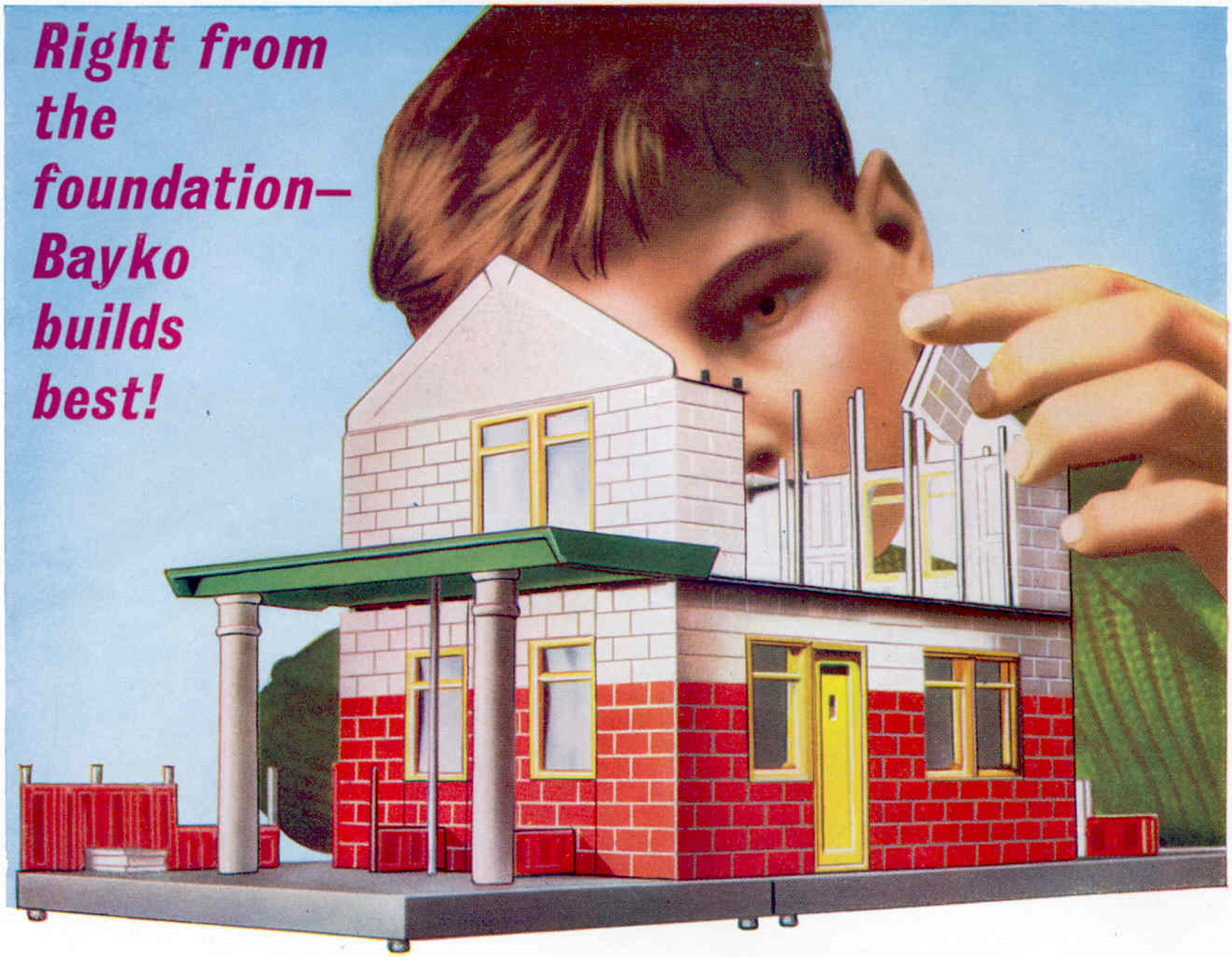
VOL. XLVIII. No.3 MARCH 1963

MECCANO MAGAZINE

1/3

SOUTHBOUND FROM YORK



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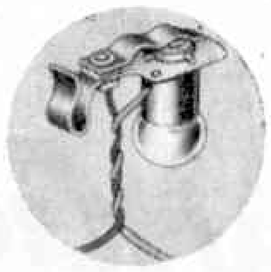

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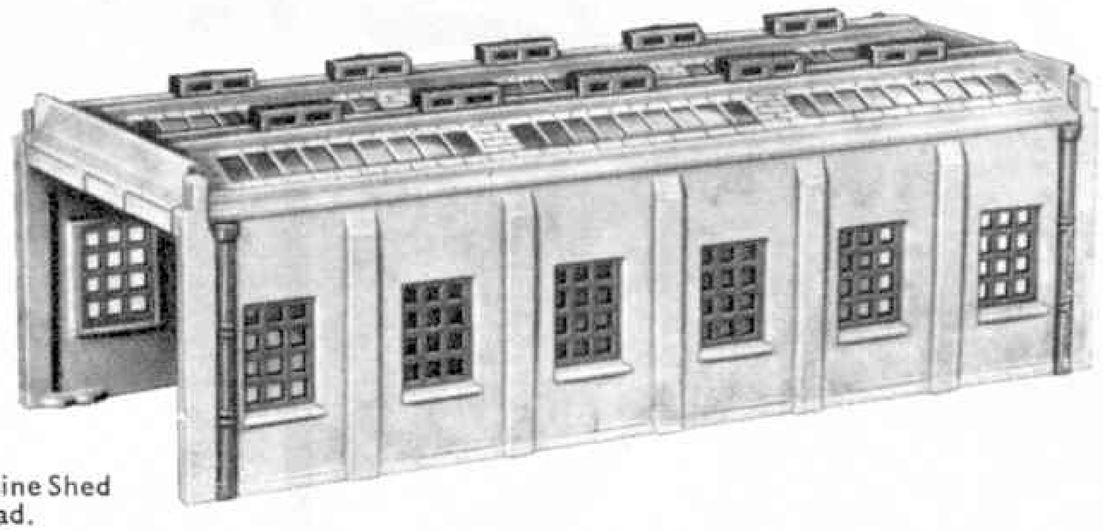

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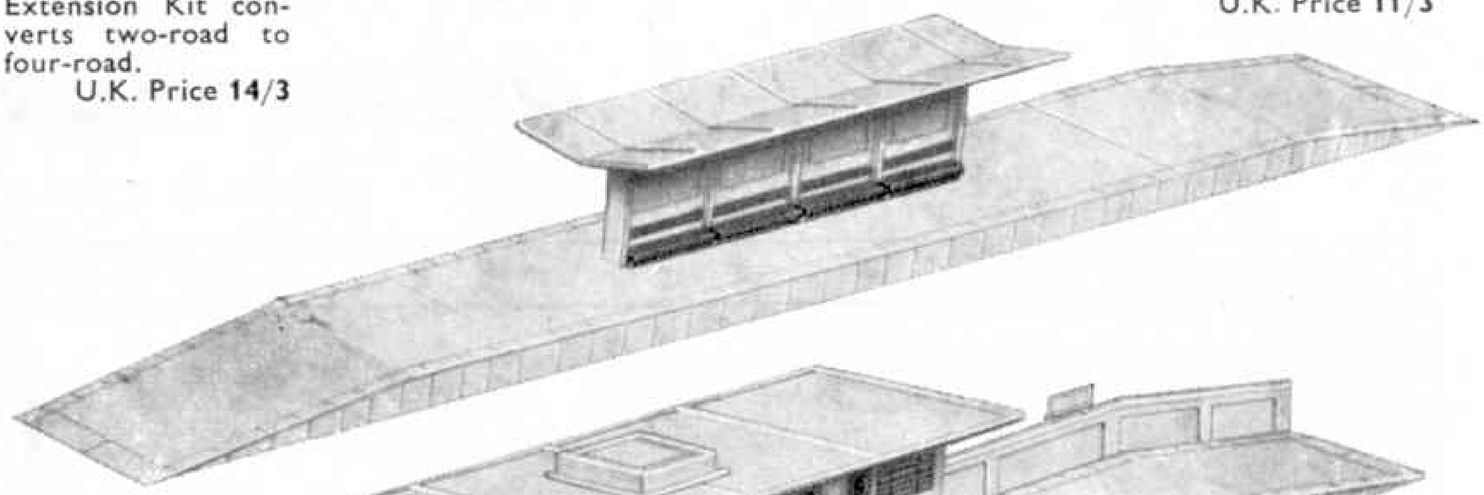

