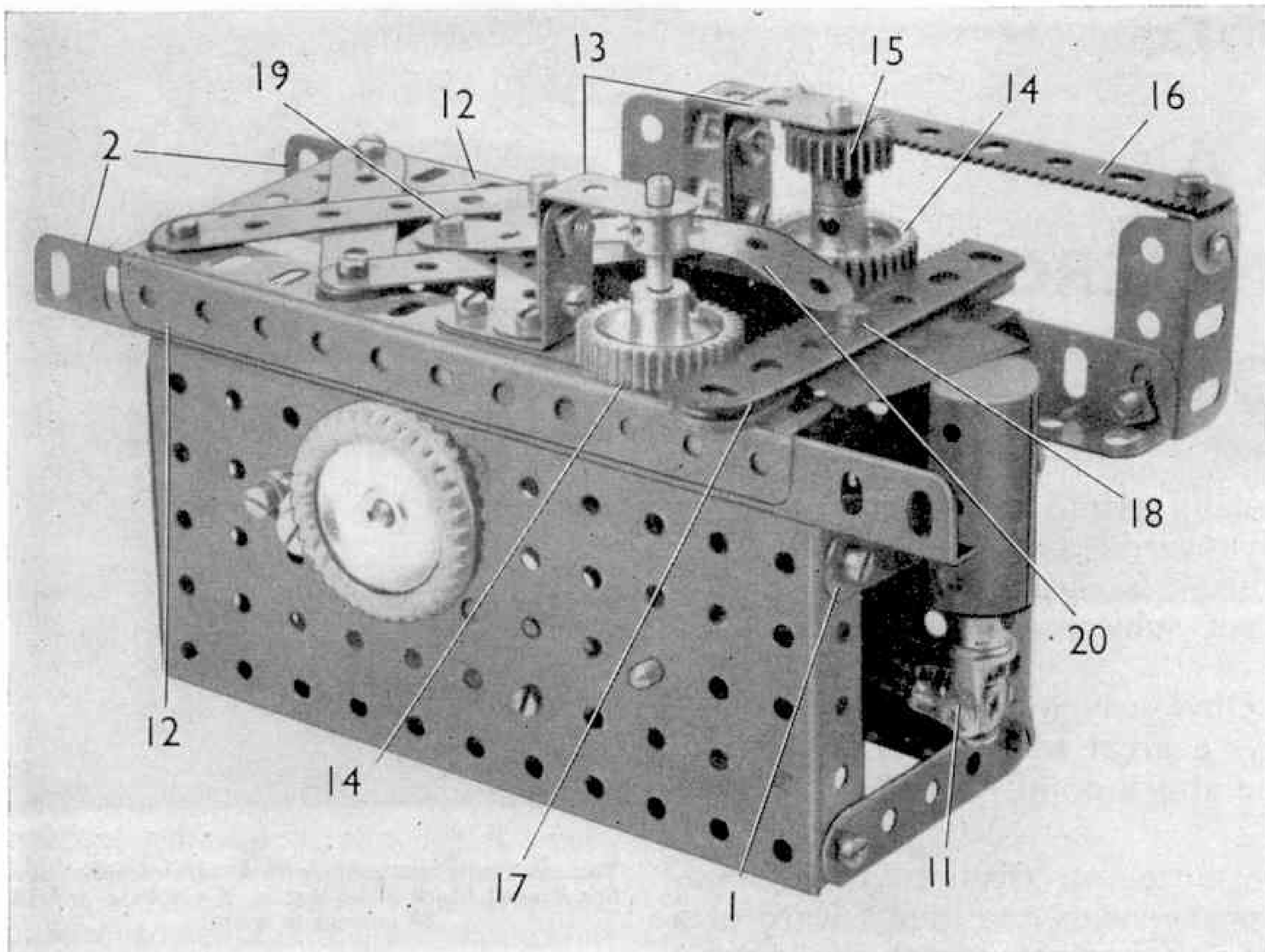
Snr. Chanes used the microtome which he had made entirely from Meccano parts.

Most readers will be familiar with the general use of a microscope, but not everyone will appreciate that in order to study specimens closely and examine their internal construction it is necessary to have some way of obtaining a very thin section of each specimen. It is in the preparation of these sections that the microtome is used. Just how efficient Snr. Chane's model is will be appreciated by a close study of the sample photograph reproduced on this page.

Most valuable information can be gained from the external appearance of a substance under a microscope, but to obtain more complete knowledge of the specimen it is essential to examine its internal construction and the formation of the cells of which it is composed. In practically every case the substance to be examined will be opaque or semi-opaque, but by obtaining an extremely thin section of the specimen it becomes translucent and minute details of its structure can be discerned. Naturally an instrument of very great precision is required to slice the specimen, and the commercial product is rather costly. The microtome made by Snr. Chanes, however, uses only a few Meccano parts and yet the results it gives are comparable with those obtained from an expensive instrument.

An illustration of Snr. Chanes' microtome is shown at the foot of this page. The framework is simply but sturdily made from Angle Girders and Strips, and the specimen to be sliced is suitably fixed in a column made from Angle Girders and mounted at the centre of the framework. An adjustable table is provided by a Wheel Flange, located so that the specimen projects through the large centre hole. Strips bolted in a triangular formation to the Wheel Flange are passed over three Screwed Rods, and are located on each Screwed Rod by pairs of lock-nuts. The Screwed Rods are driven by Worm and Pinion mechanism, and by turning a handwheel they can be rotated simultaneously. Each Screwed Rod is threaded through a Threaded Boss attached to the framework, so that as the Screwed Rod rotates it raises or lowers the table. It will be appreciated that through the Worm and Pinion and the screw mechanisms the movement of the table is very slow indeed compared with the rotation of the hand-





The re-designed pre-war Meccano Microtome referred to in this article.

wheel, so that a minute section of the specimen can be exposed above the table. A very thin section can thus be sliced from specimens, using a special knife or razor blade.

Older readers may remember that some years before the war details of an exceptionally interesting Meccano microtome were published in the *Meccano Magazine*. In Snr. Chanes' model, and in many commercial microtomes, the experimenter must manipulate the blade himself, and this operation calls for a certain amount of skill. In the original Meccano microtome, however, the slicing action of the blade was automatic, the operator merely having to push a frame up and down. The original model can no longer be constructed exactly as it was built, as it made use of some parts that are now obsolete, but I have had the microtome rebuilt, using current parts, and I can assure readers who are interested in microscopic studies that it gives excellent results. The redesigned model is illustrated in the two remaining illustrations.

The frame for the model consists of two $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plates connected at one end by a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate and at the other by two $2\frac{1}{2}''$ Strips, one of them indicated at 1. A $7\frac{1}{2}''$ Angle Girder 2 is bolted along the upper flange of each Plate, and a $2\frac{1}{2}''$ Strip 3 is fixed between the Girders. A $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 4 is arranged between the two Flanged Plates as shown. The handwheel that operates the movement of the specimen is a 1″ Pulley fitted with a Motor Tyre. This Pulley is fixed on a Rod supported in the Flanged Plates and fitted with a Ratchet Wheel 5 and a Worm 6. The Worm engages a $\frac{1}{2}''$ Pinion 7 on a Rod mounted in the Strip 3 and Double Angle Strip 4, and a Worm 8 is fixed on this Rod also. Worm 8 drives two 57-tooth Gears on a Rod 9 fitted with a Coupling 10. Before the 57-tooth Gears are fixed in place they are turned as far as possible in opposite directions, to reduce backlash between them and the Worm.