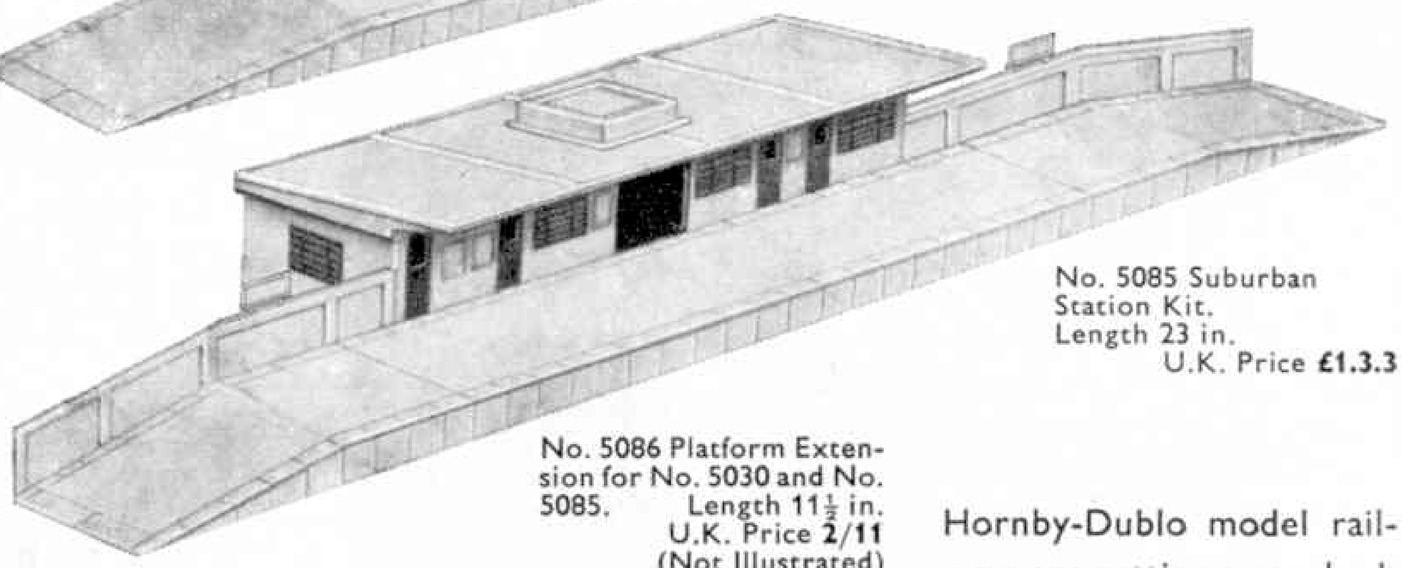

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Length 11½ in.
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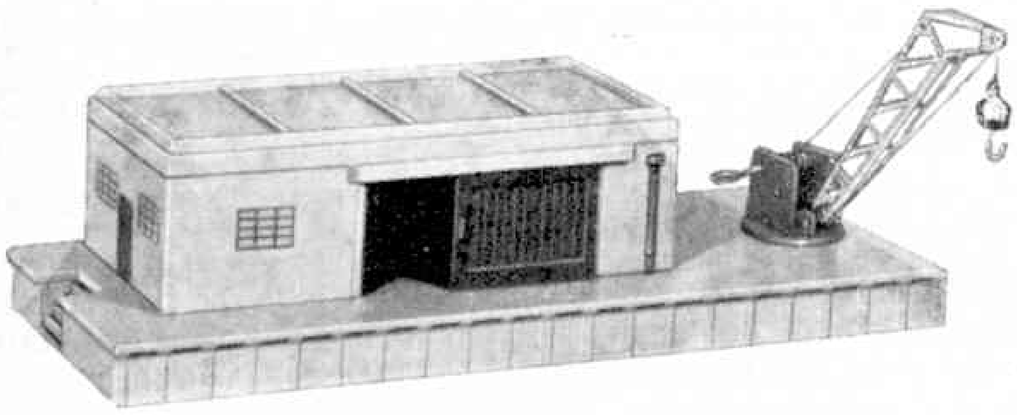
No. 5020 Goods Depot Kit.
Length 11½ in.
U.K. Price **£1.9.0**



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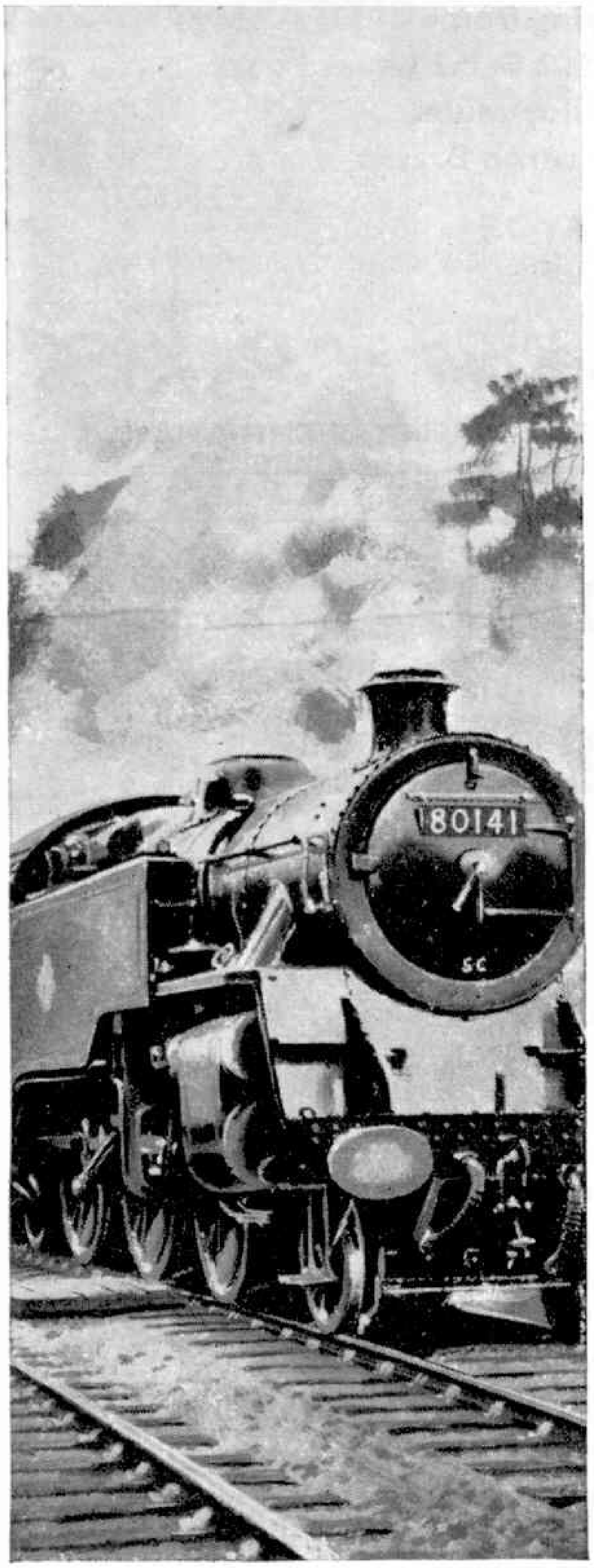

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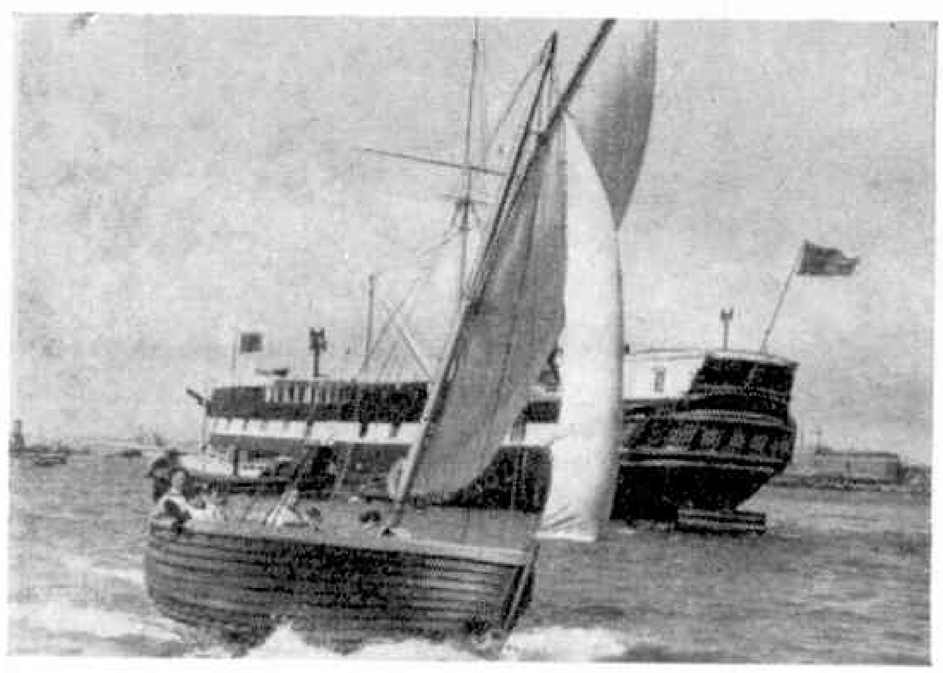

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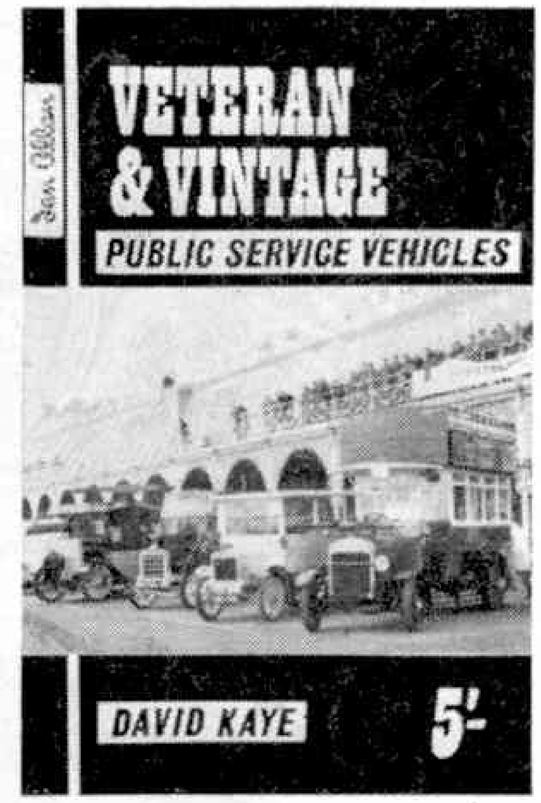

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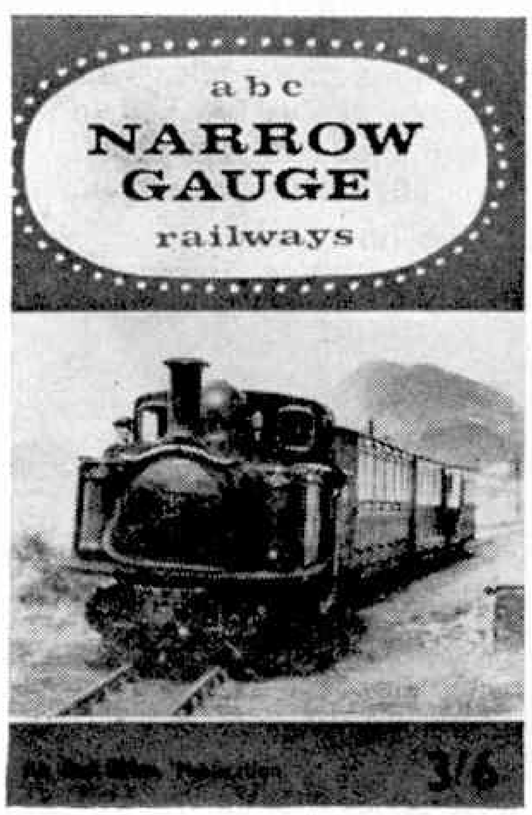

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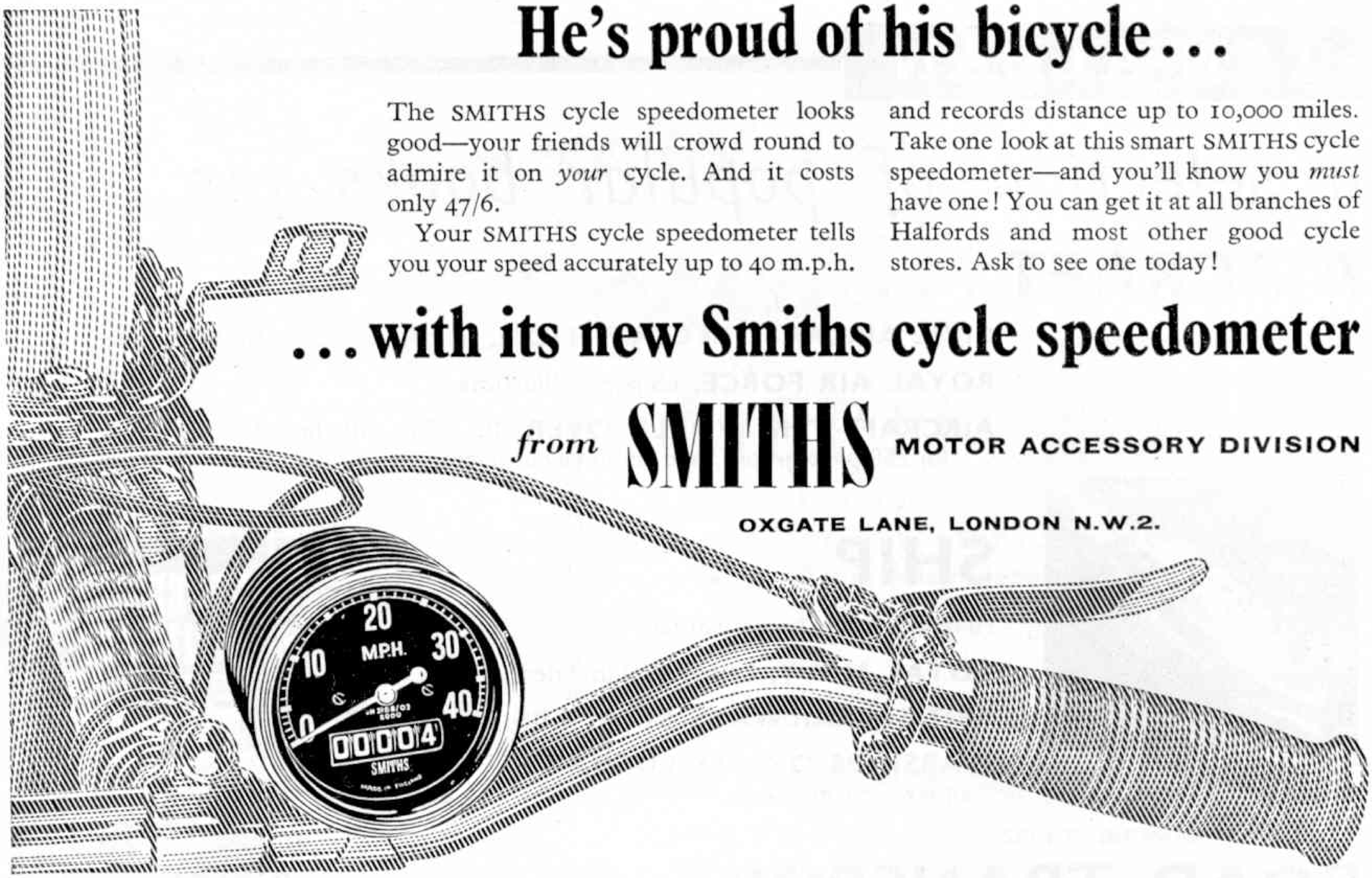

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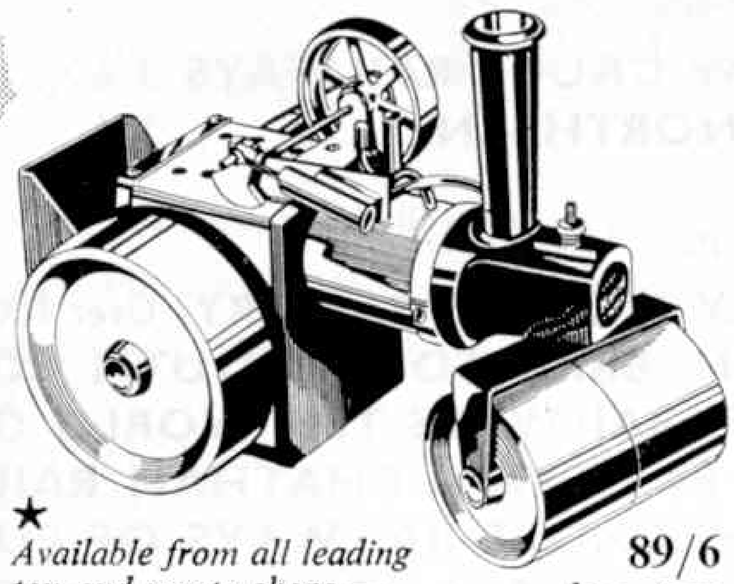

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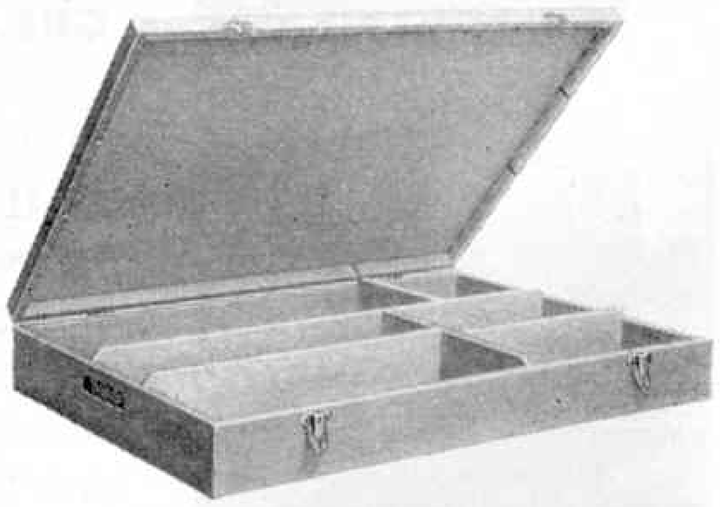

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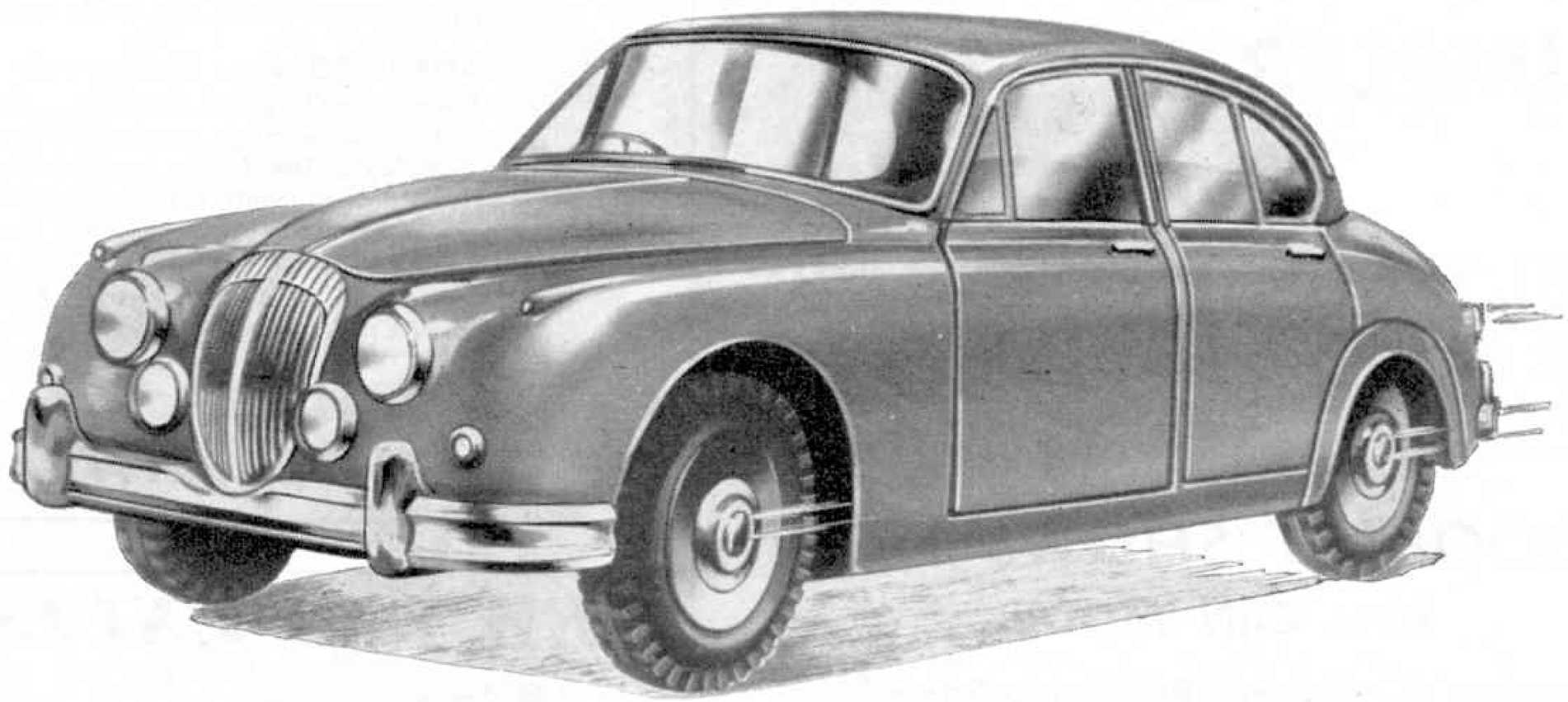

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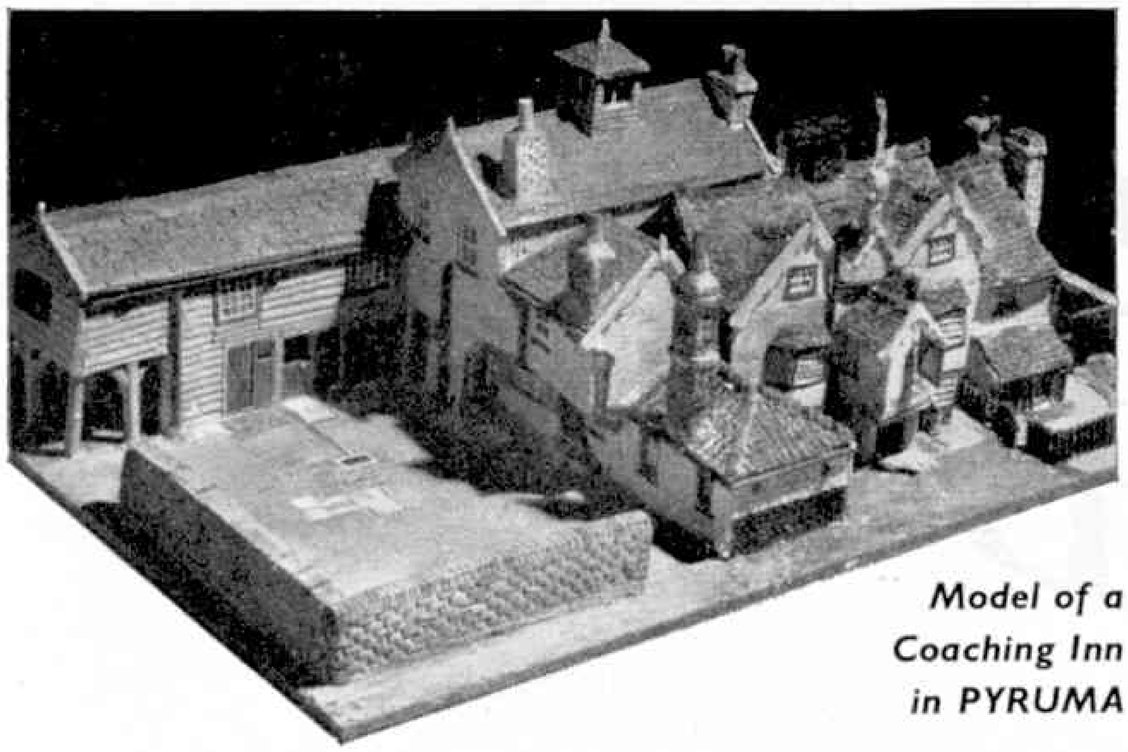