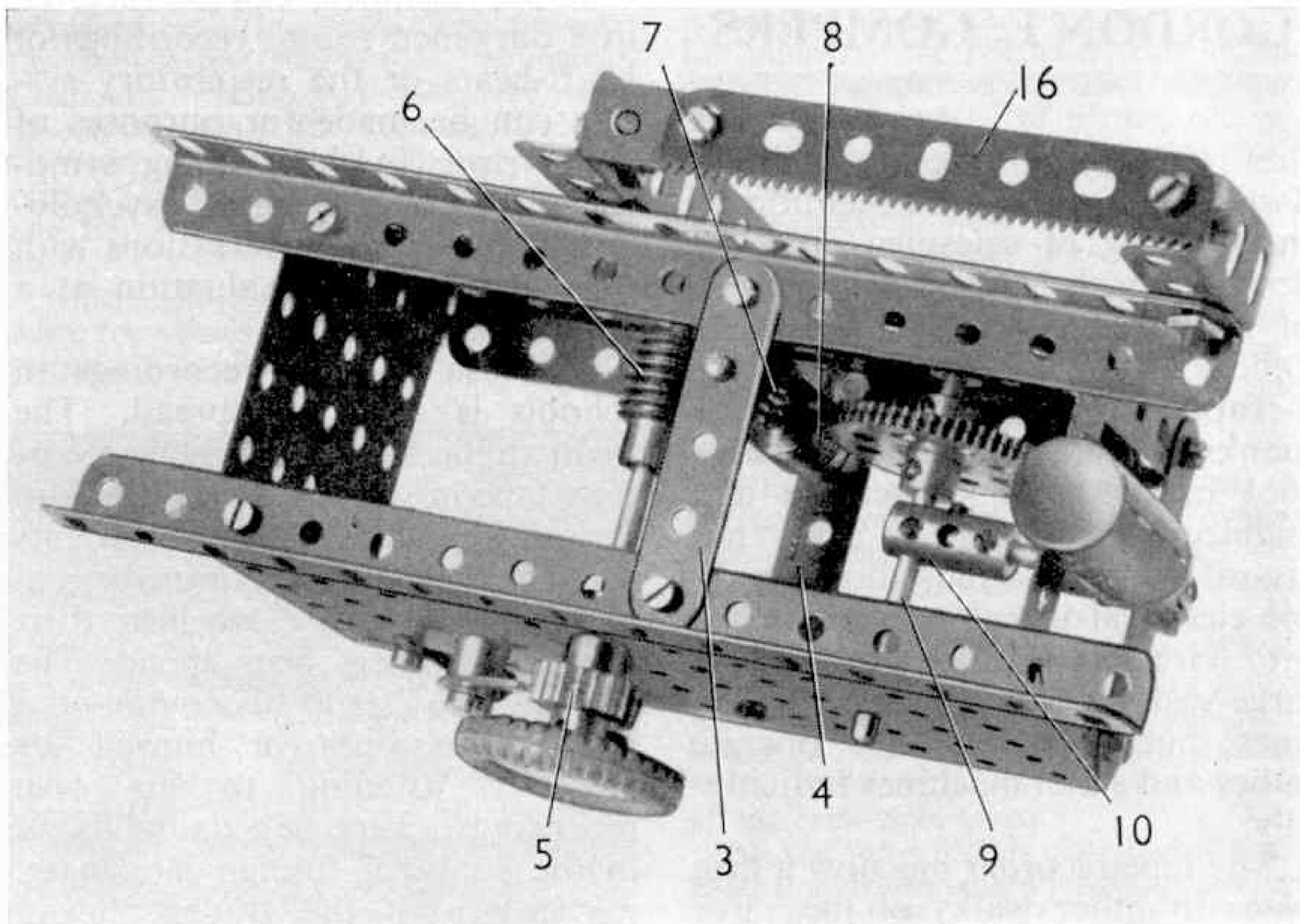
A 1″ Rod in Coupling 10 supports a Universal Coupling 11, which carries also a $1\frac{1}{2}''$ Rod passed through a Sleeve Piece. The Sleeve Piece is bolted to Strip 1 and forms the specimen tube, and a $\frac{1}{2}''$ Pulley on the $1\frac{1}{2}''$ Rod acts as a plunger and slides freely inside the Sleeve Piece.

The sliding frame consists of two $5\frac{1}{2}''$ Angle Girders 12 joined rigidly together by $2\frac{1}{2}''$ Strips and crossed 3″ Strips. The frame slides freely on the Angle Girders 2. A $1'' \times 1''$ Angle Bracket 13 is bolted to a similar Angle Bracket fixed to each of the Girders 12, the slotted holes in the Girders under the Angle Brackets being covered by 2″ Strips. Two 1″ Gears 14 are fixed on $1\frac{1}{2}''$ Rods, one of which carries also a $\frac{3}{4}''$ Pinion 15. This Pinion engages the teeth of a Rack Strip 16, which is connected by Angle Brackets to a $3\frac{1}{2}''$ and a $1\frac{1}{2}''$ Angle Girder bolted to the side of the framework. The $3\frac{1}{2}''$ Angle Girder is spaced from the side by two Washers on each bolt.

The cutting implement is a razor blade, bolted at a slight angle between a Rack Strip 17 and the upper one of four $3\frac{1}{2}''$ Strips joined by a $\frac{3}{8}''$ Bolt 18. The Rack Strip is held against the teeth of the Gears 14 by a Tension Spring between the Bolt 18 and a similar Bolt 19 supported in the sliding frame. Bolt 19 secures also a $3\frac{1}{2}''$ Strip 20 curved as shown so that it presses against the top face of the Rack Strip 17.

The operation of this microtome is extremely simple. The specimen to be sliced is embedded in wax supported by the plunger in the Sleeve Piece. The wax can be melted and poured into the Sleeve Piece, but it is advisable to place a tube of paper round the inner surface before the wax is poured in. When the specimen is set in place the handwheel is turned to raise it to the required level. The sliding frame is then pushed forward and at the same time the action of the Rack Strips imparts a sideways motion to the razor blade. A Pawl should be fitted to the Ratchet Wheel 5 as shown, as with this

(*Continued on page 307*)



Right: An underneath view of the re-designed Microtome.

The Versatility Of Tape

A PART TO PLAY IN INDUSTRY, COMMERCE AND MEDICINE

EVEN though you may not have any really serious ambitions about a particular hobby, but simply regard it as a pleasant way in which to pass the odd hour or so, it is always nice to know that your knowledge of your pet subject can prove useful to you in your workaday life.

This is true with tape recording. Obviously a complete mastery of Hi-fidelity subjects is always a great social asset. However, no emphasis is needed on the above point here, so let us consider the tape recorder as an aid to practical work in many different fields.

In some offices, for instance, tape recorders are made use of side by side with, or in place of, dictaphones, and sometimes they are used in place of shorthand typists. They are sometimes used to record minutes of conferences and similar meetings.

The use of tape recording in business as an aid to communication is a subject quite vast in itself. Two more uses can be mentioned; the training of salesmen, and the despatching by travelling salesmen of spoken reports to their Head Office.

A further article in the series by GORDON E. GOMPERS

Tape recording is also serving mankind as a new and valuable tool in the field of science and engineering. Here, it does not record audible sounds, but inaudible electrical impulses that are fed into electronic robots to control large-scale automatic production lines; but tapes can also operate lathes and small machines individually.

The tape recorder has now a firm place in other walks of life. For instance, at election time loudspeaker vans can tour a ward or a constituency blaring the candidates best speeches—which have been put on tape. In Government circles the tape recorder, although no doubt used, has yet to be explored and utilized to its full capacity. The idea of at least one eminent Hi-fidelity authority that *Hansard* should be recorded on tape cannot entirely be scoffed at as a crank's pipe's dream!

The medical profession has long realised the value of tape recording. The findings of an X–Ray examination, for instance, can be dictated in a darkened room; recordings of heart-beats or the respiratory system can be made for purposes of comparison in determining symptoms; psychiatrists and psychologists can record conversations with their patients for evaluation at a later time.

The use of tape recordings in schools is now widespread. The main application of magnetic recording tape in schools is as a medium for self-instruction. Young students in particular make more rapid progress when they can hear their efforts as others hear them. The student now has at his command a method to improve himself by critically listening to his own recordings. Tape is a valuable aid in the study of foreign languages, particularly if the student has a means of comparing his own work with that of the instructor for the purpose of self-evaluation. The song of birds and cries of animals are reproduced in the class room; folk songs of foreign countries, dialects, descriptions of countries and their customs help to liven the geography class.

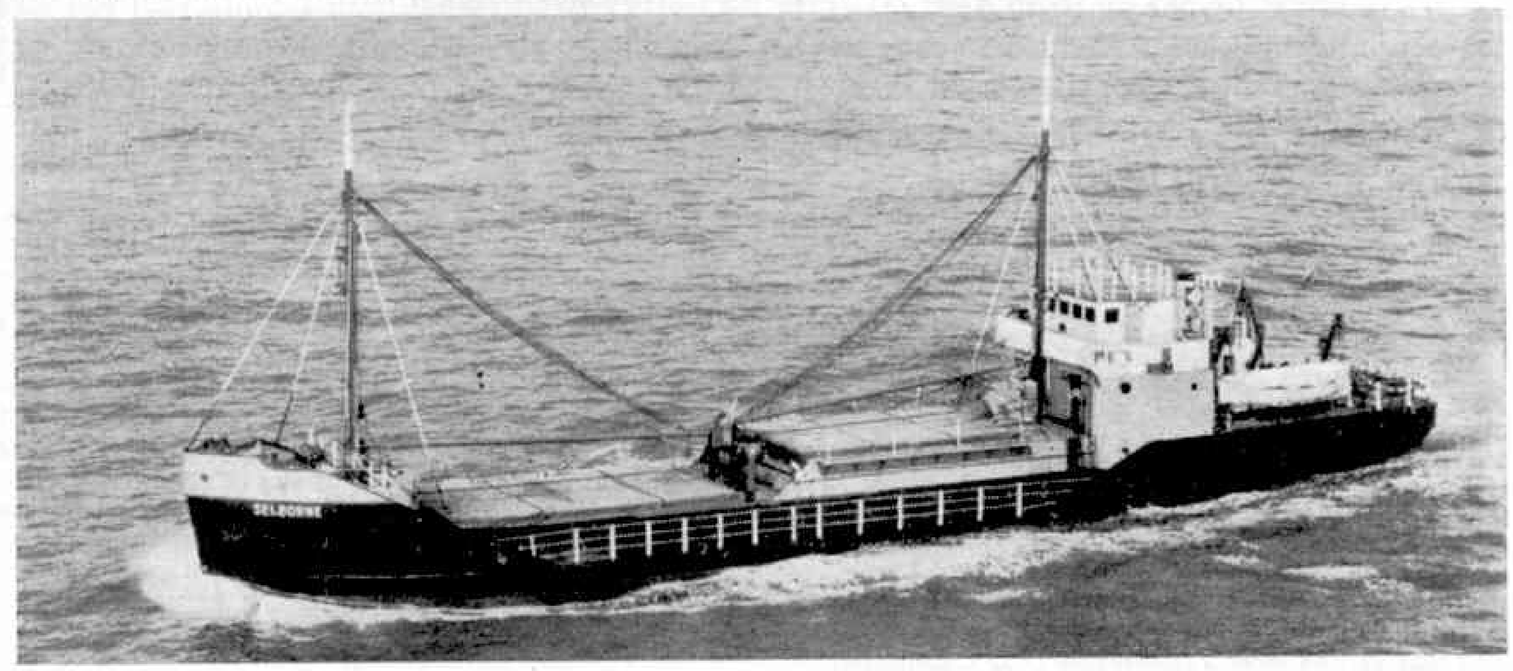
You can really get going with a tape recorder like this Brenell Mark 5M—that is, if you have an odd 88 guineas to spare!

Tape has become a great blessing particularly in institutes for the deaf and dumb. Complete deafness is rather unusual and most deaf-mutes have some ability to distinguish sounds. Some characteristic sounds of the acoustical world are first recorded and arranged in a definite sequence. This recording is amplified, then reproduced. Later the sequence of the sounds is changed, until the students can clearly separate one sound from another. Their own efforts to speak are also recorded, amplified, and reproduced. Handicapped children thus have the chance to hear themselves for the first time, to understand their own speech, and to improve their efforts by means of comparison.

Well, there you are! Tape recording is really a big thing, isn't it? Yet not so long ago I stated in a popular weekly, "I am apt to view both the tape recorder and the record player not (*Cont. on page 317*)

COASTER COMMENTARY

Ships That Played A Vital Role



The "Hullgate" (top) before becoming the "Agios Nektarios." (Below) In recent years three Chants have crossed the Atlantic after purchase by Canadian owners. One was the "Selborne," seen here.

By

Robert Gore

EARLY this year, a 410-ton motor coaster named *Agios Nektarios* was lost, and I doubt very much whether there was any reference to it in the national newspapers, although it would have been reported in the maritime Press. As I may have said on previous occasions, coasters go about their duties throughout the world and seldom hit the headlines. There was nothing remarkable about this ship except that she happened to be one of a type whose numbers are fast disappearing from the high seas, and before they pass into oblivion I thought a word or two about them would not be out of place.

You will have heard of the famous Liberty ships that were turned out by United States' shipyards with great rapidity during the last war, and it was about the same time that the coasters I am mentioning were built in this country. Both were utility types and no one would have expected, nor was it the intention, that either would still be trading some twenty years later. This undoubtedly speaks well for the soundness of their build.

The "Theodora" (tanker), later to be the "Averity" in the Everard coaster fleet. All the illustrations are by courtesy of Skyfotos.

The Liberty ships kept the vital supply lines open between the United States, this country and other parts of the world, but the coasters were built specifically for supplying the needs of the invading armies of the Continent after D-Day. As was often the case in wartime operations, various abbreviations were given to items of equipment. Thus, these ships, designed for transporting fuel across the English Channel to France, were given the name of Chant—short for Channel Tanker. However, of the total number built a proportion were for carrying dry-cargoes, and the *Agios Nektarios* was one of the latter.

Quick and cheap production (the keyword for vessels that were to serve a vital purpose of probable short duration) was achieved by an austere design for which parts were prefabricated prior to being delivered to shipyards for assembly. When you examine the illustrations you will see that the vessels are extremely angular, with hulls and superstructures consisting entirely of flat plates of metal. For economy's sake there was an absence of curves; in fact, the only ones likely to be found are the portholes, funnels and steering wheels. Even the bows are straight, and instead of a nice, rounded stern, there is a flat transom, just like a rowing boat!

The tankers were named Chant 1, Chant 2, etc., but their dry-cargo counterparts, in accordance with the custom of naming merchant ships at the time, carried a prefix of Empire, followed by a word beginning with F, such as *Empire Facet* as the *Agios Nektarios* was called when launched in 1944 at Goole.

After the cessation of hostilities, the survivors were sold to private owners, this particular vessel becoming the *Hullgate* two years later. In 1962 she was sold to Greek shipowners and given her last name but during a voyage from Piraeus to Trieste, with a cargo of cotton, trouble was experienced and she foundered in the Ionian Sea, while being towed, on March 18 this year. Fortunately, all the crew were saved.

All the ships in this class had a somewhat similar tonnage, a length of 148 feet, a breadth of 27 feet (*Cont. on page 307*)

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2. If a stamp is "Imperforated" (i.e. without perforations), is it a fake?.....
3. Which British Colony (in South America) issued the world's rarest stamp?.....
4. Many used stamps from Communist countries, etc. have original gum on their backs. Are such "cancelled-to-order" stamps genuine?.....
5. Which country has SVERIGE on its stamps?.....
6. Does GREENLAND issue stamps?.....
7. Did the Head of King Edward VIII (the "Uncrowned King", now Duke of Windsor) ever appear on British Stamps?.....
8. Which country has MAGYAR POSTA on its stamps?.....
9. A very lightly postmarked stamp is called "Superb" or "Fine" used. Are these worth more than heavily postmarked specimens?.....
10. Is "Catalogue Price" always the correct value of a stamp?.....

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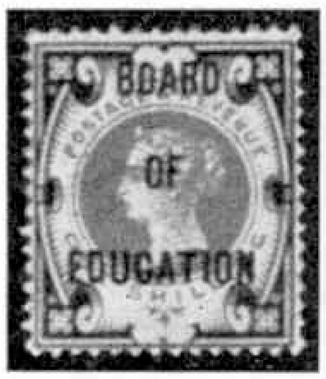
For Stamp Enthusiasts

Big Collections

By F. E. Metcalfe

IN my early days of stamp collecting all was grist to the philatelic mill, to most collectors, for stamps were relatively scarce (even if "Penny Blacks" only cost a few coppers), so much so that we used to include cut-outs from post cards, etc.—anything to make up. Then the various postal administrations got wise to things, and now not fewer than 6,000 new stamps are issued every year. Even that figure is going up fast all the time. The net result is that today no serious collector attempts a general collection—or very few do. So the majority wisely limit their fields, and the collecting of a group of countries is as far as even the most adventurous philatelist thinks of going. Nevertheless, there are still one or two fantastic collections in existence, and until recently our own Post Office owned two of these, each of a 100,000 different stamps.

However did these huge collections come about? Well, all postal administrations which are members of the Universal Postal Union, which has its headquarters in Berne, are supposed to send to that building a number of copies of all their new stamps, and in turn these stamps are distributed to other members. This plan started in 1874, and our own Post Office has been receiving three copies of all stamps received at the U.P.U. headquarters. One each of these stamps has, apparently, been going to Buckingham Palace and the two others formed into collections.



Now our Post Office has loaned one of these collections to the British Museum which, with other collections already donated to it, now has the biggest stamp collection in the world—according to what St. Martin's le Grand says. The move does the Post Office credit, for recently the British Museum has bestirred itself philatelically and appointed a full-time official to attend to its vast stamp holdings, etc.; and it is already obvious that a fine job is being done for philately in general.