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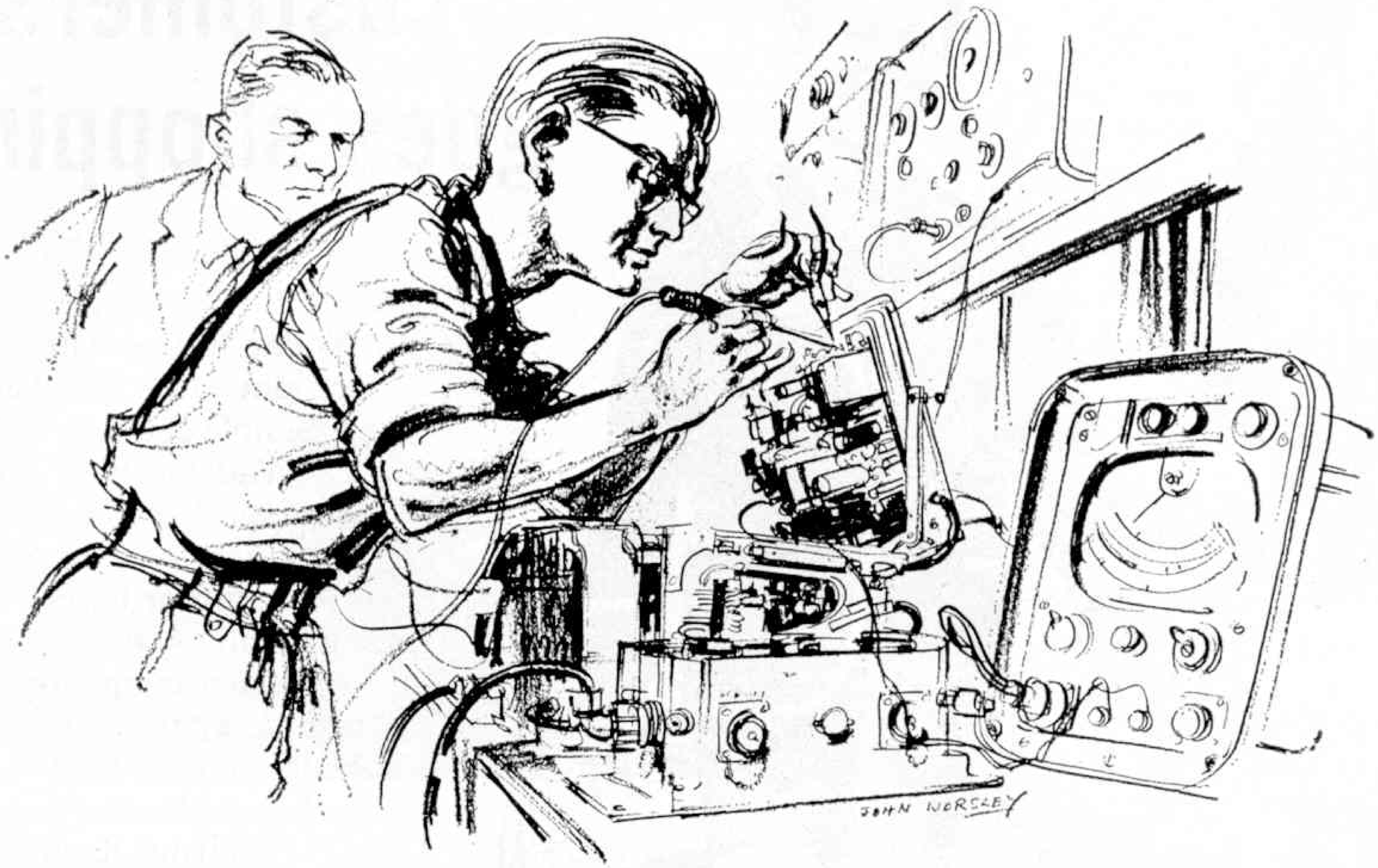

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MECCANO MAGAZINE

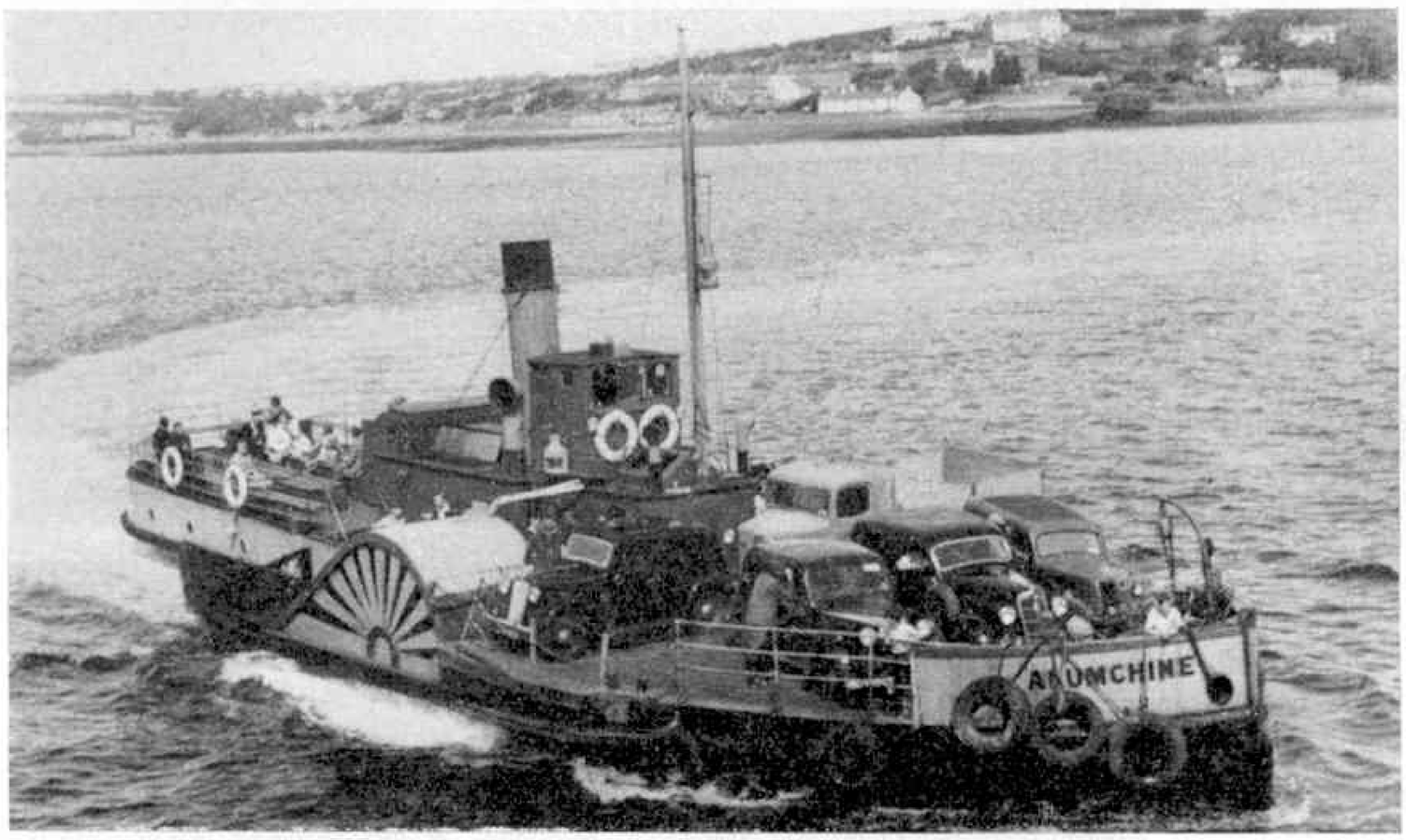
Volume XLVIII No. 3 March 1963

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



I HEARD some little time ago from the Paddle Steamer Preservation Society, founded only three years ago, that they had, as a first step, acquired Britain's smallest passenger paddle steamer, the 76-ton *Alumchine*, which you see pictured here. It was purchased from the Pembrokeshire County Council. When the *Alumchine* was advertised for sale the society had only a few days in which to raise the money, but an appeal was immediately launched. Donations were received from all over Britain and even from South Africa, the United States and Sarawak. A neighbour of one of the society's members immediately sent a guinea to the fund while the owner of a steam yacht, who also was not a member, promised fifty pounds if the ship were acquired.

Every member was asked to contribute an average of £5 and donations were received from two retired admirals, parsons, a bishop, office workers, a turf accountant and a ladies' hairdresser.

Acquisition of the *Alumchine* means that the society will gain experience in operation and maintenance—and the cost attached to those items! In the light of this knowledge they hope to purchase a bigger and more representative excursion paddle steamer.

Present plans are to bring the ship round to the South Coast under her own steam, manned by members of the society. She will be berthed at Poole, or in the Solent at Southampton or Portsmouth. During the summer a limited number of cruises will be undertaken but it is not the society's intention to compete with commercial operators.

Built in 1923 at Queensferry, Chester the *Alumchine* is 80 feet long, and has two saloons. A coal burner, powered by a two-crank compound diagonal engine, she has accommodation for 200 passengers and a number of cars. During the past few years she has been employed on the Neyland–Hobbs Point ferry run but was withdrawn last July following the introduction of a new ship.

In concluding this month, I would like to say a word of thanks to readers who write to me from all parts of the world stressing the enjoyment they find in the Meccano hobby. Many of those who put pen to paper, and a great number of people I meet on my travels, emphasise that a deep interest in Meccano has helped them considerably in their vocation or profession. I was particularly impressed by a letter I received not long ago from a correspondent in Malta—Mr. J. S. Manduca of Balluta. He has had a life-long connection with Meccano-building and I am sure you will all be interested in what he has to relate. You will find his story—*Meccano and Me*—on page 128.