Hitherto the institution holding the biggest general collection in the world was the Smithsonian Institution in Washington, but now it seems our one and only British Museum goes to the top. Of course, this latter institution has had some wonderful collections for some time, and

stamp enthusiasts who have visited it will have seen those pull-out racks on the ground floor accommodating the "Taplin" collection, which was donated many years ago. A rival to this was in the Berlin Museum at one time, and but for the first world war Berlin would have taken pride of place. There was in those pre-war days a rather odd collector named Ferrary who had "money to burn", and on his frequent trips to London from Paris, where he lived, the dealers in our capital had a wonderful time, as he simply could not resist any stamp of which he had not got a copy. As London was then, as now, the world's stamp centre, he was able to spend thousands of pounds. Before he died he willed his collection to the Berlin Museum, but the French Government stepped in and sold the lot as war reparations. As far as I remember, they brought in well over a million pounds, when pounds *were* pounds, so to speak.

Anyhow, for valuable stamps our museum remained tops, and now, apparently, it is tops in numbers as well. And right well will it handle its philatelic property, we can be sure, for the official I mentioned has already done a fine job in letting the public in general—that is you and I—have a good look at its treasures, if we want to see them, and has not limited the privilege to a favoured few. Last year the museum even put on a show of "QEII" colonial stamps, all beautifully mounted and displayed, and there was another exhibition this year, during March, when the London Stampex Exhibition was on. It was a most suitable period for such an event, as many collectors from the provinces who were up in town at that time were able to visit both displays. As the museum, I think, now gets copies of all new colonial stamps I expect that we can look forward to further displays of these popular stamps.

Regarding the 100,000 loan, there are big plans, as the museum intends to provide space to display much of its collections at one time. As each display will be on show for a year, it is a four-year plan

which they have in mind, to exhibit copies of most of the stamps which have been issued since the formation of the Universal Postal Union—not just those old stamps which, in some cases, are so dull in appearance that they bore one to tears, even if one has a chance to see them. So you see, *there* is somebody who is earning the gratitude of collectors, but I am glad that it is not my job to do all that mounting! And our Post Office is earning our thanks, too, for it is to go on handing over to the museum a copy of what it receives, as will the Crown Agents, of new "QE" issues.

We collectors have a part to play. Most of us at one time or another will get to London (I am lucky, for when I go there I always stay within a stone's throw of the British Museum) and we should make it our business to pop in to see what will always be a wonderful stamp display. It

will, of course, be a pleasure to do so if we are at all interested in stamps; apart from that, we will be giving support to something which will be providing wonderful publicity for our hobby.

One thing is certain: when those of our foreign friends who are collectors visit London I am sure they will make a point of visiting this, the most famous and important museum in the world, not just to see the stamps but for other interesting things. Mind you, there will be other stampic displays as well as that provided by the Post Office, so do not overlook that visit whenever you can get to London, for you never know what wonderful stamps you may see from time to time.

Stamp Gossip

Journee Du Timbre

A NUMBER of foreign countries issue every year either a stamp or a set to commemorate "The day of the stamp" and such issues are much sought after on the Continent. Moreover, due to the demand, such stamps are going up in price all the time. I do not claim that they are rarities, but a complete collection would be very nice property, nevertheless. Belgium is one of the countries which always follows this cult without fail (Austria is another, and, of course, its stamps are just as near perfection as stamps can possibly be—how deadly dull and clumsy they make our own special

stamps look). The stamp illustrated above was Belgium's effort of 1963, and appeared on April 7. Nine million were printed and while not all, perhaps, would be sold the stamps will not be particularly scarce. But what collector could resist such a charming effort?

GLIDING

I have always considered that gliding must be a wonderful sport, but I am afraid I would never pluck up enough courage to have a go! It seems too much to expect to be held up thousands of feet high by nothing but hot air, although I imagine that at times there must be enough generated in Westminster (Lords and Commons) to make that the safest area of the lot!

Anyhow, we are concerned here with stamps, and Argentina issued a nice little set to commemorate the ninth World Championship of Gliding, as can be seen from the stamp illustrated here. Such stamps are tremendously popular, as are all issues connected with aviation or space research.

I suppose most of us really envy those chaps who have the skill and courage to indulge in such exploits as gliding. Still, I think I'll stay put on the ground! An expert assures me, however, that gliders, or sailplanes as they are also called, are on the whole safer than engined aircraft. Although, during the Argentina meeting, a Dutch competitor made a slip and his glider broke up in the air, in full view of hundreds of spectators, he was able to bale out and only suffered a shaking-up. Yet, even in spite of that, I still think the glider stamps, like the one illustrated, are more in my line than glider flights.

CUT PERFORATIONS

Although I have on more than one occasion mentioned this point it is perhaps some time since I last did so, and I continue to get letters on this subject, mostly from young collectors. One letter I received recently from Paisley, read as follows. "On looking through my stamps I found a common British stamp with no perforations on one side. I enclose this with a stamped envelope" (good man) "and I would be very obliged if you would let me know if it is valuable."

That is not an unusual letter to receive, so for the benefit of readers who are likely to find similar stamps in booklets—for that is mostly where they come from—I will explain, as I did to my Paisley correspondent, that far from such stamps being valuable they have less value than stamps with all perforations intact. This is because really they are merely damaged stamps which, when the panes were being clamped out (by machinery) for stamp booklets, got the teeth cut away. What you have to look for are stamps where there is no perforation *between* two copies, or where the perforation is missing on modern stamps between the stamp and the selvedge. I stipulate modern stamps,

to be on the safe side, for in the case of many early British stamps there was no perforation between the selvedge and the stamps, and these—known as wing copies—are not considered as valuable as copies perforated all round.

POSTMARKS

There are many collectors today who are more concerned with postmarks than they are with actual stamps, so the news that our own Post Office is allowing provincial post offices to go in for pictorial postmarks is news indeed. The first one to take advantage of the concession was Hastings, and many others are following suit, so now is the time to examine carefully any envelopes which come your way, for unless I am very much mistaken, these early pictorial efforts may be much sought after as time goes on. St. Leonard's came in on the Hastings effort, which showed a Saxon warrior saying *We're ready for your*

(*Continued on page 318*)

By E. W. Argyle

The Royal Navy On Stamps

H.M.S. BRITOMART

THIS 10-gun brig, of 237 tons, was 90 feet in length, and was launched in 1820. Her complement was 70 officers and men, under the command of Captain Hobson, who in 1840 signed the treaty of Waitangi with the principal Maori chiefs, by which they were guaranteed possession of their lands under the sovereignty of the British crown. Captain Hobson then became the first Governor of New Zealand. H.M.S. Britomart *was responsible for maintaining the Queen's peace in the earliest days of New Zealand's settlement, and the stamp design shows her thus engaged at Akaroa.* Britomart *was sold in 1841 at Singapore for 5,000 Straits dollars.*

H.M.S. BOUNTY

THIS famous ship was built at Hull and before purchase by the Admiralty for £1,820 was called the Bethia. *She had a tonnage of 250 tons, was 90 feet in length, and of 24 feet beam, and had a complement of 44, plus two botanists, when she sailed under Captain Bligh, for Tahiti. After the mutiny she carried the mutineers to Pitcairn Island, where subsequently the ship was driven ashore on the rocks, and sank.*

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One of two 140 h.p. rear-engined Leyland Lions with 42-seater bodywork now being operated by Nelson Suburban Bus Co. Ltd., New Zealand. There is a baggage compartment on each side of the bus (one is clearly visible in the picture) and a rack at the front for carrying prams.

THIS is the time of year when the luxury coach comes into its own—or at least into as much of its own as is still left! We are confidently informed that by 1970 there will be an additional 5,000,000 vehicles on our already overloaded road "system", and this will mean that another few million potential "mystery tourists" and day excursionists will be lost for ever to the trade. Even with a rapidly rising total population this will be a great (and in some cases fatal) blow, particularly to the small operator.

Perhaps the most significant new coach on the road to-day is not the Bedford V.A.L. featured in December's *M.M.*, but its small sister V.A.S. with its squat 29-seater body. After the last war Bedfords flooded the market with their OB model with its 29-seater body. Then in the early 'fifties came the SB, which normally carried a 33-seat body. The ensuing SB1 and SB8 versions, with their diesel engines, were able to cope with an additional eight people on board. Now we have the V.A.L. with its twin front axles and fifty-odd passengers. In like manner the Leyland "Leopard", with its 36-foot body, has replaced the heavy "Royal Tiger" and lightweight "Tiger Cub" with their 41-seat bodies, and A.E.C. have begun to mass produce a 36 foot model of their extremely popular "Reliance".

It seems quite probable that the crossroads have now been reached, and that the trend in future will be small coaches for excursions and large vehicles for express duties, especially on the new non-stop runs, which many operators have now been forced to introduce to compete successfully with British Railways for a falling total number of travellers. I shall be interested to hear your views about this problem.

Barton's No. 620 (LAL 849) is certainly a rare bird, being a Leyland Comet CPO1 of 1949 vintage with a Beccols FC 34F body. Picture by N. J. Peel.

While still on the subject of coaches, have you investigated the ownership of some of the coaches you see plying for hire along our promenades? Sometimes what appear to be rival operators turn out to be branches of the same firm! For example, along Hastings front you can see the blue coaches of Skinners and the cream and red coaches belonging to Scout. Nearby may stand the cream and green vehicles of their parent, Maidstone & District. The same happens at Southsea, where Triumph Coaches are a subsidiary of Southdown. At Worthing, the King of the Road run some of their fleet under the names of Fosters Coaches and Silver Queen. Type of vehicle used, registration number and address of ownership panel are all clues to the true identity of the coach.

I expect many of you know the familiar Royal Blue coaches, which travel up from the West Country to London. Did you, however, know that these are jointly owned by Southern National and Western National? If you look at the small wording round the circle between the fleet legend, you will see one or other of the parent names painted there. For example, cars 2200–8 are W.N. and 2209–27 are S.N., etc.

Some firms call their coaches by a different fleet name, too. Thames Valley have many of their coaches under the fleet name "South Midland", while Devon General use the title "Grey Cars" for their luxury fleet. Another famous example is Ribble, whose London express coaches operate under the name of "Standerwick". I trust that this article has whetted your appetite to do some investigating on your own. By all means let me know your results.

Finally, if you want to see some of these coaches "at home" I suggest that you send for a copy of the comprehensive new "Depot Directory of South and South-East England", which the Worthing Historic Commercial Vehicle Group have just published. This gives the spotter full details on where to locate any particular garage, and can be obtained from 101, Sompting Road, Worthing, Sussex, price 2/6d. post free.

Highways Across the World—

(*Continued from page 277*)

stretches of the perilous muskeg swamp in the trackless wilds of Northern Ontario, beyond Lake Superior. Special road machines had to be devised which could safely negotiate the muskeg, as much as 50 feet of which had sometimes to be dug out before the road foundation could be laid. In the Rockies part of a mountain-side had to be removed by dynamite to create the new route through a narrow river valley.

But some of the biggest problems for the Trans-Canada builders came when a long section of the road had to be driven through avalanche country, over 5,000 feet up in the Glacier National Park of British Columbia—a region which gets an average 340 inches of snow every year. To keep the Rogers Pass section open throughout the winter, many miles of sturdy avalanche sheds, with steel-plated walls and roofs, have been built along the roadsides.

In tropical Africa and Latin-America even the most modern scientific methods of building are sometimes defeated by the excesses of climate. Whole sections of new road, which perhaps took months to plan and build, have been completely wrecked by torrential rainstorms in just a single night. On the Chitala–Benga road, in the bush country of Nyasaland, four newly-completed bridges were torn from their foundations and swept away in torrents of floodwater following a fantastic downpour of 22 inches of rain in as many hours. A large part of the cost of African highways goes into high-level bridges to keep the roadways and their traffic clear of the recurring floods.

Much of the road building around the world nowadays is designed not only to improve communications between towns, cities and ports, but also to serve new development projects for electrical power and irrigation, mining, oil-well drillings, agriculture, forestry and so on. Although these access and supply roads are built for a specific industrial purpose, they may eventually become links in long-distance highway systems. Wherever a modern road is cut, it will generally become more useful as the years pass. Without much extra cost it can be lengthened, widened or otherwise adapted to the changing requirements of traffic.

The oil industry, for example, has been responsible for hundreds of miles of modern highways all over the world. Sometimes the task of providing access roads to remote drilling sites is a very difficult one. In one case, on the Pacific island of New Guinea, it took a road engineering team two years to drive a 30-mile long road through dense virgin jungle so that heavy drilling gear could be transported to the site. New roads to assist oil operations in the South American republic of Venezuela are the first modern highway communications in many parts of that country. Farmers and coffee growers use the oil companies' roads to take produce to local markets.

Some of the most remarkable highways built since World War II cross the vast Sahara to serve the French desert oilfields sited hundreds of miles from civilisation. The tarmacadam road from Ghardaia to El Golea, in the Eastern Sahara, is a triumph of engineering. Nearly 30 feet wide, it runs as straight as an arrow for more than 200 miles through barren desert, where the windblown sands form miniature mountains on either side.

Although these modern roads, like the age-old camel tracks across the Sahara, avoid the most impenetrable regions of sand, there is always risk of long stretches being submerged and heavy lorries marooned. As a precaution against this, the roads are slightly raised as causeways. Their sides break the oncoming drifts and prevent sand piling up on the roadway.

These Sahara oil roads will one day link with other motor roads, pushing southwards towards and through the African interior. Crossing desert, jungle, bushland, mountain heights and open plains, they will eventually form the 6,000 mile route from Algiers to Cape Town—the future Pan African Highway.

The History of Britain's Crosses—

(*Continued from page 289*)

balustrade and a roof supported by six columns. It is believed that cloisters were built round the cross to provide shelter for people in wet weather—a most unusual arrangement.

There were also Weeping Crosses to which penitents used to be ordered to make journeys to confess their sins publicly, and such crosses were also visited by mourners at funerals. Very few of these remain, but their situations are often remembered. There is a well known cross-roads on the outskirts of Shrewsbury which is still called Weeping Cross. Ripley, in the West Riding of Yorkshire, has what is called a Weeping Cross, although it has been suggested that this is, in fact, an old font inverted for use as the base of a cross.

Many old crosses have interesting stories associated with them. One not likely to be forgotten is connected with the market cross at Devizes and, indeed, the story is actually cut in the panels round the cross. It begins in very imposing terms, "The Mayor and Corporation avail themselves of the stability of this building to transmit to future times the record of an awful event which occurred in this market place in 1753 . . ."

The inscription goes on to relate how three women went to the market to buy a sack of corn. However, there was an argument about the money and Ruth Pierce was accused of cheating. She protested her innocence and wished that she might "drop down dead" if she was defrauding the others. At this, she fell down dead, and the missing money was discovered in her hand!

Another cross with a story is by the Cantlin Stone up in the lonely hills of Shropshire. In 1691 a pedlar, William Cantlin, died by the wayside as he was walking over the hills with his pack. There was a dispute among the local parishes as to which should bury him and finally he was taken to the churchyard at Bettws-y-crwm. A stone was erected at the place where he had died. There was a strange sequel to this story 184 years later when the Clun Forest Enclosure Act was passed. The fact that Bettws had buried the pedlar who had died by the roadside was accepted as evidence of the extent of the authority of the parish, and as a result it was granted several hundred more acres of land. A cross was erected by the old stone by Beriah Botfield who was then Member of Parliament for Ludlow.

Perhaps the oddest use for a cross is to be seen in the little village of Deeping St. James, near Peterborough. In 1819 the village needed a lock-up in which to keep drunks and minor criminals, and it was decided to convert the old cross. This was done so skilfully by a local workman that the general appearance of the cross now differs very little from that shown in old sketches. The old cross is not forgotten and is one of the stations visited during the Rogationtide procession by the vicar and his congregation.

These are a few of the many stories about crosses that I have come across in my travels about the country.

Railway Notes—(*Continued from page 291*)

boiler, with a lower degree of superheat, single chimney and shorter valve travel; and, as it happened on that occasion, very dusty coal. Nevertheless, the Pacifics were grand engines.

In recent modernised form, *Isinglass* ran with much greater ease, and faster uphill, on the 400-ton 6.26 p.m. down Hull express. Potters Bar was passed in 18 minutes at over 50 m.p.h., and a top speed of 85 m.p.h. was sustained north of Hitchin. The 59 miles to the first stop, at Huntingdon, including a relaying slack, were covered in exactly 60 minutes. Arrival at Peterborough was a minute early. Mr. Norman Harvey logged the first three trips.