THE EDITOR

Next Month: CONTINENTAL CANALS

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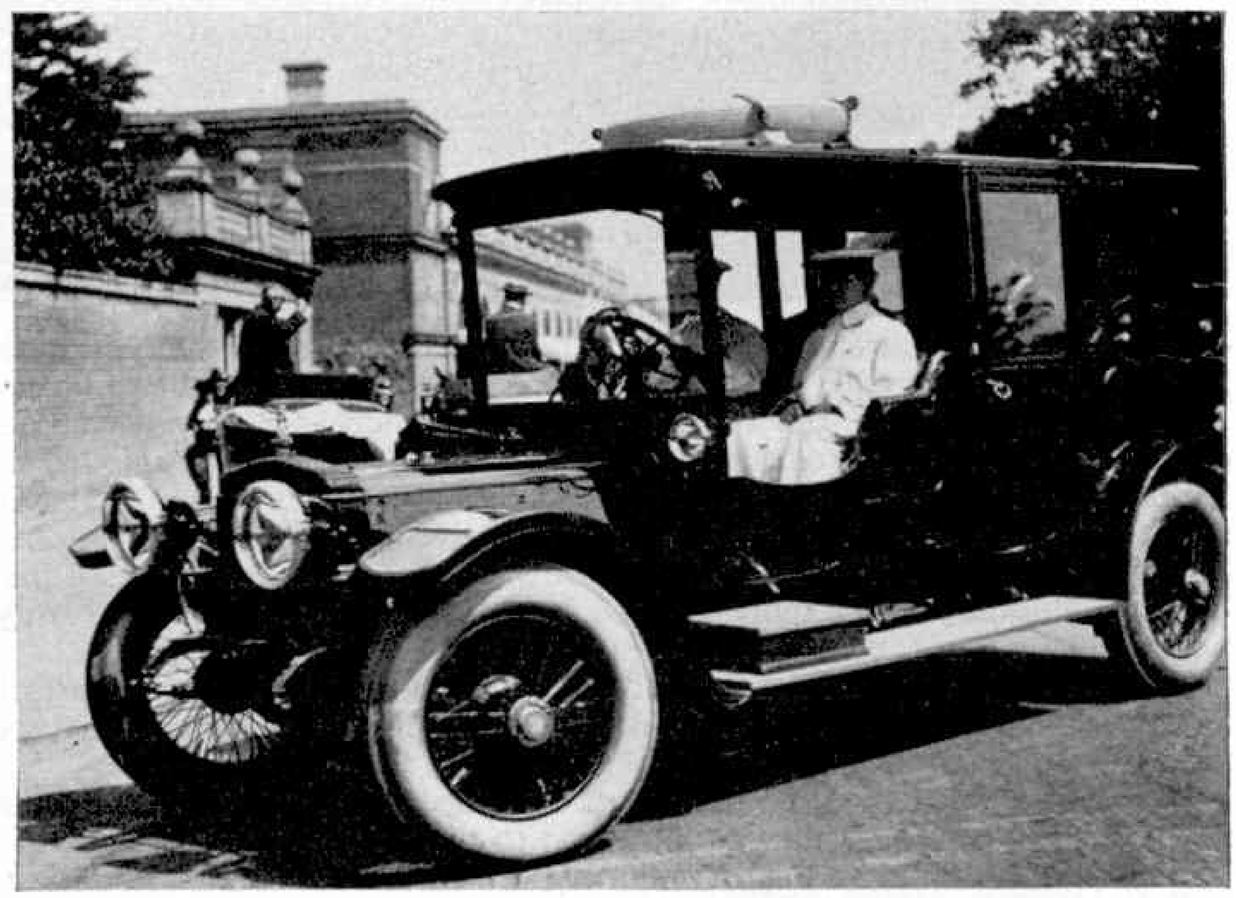
OUR FRONT COVER

The action picture which forms our cover shows an East Coast express making its way through points and crossings south of York. It is hauled by No. 60017 Silver Fox, *originally L.N.E.R. No. 2512, one of the first four streamlined Pacifics of 1935. On the sides of the engine are representations, in stainless steel, of a fox in full flight. These were presented by the United Steel Companies Limited. In August 1936,* Silver Fox *reached a speed of 113 m.p.h. while hauling the four-hour* Silver Jubilee *from Newcastle to King's Cross. Another member of the class still prominent on express duties is No. 60022* Mallard, *holder of the world's speed record for steam of 126 m.p.h., which has a counterpart in the Hornby-Dublo range.*

MASTER OF THE QUEEN'S HORSE-POWER



King Edward VII was the first British Monarch to own a car. The top picture shows the King about to leave Lismore Castle for a motor drive. On the right the Royal Daimler is seen arriving at Ascot in June 1913.

HER Majesty the Queen owns the finest fleet of private motor-cars in the world, and, strangely enough, the official in charge of them is the Master of the Horse! He is the Duke of Beaufort, who was appointed to the post in 1936.

King Edward VII was the first British Sovereign to own a motor-car, and it was he who decided that the new type of vehicle was to come under the jurisdiction of the officer whose post for centuries had been traditionally associated with the royal horses and carriages.

The Marquis de Soveral, King Edward's intimate friend, solemnly suggested that a new official, to be called Master of the Petrol Horse,

By

LESLIE E. WELLS

should be appointed. King Edward VII made his first trip in a motor-car, a belt-driven Cannstatt–Daimler, on February 14, 1896, the driver being the late Hon. Evelyn Ellis.

The king enjoyed the experience so much that he purchased a number of cars, chiefly Daimler and Mercedes models, a few months after Queen Victoria's death. It was Edward VII who ordered the Royal Mews at Buckingham Palace to be altered to accommodate cars, a procedure which gravely upset the Victorian coachmen and stable-lads.

The motorist of today owes much to the British Sovereigns of this present century. Edward VII by his patronage did much to break down the general antagonism to the motor. He agreed to become Patron of the Automobile Exhibition in the Crystal Palace in 1903—the pioneer of the modern Motor Show—and conferred in 1907 the prefix "Royal" to the Automobile Club, founded in 1897. The first British Sovereign to motor took a great personal interest in the transformation of the Royal Mews at Buckingham Palace, Windsor Castle, and Sandringham to house the royal cars.

It is probably true to say that in those early days the real Master of the Horse, so far as actually looking after the cars was concerned, was Stamper, a motoring pioneer, who was given by King Edward VII the title of "Motor Mechanic" and put in working charge of all the royal cars.

The Earl of Granard, who succeeded the Duke of Portland—the first Master of the Horse to have a fleet of cars under his supervision—continued, except for a brief break, as M.O.H. until the death of King George V. During his period of office he witnessed the gradual evolution of the high-wheeled "smelly" cars to the present-day modern vehicle.

The Queen, in addition to providing cars for herself and her family, has to put a good number at the disposal of her personal suite and staff.

The Master of the Horse has

three cars for his own public and private use and the Queen's Private Secretary has at least two. Then there are equerries, high Household officials, and servants, each of whom has his own special car in the Royal Mews. As can be imagined, the upkeep of the Queen's cars costs a considerable sum every year, and control of the money is entirely in the hands of the Master of the Horse, who is allowed a certain sum per annum out of the Queen's State allowance. No car can be bought, repaired, or scrapped for the Royal Household without the authority of the Master of the Horse or his acting deputy, the Superintendent of Royal Mews.

A contrast with the early days—the Queen, with the Duke of Edinburgh, visited Versailles in this stately limousine during her visit to France in 1957. All the photographs illustrating this article appear by courtesy of the "Radio Times" Hulton Picture Library.

The departure and return of every car in the Mews is minutely recorded—"joy riding" by royal employees is absolutely impossible! Royal cars are purchased through dealers in the ordinary way and usual list prices are paid for them. Every day, the office of the Master of the Horse is flooded with circulars from car firms all over the world, but generally a select list of a mere handful of London car dealers fulfils all the requirements of the Master of the Horse.

* * * *

If the Queen or any member of the Royal Family or Household wishes to examine a new model, the dealer selected is requested to send a car to the Mews for inspection or, perhaps, trial. On these occasions the M.O.H. is always present, and unless the Sovereign intimates the desire to acquire a car on show, the "Master" can decline, if he so decides, to sanction any purchase. Apart from the Queen he is the sole arbiter in the matter.

A number of elderly drivers have been pensioned off and young men put in their places. To secure a post in the Royal Service is the ambition of every private chauffeur in London who is aware of the excellent working conditions in the Mews. Scores of application for jobs, even as car washers, reach the Master of the Horse.

Tests for prospective Royal drivers are very severe, which perhaps explains why so few accidents or mishaps ever happen to any of the Queen's cars.

The post of the Master of the Horse is no sinecure, for it carries a great responsibility. Yet there are very few motor-car lovers who would not jump at it!

During a visit to the United Services' point-to-point at Larkhill, Wiltshire, the Queen drove across country by jeep for the start of the Coronation Cup event.

FESTINIOG RAILWAY PUBLICATIONS

The latest **Festiniog Railway Guide Book** presents not only a mile-by-mile description and maps of the route of this pioneer narrow-gauge line between Portmadoc and Tan-y-Bwlch, but also forms a history of the railway, with numerous fascinating illustrations.

The Festiniog Railway in Pictures gives an illustrated history of the line during the ten years of its revival period, starting in 1951. The hard work involved in getting the derelict railway and its equipment going again, and the thoroughness with which the job has been done, are evident in many of the well-reproduced illustrations. These are pictures that really tell a story.

Festiniog Railway Stock Book includes lists of locomotives, carriages and wagons owned by the railway. The different types are illustrated and spotters no less than more mature enthusiasts will find much in it to delight them.