THE "ACE"

The Atlantic Coast Express, much the quickest train on the Exeter–Waterloo main line, now partly in W.R. territory, is a Merchant Navy Pacific assignment, and one of the stiffest regular steam express duties in Britain today. The start-to-stop working time allowance for the "Ace", as it is known to Southern railwaymen, is only 75 minutes for 75¾ miles from Sidmouth Junction to Salisbury. There are some long and sharp gradients although these can be approached at high speed. No. 35026, *Lamport & Holt Line*, with "11-on", just under maximum load, completed a grand run in less than 70½ minutes, touching maxima of 90 m.p.h. and averaging over 70 for 65 miles, considerably uphill and down!

The Modern Battle Tank—

(*Continued from page 279*)

vehicle, possessing many new and interesting points, the Chieftain certainly attracted a good deal of publicity.

No individual armoured vehicle can rightly be described as Britain's best but, united as a team, with each individual vehicle performing a certain and specialised task, Britain's armour is surpassed by that of no other country. The Chieftain, however, is certainly a most impressive vehicle, employing a high velocity gun of 120 mm. calibre, which is described as superior to the Centurion's 105 mm. gun. The Chieftain is still to enter service. One of its major features is the adoption of the supine position for the driver. This permits a considerable reduction to be made in the vehicle's overall height, which correspondingly reduces the target area presented to the enemy's anti-tank units. Another very important feature is that, since it is lighter than the Centurion and the Conqueror, it can fill a dual-purpose role and will eventually replace both.

The power unit consists of an L60 multi-fuel two-stroke engine of entirely new design. This is a fuel injection engine of approximately 700 b.h.p. designed to operate satisfactorily on various types of fuels, or various combinations of fuels, petrol, diesel oil, aviation gasoline or aviation turbine fuel. Development of this new-type power unit was entrusted to one of Britain's biggest manufacturers of commercial vehicles, Leyland Motors Ltd. Although the Chieftain has now been in production for many months, the actual date on which it is to be introduced as a replacement is, at the time of writing, a secret.

Prizewinners' Parade—

(*Continued from page 283*)

the winners being allowed to choose from these two attractive items. Five decided on Train Sets, the others the "Circuit 24" outfits. The winners were: John Adnett of Uxbridge, Malcolm Cleveland of Stroud Green, London, Michael Davies of Dover, Adrian Faulkner of Basingstoke, Michael Fitt of Haughurst, Hants., Charles Maude of Broadstairs, Graham Mitchell of Brighton, G. M. Ashcroft of West Ealing, London, Richard Hardaker of Harrogate, and John Fallowfield of Camberley.

Here is one of the winning entries describing the Hornby Train display: "I have seen model railway exhibitions staged by other companies, but none topped this Hornby-Dublo display. The intricate detail of working parts, the neat design of the couplings and Hornby-Dublo's 25 years' experience in "00" gauge railways are only three of the factors which contribute to Hornby-Dublo's superiority in the model world."

Filming a Floating School—

(*Continued from page 299*)

the quayside, the ship sailed out under the approaching night sky heading for Gibraltar. As darkness began to envelop the ship we climbed aboard from our launch, having filmed the departure against the rays of the setting sun, had a hasty meal, and then prepared to film one of the ship's many dances held on deck.

The next afternoon we were lowered over the side again, this time in one of the ship's lifeboats. From the deck, the sea had looked calm, but down there, the Atlantic proved the reverse. For the next two hours our cameraman tried to get a worthwhile shot of *Dunera* steaming "full ahead" while we fought to hold him, and his camera tripod, steady. It proved impossible. In the end he had to shoot from a hand-held position. Before he was able to get a steady shot, however, *Dunera's* captain had to turn the ship round many times. However, results showed that it was worth the effort. The cameraman also managed to capture a head-on approach shot without camera shake, which he held until it looked as though *Dunera's* giant hull would crash right through us. The coxswain knew what he was doing, of course, and turned away before there was any real danger of collision, despite calls from the cameraman to go in still closer.

At Gibraltar there were taxis, instead of coaches, to meet the children. When *Dunera* is in, almost the entire taxi fleet has to be commissioned, Here, there was the famous Rock to explore, the attraction of the Barbary Apes, and the shopping. The number of transistor radios that came back on board that night looked like a day's output from an electronics factory. almost every other child had one; so did we. The youngsters proved better at bartering, for they managed to get identical models to ours a pound to 30 shillings cheaper.

Twenty-four hours later we were sailing up the Rio Tejo under a night sky and in to Lisbon. On the starboard bow was the magnificent floodlit statue of "Christ the King". The giant figure, which appeared to be suspended in the sky, was an inspiring sight. Next morning we saw that it stood on a hill, as well as on a tall column, but at night only the figure is lit, not the column, and thus one gets the illusion of the figure being suspended hundreds of feet in the air. Lisbon is one of the cleanest and most beautiful cities in the world, and is full of historical interest.

Some hours later, bound for Lorient in Brittany, we were overtaken by *Nevasa*, flagship of the B.I. Company. We got some close shots as she drew level and held station for a few moments. A trooper of over 20,000 tons, she was homeward bound from Cyprus with the First Battalion Devon and Dorset Regiment when we saw her.

Two days later we were filming the submarine pens as *Dunera* glided past them into Lorient, the U-Boat base used by the Germans during the war. Soon, we were at work again, capturing the peaceful scene provided by the countryside of Brittany, as the coaches took us still further on our tour. Another two days, and we were back home. As we docked at Tilbury there were many tears for the youngsters had grown to love the ship and were sorry to be leaving her.

Since I made this voyage, educational cruises have proved so popular that another schoolship has been added to the fleet—the *Devonia*. As these ships continue to cruise through all points of the compass one thing has become quite clear to us—film units are not the only people with opportunities to travel the world. Today, even twelve-year-olds are doing it!

Centenary of Swiss Travel—

(*Continued from page 282*)

additional weight of the descending coach is sufficient to haul the other coach to the top of the track. The tank of the first coach is then emptied, and the procedure repeated.

The funicular, with its maximum gradient of 57 per cent, was a sensation when it was opened, at a time when the peaceful village of Montreux was beginning to develop into the major holiday resort it is today. Since then its popularity has never waned, and it remains now as a fascinating memorial of one of man's early attempts to conquer the Alps.

Air News—(*Continued from page 285*)

December 1959, an average of one for each working day. The 707s and 720s alone had carried 36,700,000 passengers some 922,500,000 miles during 2,100,000 hours in the air with 29 airlines by April 11. Another 915,000 flying hours had been logged by the military KC–135s and C–135s.

The 1,000th Boeing Jet transport was a 707–320C cargo-plane for Pan American World Airways. One of the proudest of its 999 predecessors is the VC–137C illustrated on page 285. Operated by the Special Air Missions Squadron of the Military Air Transport Service, this specially-equipped aircraft is intended to provide 550 m.p.h. transport for U.S. Government officials, including the President, and important foreign guests.

Tape Recording—

(*Continued from page 310*)

just as individual machines, but as integral and vital units in the whole vast and complex framework of Hi-fidelity."

Even so, sometimes a unit can be pretty big, which only shows how large the overall Hi-fidelity framework is. In spite of the fact that the tape recorder has only been popularly developed over the past quarter of a century, its origins run surprisingly parallel with that of the gramophone, or as we now call it, the record player. It is certainly making up for the late start in its development.

Next month, to conclude my series on tape recording, I will be telling you a few strange stories centred around these versatile machines.

A.B.C. Television—

(*Continued from page 287*)

all was ready for the official switch on. At the ceremony, to which I was invited, were Mr. David Burry (Northern Advertisement Manager for A.B.C. Television), Mr. Silverstone, Mr. Derek Meakin (Northern Features Editor, TV Times), Mr. Maldwyn Griffiths (A.B.C. Press Officer) and Mr. Alex Stuttard, (Assistant Press Officer, A.B.C.)

Mr. Burry expressed A.B.C's appreciation to Meccano Limited for their invaluable help in creating what he described as a truly wonderful display, Then he operated control units to switch on both the road network and Hornby-Dublo train display.

Everything went smoothly, and in no time at all Television House became a focal point for hundreds of Manchester's citizens, young and old.

Dinky Toys News—

(*Continued from page 297*)

prevent damage to them. Firstly, wipe off any traces of oil which might be on moving parts such as axles or wheels, or the hinges of models fitted with opening doors and lifting boots or bonnets. Sand sticks to oil and could build up, clogging the bearing surfaces; wheels, for instance, would be difficult to turn. As you move your vehicles around you may get some sand or soil on them and the important thing to remember is to remove any traces of grit, etc. from them before you put them away.

Finally, try not to let your models come into contact with water, particularly salt water. If they do so for any reason, dry them at once.

Stamp Gossip—(*Continued from page 314*)

Invasion of Hastings. The head postmaster said that he had received requests for between 500 and 600 covers, and if one came your way with the date April 1 then you have a "first day" of the first British pictorial postmark. If you have one, put it away, *don't carry it around in your pocket*, for that is the way to crumple and spoil it, and how often has that been done with stamps? Incidentally, the illustrations show how the Swiss do it; as well as how we have been doing it.

THE TIP OF THE MONTH

There is an immense lot doing in the stamp world just now, and with so many stamps being issued it is quite impossible to go in for everything new. So this month, instead of tipping a special stamp or stamps, I am going to urge that, rather than trying to buy everything, you should concentrate a bit. Consider just a few countries—or a subject—which may interest you, and try to get a good show of those countries, rather than odd lots from all over the world.

I am afraid no stamp enthusiast can succeed today with a general collection, so don't try.

Fireside Fun

"A fool and his money are easily parted"—
This statement I frequently started from.
But does anyone know how the fool got the dough
That everyone says he is parted from?

"The very idea!—Pulling the little cork out to look at the fishes!"

The secretary kept turning the pages of the dictionary until finally another office worker asked what she was trying to find.

"Bankruptcy," said the first.

"Well, why are you looking way back there?"

"I know how to spell bank" she replied, "and now I'm looking for ruptcy."

* * * *

Two women who had not seen each other for a long time met on the street.

"Oh, Mary", exclaimed one of them, "so many things have happened to me since I saw you last. I've had all my teeth taken out . . . and a new stove and refrigerator put in!"

* * * *

A doctor sent a bill with this note, "This bill is one year old."

The patient sent it back with a little note of his own, "Happy Birthday!"

"Is this the wonderful view you told me about, Skip!"

First operagoer in a queue for tickets to see Gounod's Faust, "Do you like Mephistopheles?"

Her less knowledgeable companion, "Well, I prefer Mackintosh's Toffilees."

* * * *

Two men were sitting in a discussion group in an army camp, and the conversation somehow drifted to the topic of reincarnation. A certain private, a firm believer in the subject, was giving his views to the most disliked sergeant in the camp.

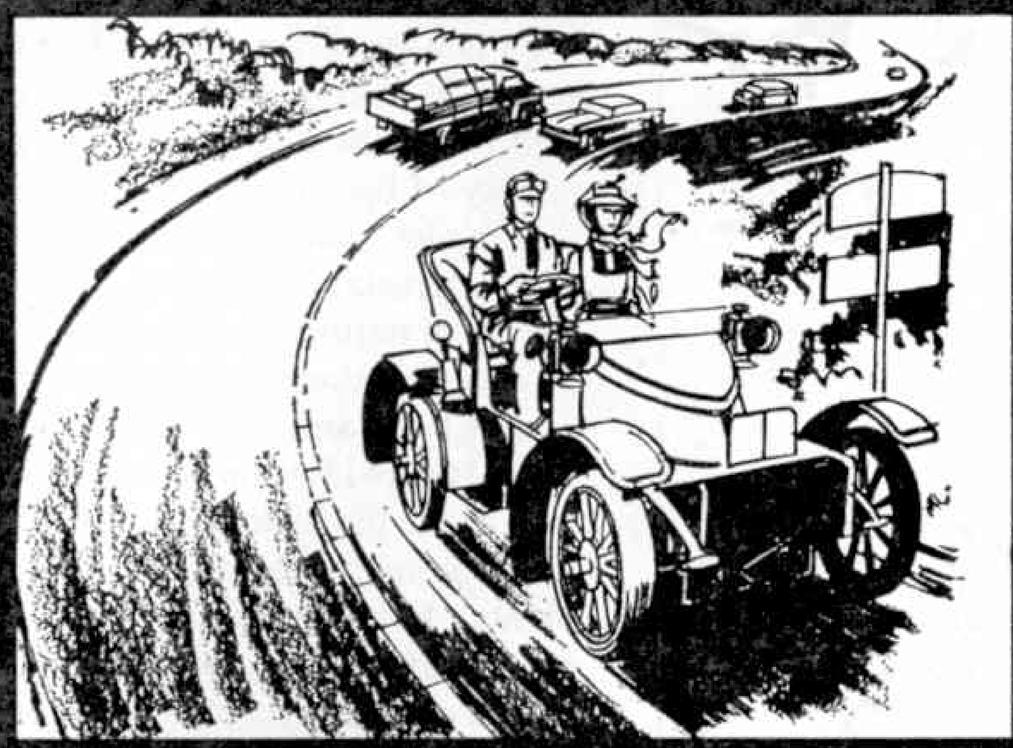
"Yes," he said, "when we die, we always return as something else."

"Rubbish!" snapped the sergeant. "Do you mean to say that, if I died, I might come back as a hog?"

"Not a hope," interjected one of the men, seizing an opportunity. "You're never the same thing twice!"

" 'Phone call for you, pop!"

Well! WHAT D'YOU KNOW...



NEW TYRES FOR "OLD CROCKS"

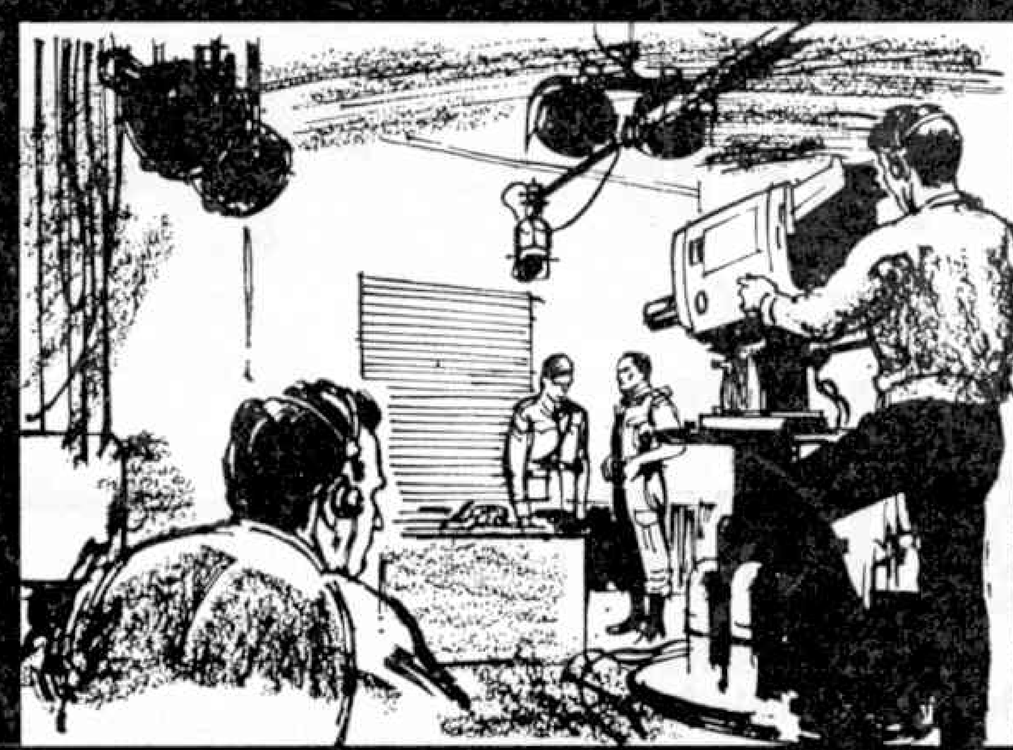
The veteran and vintage cars, treasured by so many enthusiasts, need different size tyres from those on the market today. But thanks to Dunlop, the only people who make up-to-date tyres especially to fit out-of-date cars (some over 60 years of age), the "old stagers" can still be kept roadworthy.

A FAR-STRETCHED STORY?

Under the cover of a Dunlop golf ball there's a winding of rubber thread which would stretch to over twice the height of St. Pauls Cathedral! Dunlop sells golf balls all over the world at an average rate of one every second!

COLLAPSIBLE FIRE FIGHTERS

Giant rubber water bottles—Dunlop Collapsible Containers—are being used for fire fighting in the Australian bush. Quickly mounted on Land Rovers they are filled with 150 gallons of water and rushed to danger spots. When not in use they are rolled up for easy storage.



NEW FLOOR STOPS TV DOLLY-WOBBLES!

TV cameras are mounted on trolleys—called "dollies"—which move around the studio. To stop "dolly-wobbles" and so give you a rock-steady TV picture, the ABC studios called in Semtex Ltd (a Dunlop company) who laid a specially smooth and level floor to give the cameras a vibrationless ride.