The above publications are obtainable from the Festiniog Railway Company, Harbour Station, Portmadoc, Caerns. Prices, including postage: **Festiniog Railway Guide Book, 2/6; Festiniog Railway in Pictures, 3/–,** and **Festiniog Railway Stock Book, 1/9d.**

A Century Of Railway Rope Haulage

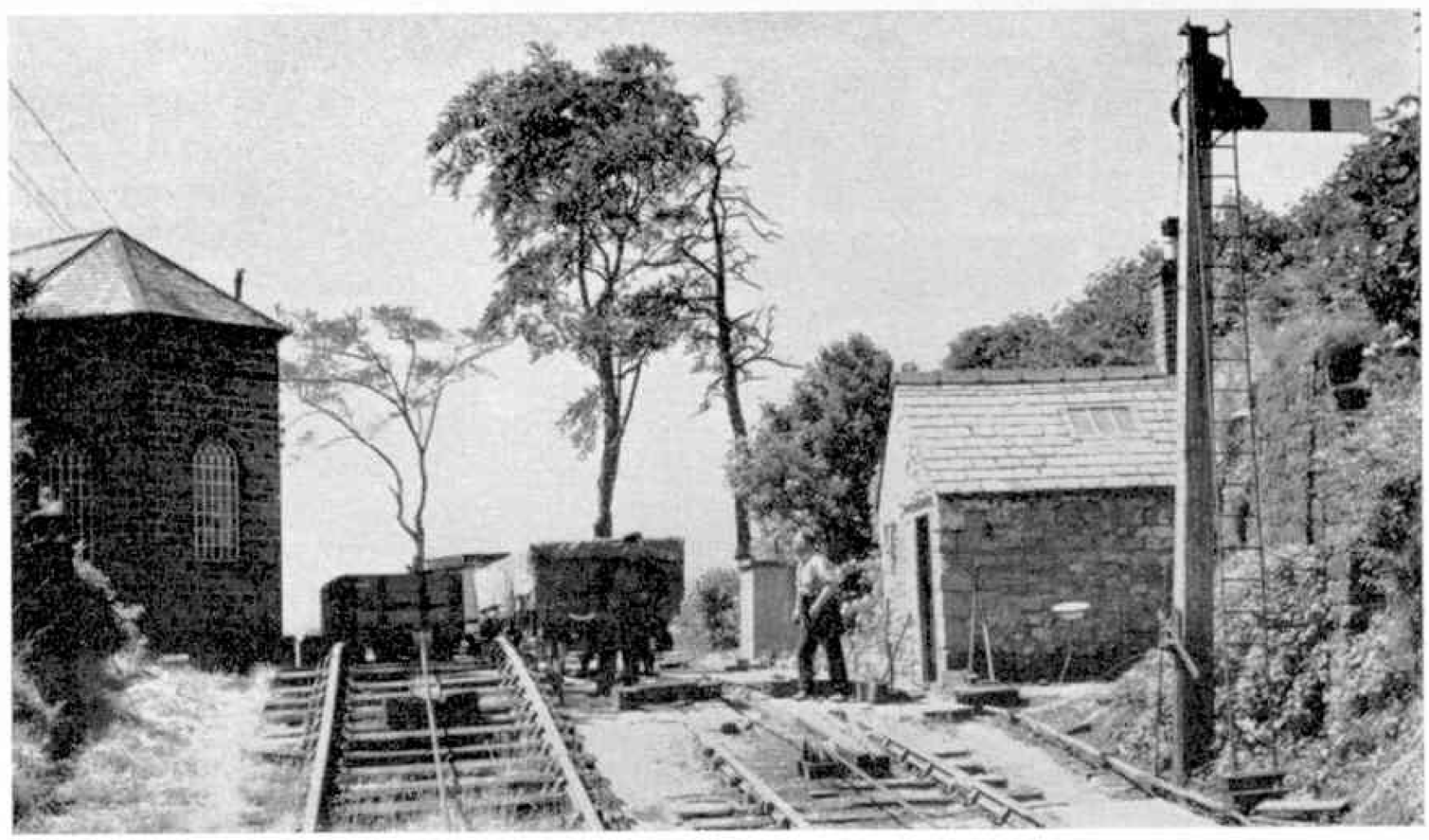
By J. Perry

WAY up in the High Peak district of Derbyshire is a little-known 33-mile railway, which could almost be called a museum piece if it did not serve a highly utilitarian purpose. It runs from High Peak Junction on the old Midland line and on through Cromford to Ladmanlow, where it now stops, and it is a line reserved for freight. For most of its career, which has extended over 130 years, the railway ran on to Whaley Bridge, but that section was closed about ten years ago.

The line twists, turns and corkscrews past rocky outcrops in wild moorland country, as well as through some of the most lovely pastoral and woodland scenery of North Derbyshire.

Whatever modern railway reorganisation may bring to the Cromford and High Peak Railway in the future this line can boast an interesting history. It began with horse traction, but three years after its opening became the proud possessor of its first steam locomotive, which was built by Robert Stephenson and Company four years before Queen Victoria came to the Throne. It took more than 30 years, however, for steam to replace the horses completely.

Top: Sheep Pasture incline on the Cromford and High Peak Railway showing the catch pit with the tracks either side of it. Below: The top of the Sheep Pasture incline.



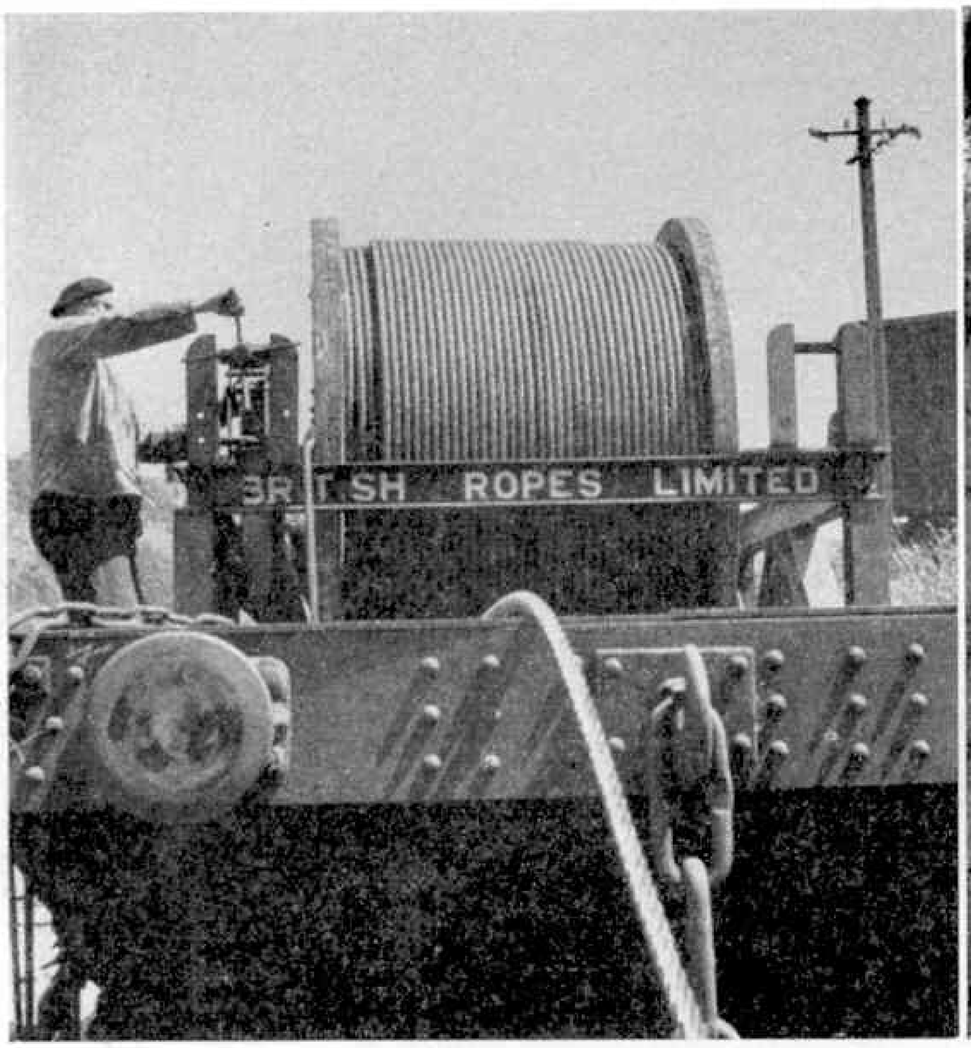
Throughout its history the line has included exceptionally severe gradients where both horses and steam haulage have been replaced by cable. There are still two such inclines in existence, at Cromford itself and at Middleton, a short distance away to the west.

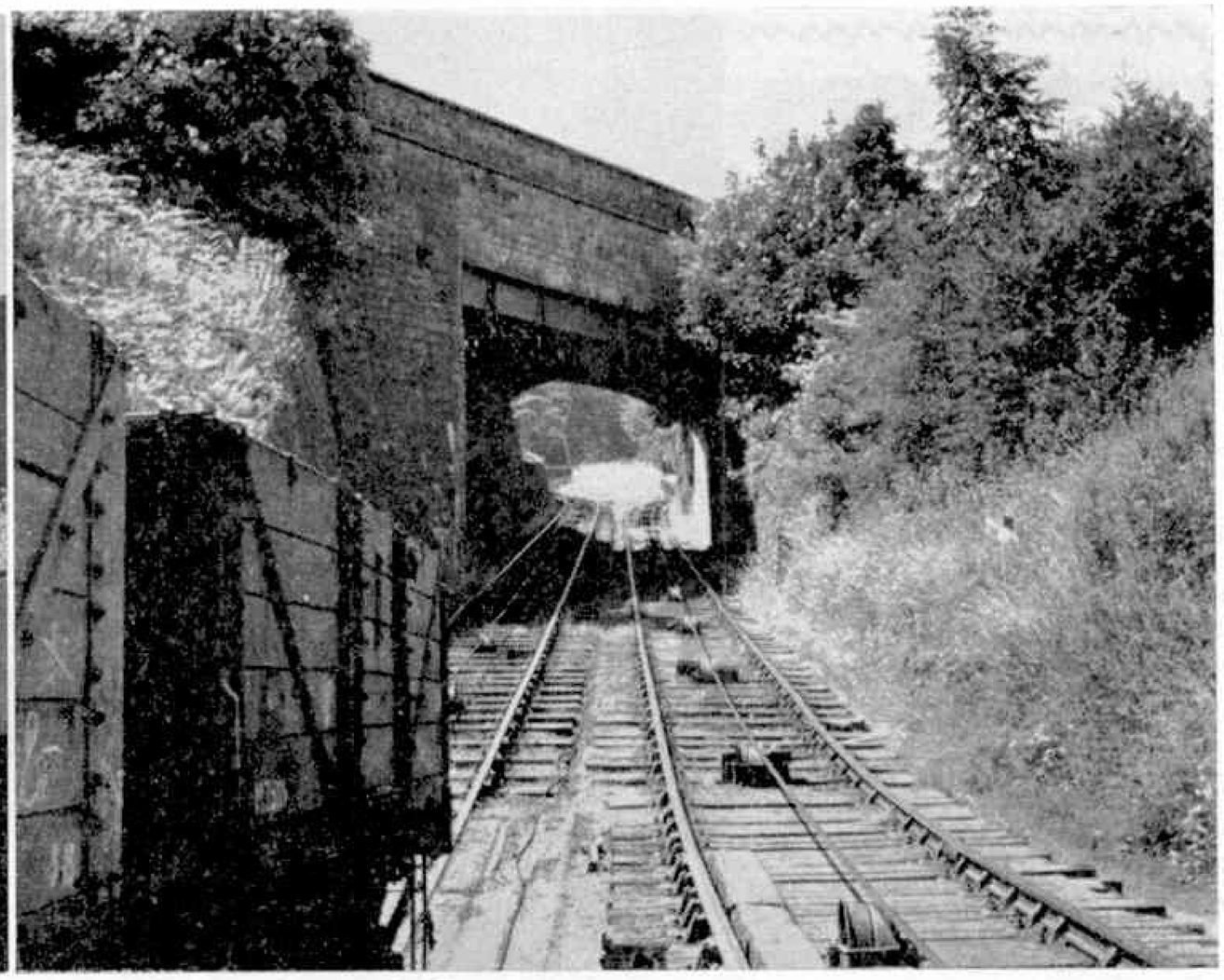
These two inclines, which rise very steeply, were operated by continuous chains until 1856, when chains gave way to hemp ropes. These were, in turn superseded by steel wire ropes in 1861. They are still used on both inclines and provide what is almost certainly the longest instance of continuous rope usage for railway haulage in this country.