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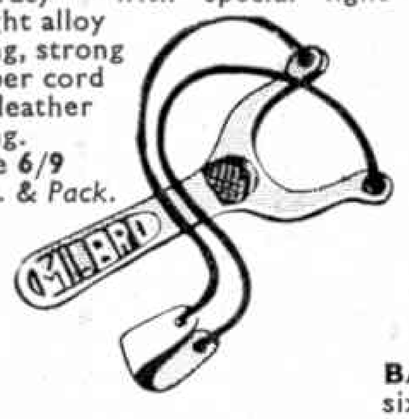

BAZOOKA. Fires six rounds with one loading. Muzzle loading. 14 in. long.
Price **9/11**
Carr & Pack. 1/3

PASSWORD. The new television game for four players. For ages 10–100.
Price **10/6**
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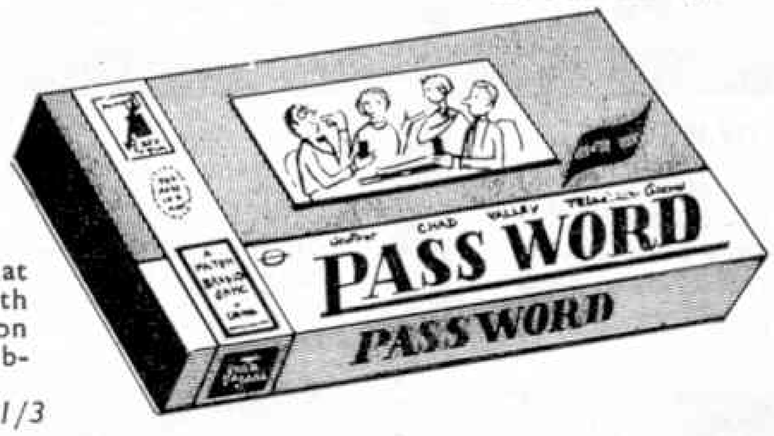

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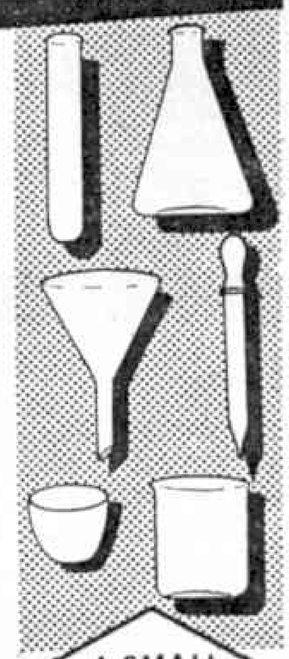

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Prospectus and further information may be obtained from the principal
Robert E. Presswood,
Director of Education,
City Hall, Cardiff.

RECENT ADDITIONS TO THE HORNBY-DUBLO RANGE

HORNBY DUBLO

In style and construction these new Restaurant Cars match the latest Hornby-Dublo Corridor Coaches, with their strong metal sides, bases and bogies. Roofs, ends and underframe details are plastic mouldings. Each vehicle has interior fittings and glazed windows.

No. 4070 Restaurant Car is finished in W.R. brown and cream livery.

No. 4071 Restaurant Car is identical in design and construction to No. 4070, but is finished in B.R. standard maroon

No. 4070 Restaurant Car W.R. with interior fittings.
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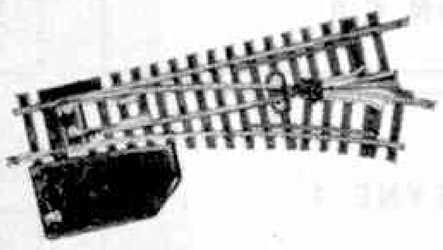
Length $9\frac{3}{4}$ in. U.K. Price **16/9**

SIMPLEC POINTS



Hornby-Dublo (00 Gauge) "Simplec" Hand-Operated Points. The new "Simplec" Hand-Operated Points are available in Right-Hand and Left-Hand form. Since these points are self-isolating, there is no need for the inclusion of Double Isolating Rails in any track circuit to which they are added

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No. 2751 "Simplec" Hand-Operated Point L.H.
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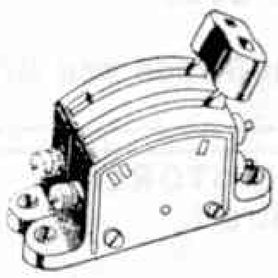
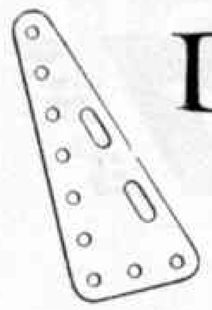


No. 1612 SWITCH LINK HANDLE

The switch link handle is designed to fit on to the levers of two adjacent Hornby-Dublo Switches so that they may both be moved at once. U.K. Price **9d.**

HORNBY DUBLO

MADE BY MECCANO LIMITED



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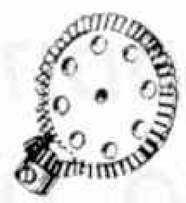

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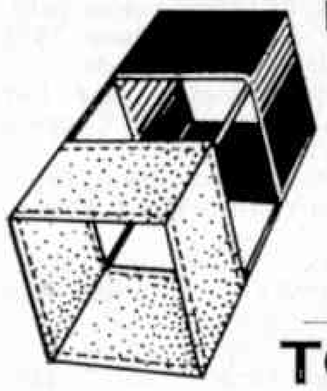

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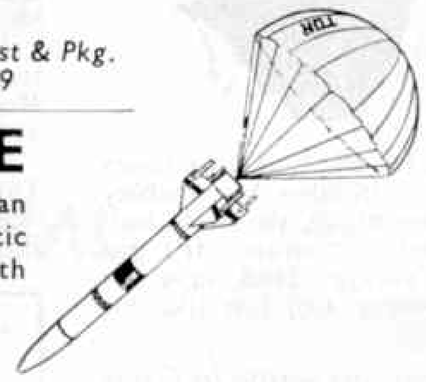

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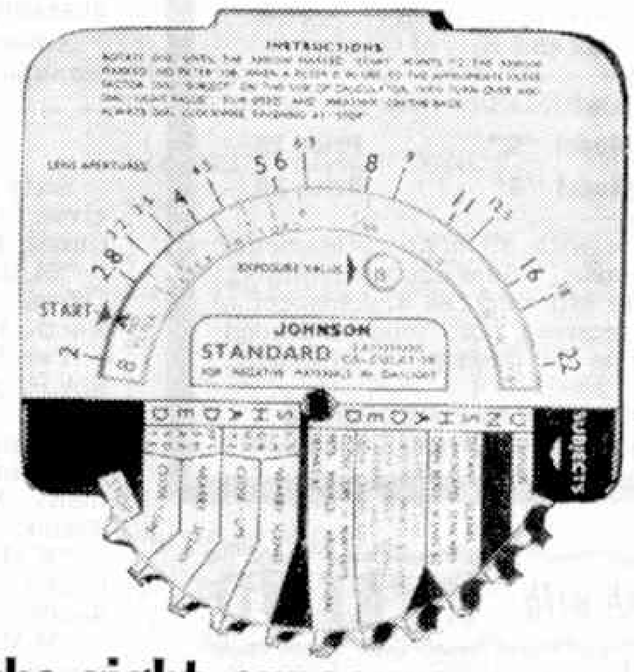

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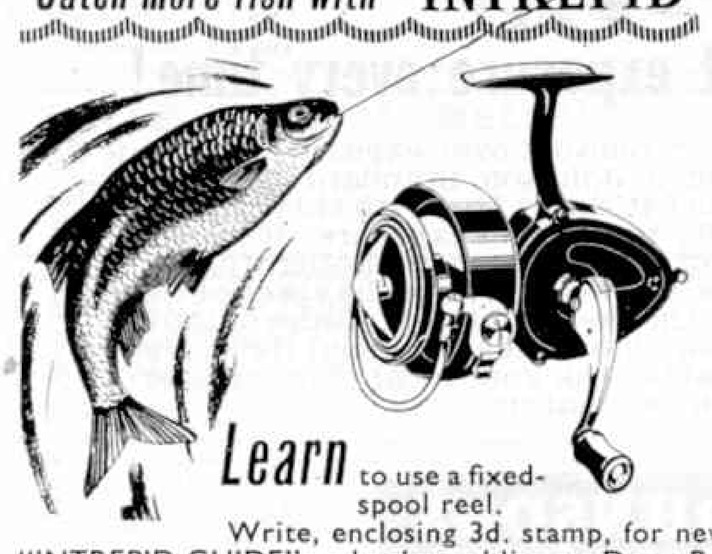

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