At the top of the Middleton incline is a beautifully-kept old beam engine. It was the first to be installed on the several inclines of the railway and is to-day the sole survivor of the old stationary engines.

The winding engine at the top of Sheep Pasture incline, as the slope starting at Cromford is known, was built in 1883. It is of the twin-cylinder, horizontal type and drives the original fly-wheel and pulley through bevel gears. Its steam, at 80 lb. to the square inch, is provided from an old locomotive boiler, fired almost entirely with wood.

Some two years ago a new rope was fitted on the Sheep Pasture incline, longest and steepest on the line. The length is 1,349 yards and





The new rope arrives (left) and is put to work. Right: The vista looking upwards from a point near the Sheep Pasture gradient.

the gradient begins as one in nine, and increases to one in eight.

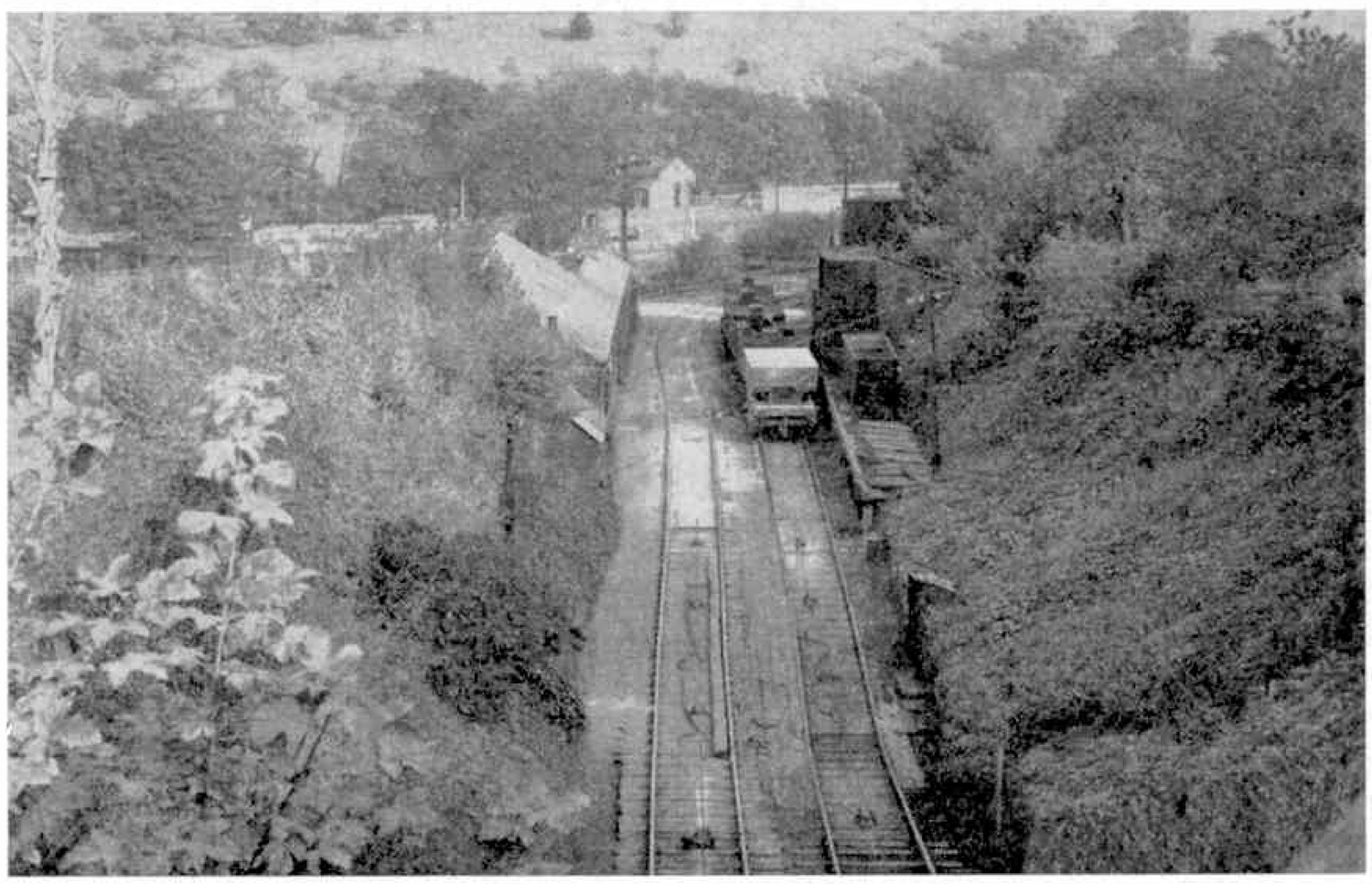
Two fitters from the same unit company of British Ropes Limited —which supplied the first rope 100 years ago—cut and spliced the new rope on to the old one at Cromford, where the rope runs underground round a large pulley in a pit beneath the running tracks. They did the job on a Saturday afternoon, looking on it as a jolly good day out in the country. By no means the least of their experiences, they say, were occasional encounters with grass snakes measuring no less than four feet in length.

The fitters first went up the incline with the new rope, taking it round the curve to the engine house, where the rope runs underground again and passes round a loose pulley measuring 14 feet 1 inch in diameter. It then goes round a driving pulley, which is the same size as the loose pulley and is situated immediately below it. Thus the arc of contact between the rope and the driving pulley is increased and reverse bends in the rope are avoided. By six o'clock the workmen had completed the job and there was a continuous new wire rope measuring about 2,880 yards in length up and down Sheep Pasture incline, all ready for use on the Monday morning.

A truck is fixed to the continuous haulage rope by what might be called plaited chains. These are attached to the back of the truck, brought over the axles and lashed to the haulage rope at a point ahead of the vehicle. Like most things on the Cromford and High Peak Railway, the idea is primitive but effective.

The maximum permitted weight of a run is 38 tons. The weight of the descending run is usually rather more than that of the upward journey; so they economise on the Cromford and High Peak line and the winding engine is only necessary for regulating the speed of the run.

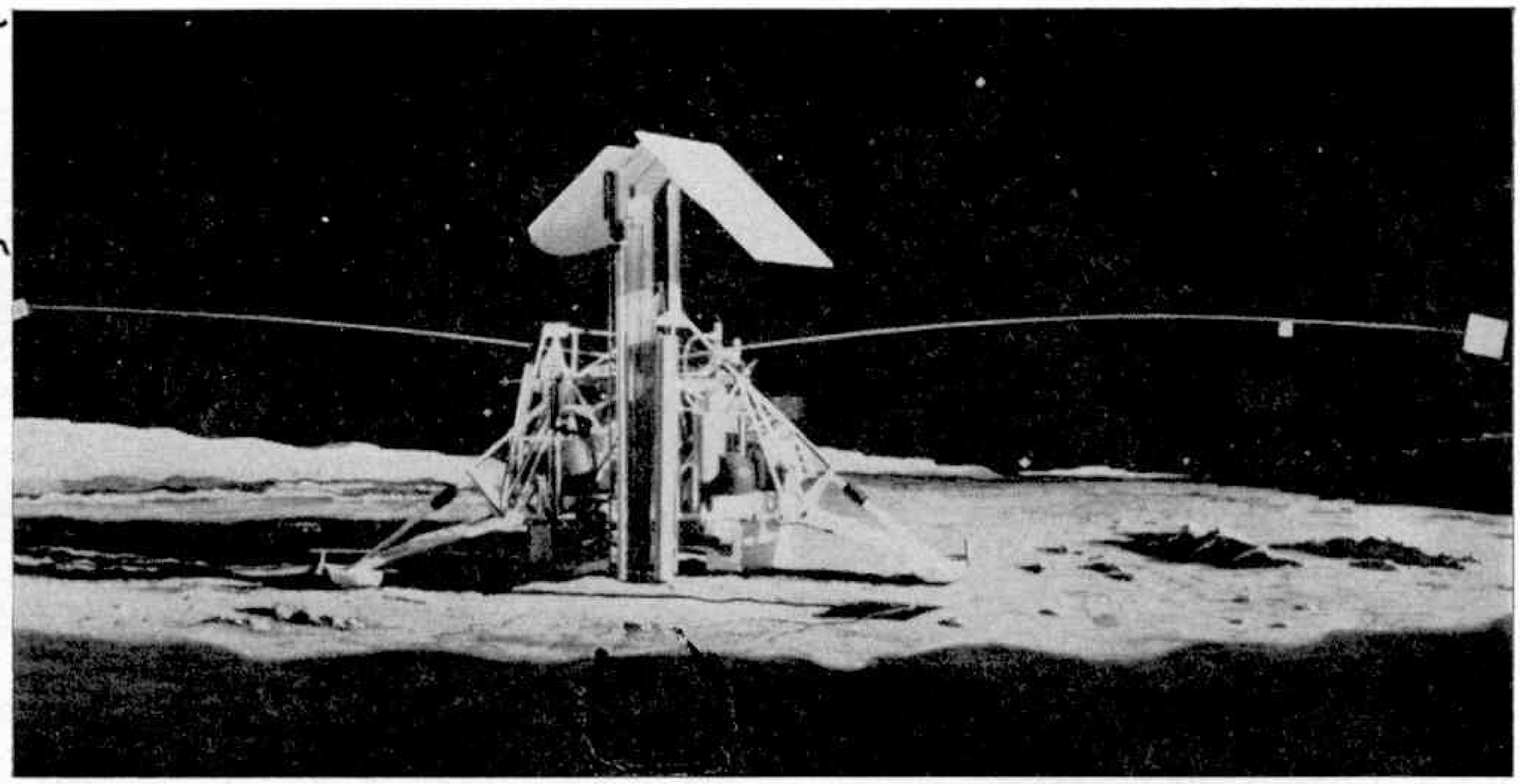
On one occasion, two trucks got away and ran loose soon after leaving the top. By the time they reached the bottom of the incline they were travelling at such a rate that they failed to make the curve into the goods yard at Cromford Wharf. They leapt across the canal and cleared the two tracks of the old Midland (*Continued on page 140*)



This picture, taken looking downwards to the foot of the Sheep Pasture incline, gives an indication of the beautiful countryside in which the rope railway is situated.

SPACE NOTES

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



Surveyor—a vehicle for soft-landing instruments on the moon.

Programme For Progressive Shots At The Moon

TO date, only two vehicles have landed on the moon. The first of these was Lunik 2 which was launched on September 12, 1959 and impacted the next day after a 33½-hour flight. It continued transmitting data right up to the second of impact and scattered on the lunar surface a number of medallions with CCCP embossed on them (as stamp-collecting readers will already know, CCCP is the Russian equivalent for USSR). The second was Ranger 4 which took off on April 23, 1962 and impacted three days later after a 64-hour trip.

America's lunar programme calls for a progressive series of shots including more Ranger flights, Surveyor soft landings, dummy runs with Apollo and, finally, in 1967–8, a three-man Apollo lunar landing. NASA's programme is slipping badly in some respects and among the 41 space shots planned for this year are quite a number that have been put back from 1962. The only direct lunar shots are four Rangers, intended for lunar photography.

But the amount of information obtainable from photographs and direct impact vehicles, although extremely useful, is limited. To learn more of the surface conditions an instrument-carrying vehicle must be soft-landed on the moon's surface, so that it can transmit back to earth information on the surface composition and temperature, magnetic field, and cosmic ray and meteor bombardment.

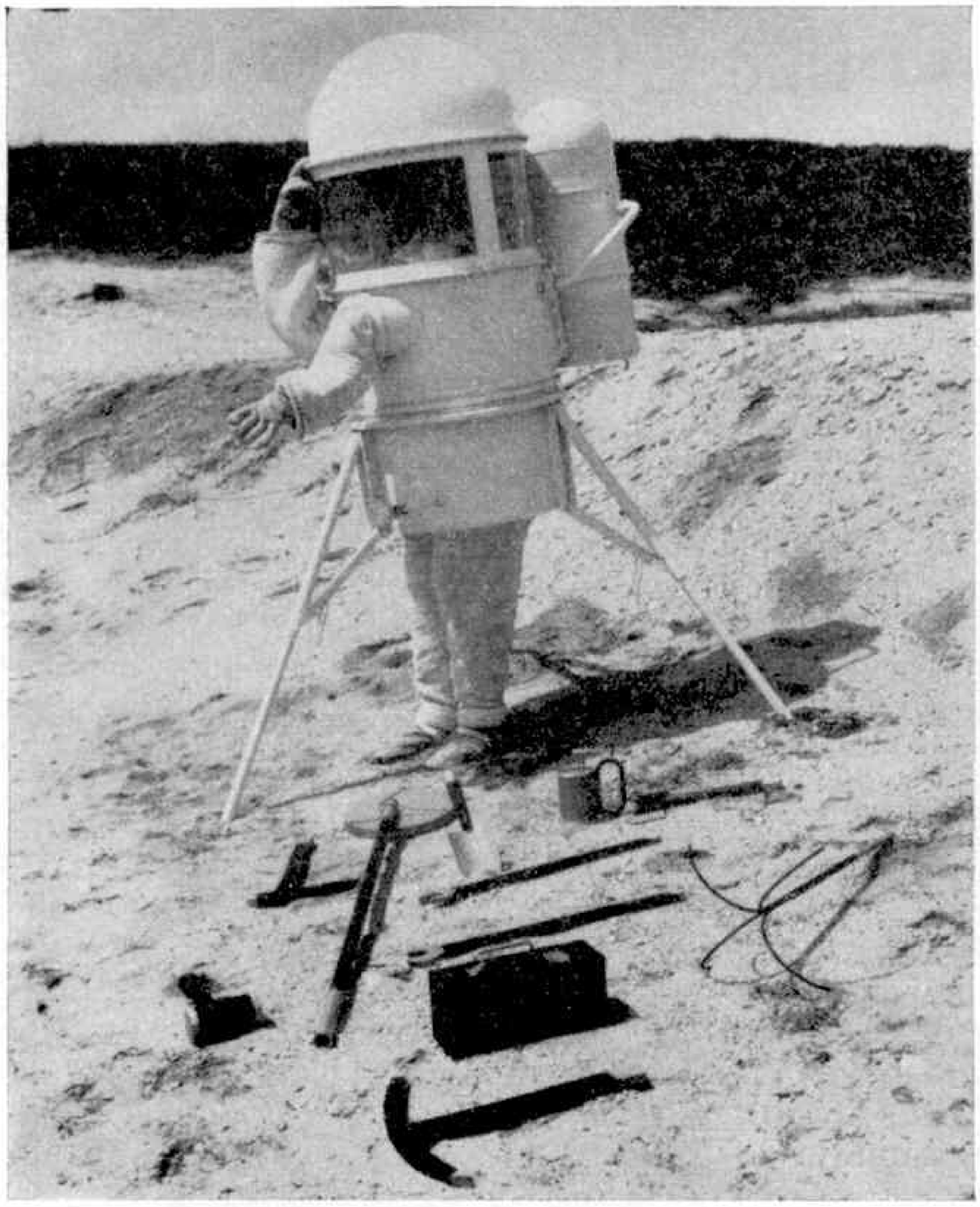
The vehicle to carry out this work is Surveyor, which is shown in our first picture. Two launchings are planned for 1964. It will be launched by an Atlas–Centaur and will take 66 hours to complete its journey. The landing weight will be about 600 lb. and this will include 114 lb. of scientific instruments. The vehicle will land on three legs and will stand eleven feet high. Two solar panels for electricity production will be mounted on top and a SNAP II nuclear generator will also provide electricity for 90 days. This concept of "spares" is also applied to the electronic equipment. The important circuits will be duplicated and a special switching system will bring the spare into operation if necessary.

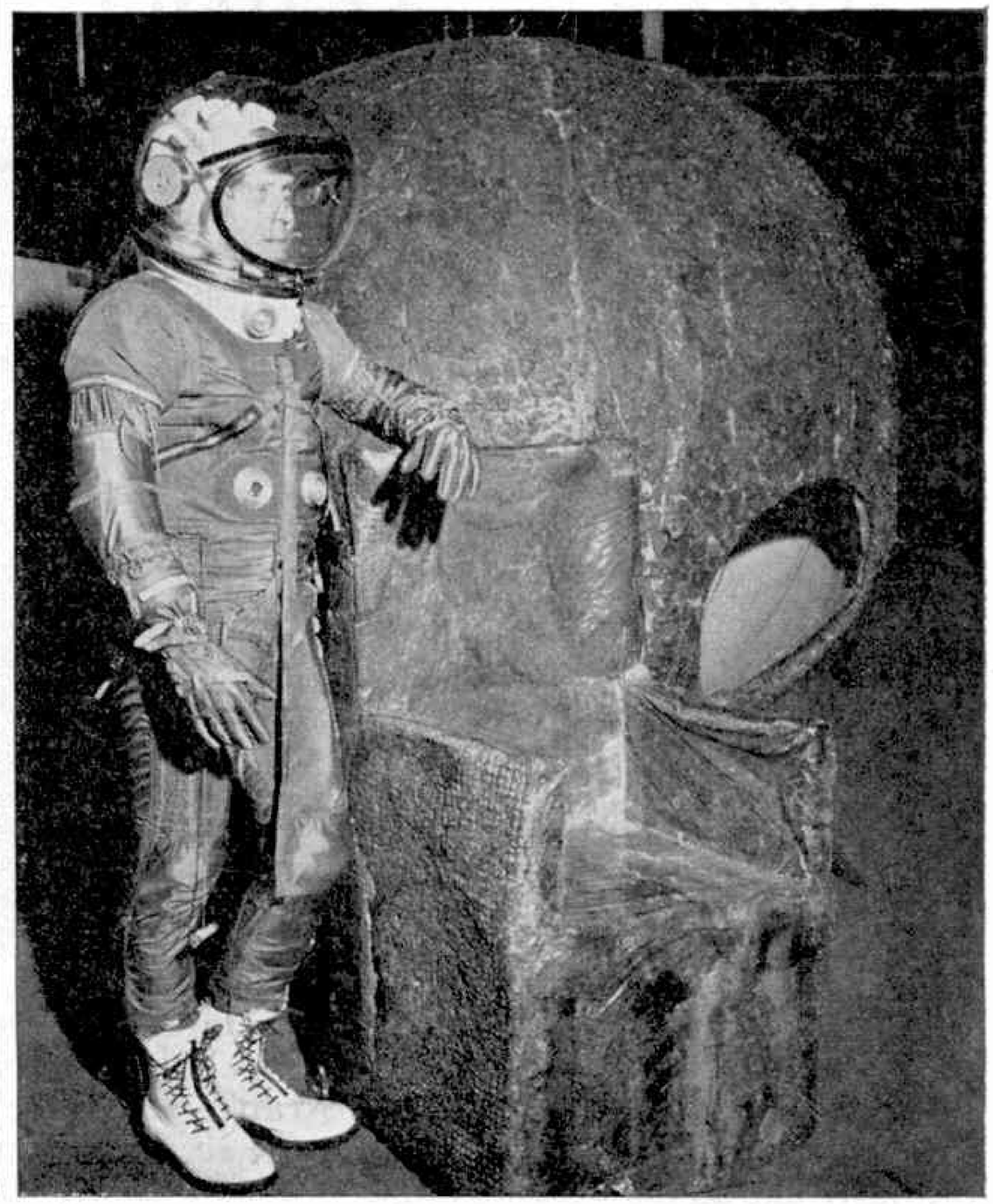
A combination of sun and star sensing and radar will determine position and attitude, and mid-course correction and landing will be carried out by means of roll control gas jets, three small control rockets and retro-rockets. At an altitude of 52 miles above the moon's surface the first retros will fire and simultaneously the radar will be ejected. At 28 miles the main retros will ignite and will bring Surveyor down to an altitude of thirteen feet and a speed of five feet per second. The rockets will then be cut and the vehicle will drop to the surface. Two television cameras on the top, one on the bottom and an array of instruments will then start to send their information back to earth.

CANNED SPACEMAN

One of the more ambitious schemes for a lunar suit is one proposed by Republic Aviation. Shown in our second picture, it consists of an aluminium cylinder fitted with arms and legs. The top is encircled by a fourteen-inch high window, and oxygen supply and air-conditioning equipment are carried on the back.

The suit is intended for use on quite long trips and can be used as temporary housing. It is fitted with three legs which can be lowered to form a tripod stand. The wearer's legs are then withdrawn into the cylinder which is fitted with a seat, thus enabling the wearer to rest. Inside the aluminium capsule also are radio communication, air conditioning and oxygen supply controls, food and waste





Shelter and arm-chair made from special plastic which foams in a vacuum and sets hard in the sun's rays. This photograph, and that of the Surveyor vehicle, appear by courtesy of the Hughes Aircraft Company.

(left): This space suit cum-temporary house is for extended lunar exploration. (Photograph by courtesy of Republic Aviation Corporation.)

storage bins, searchlight control and electrical power supply.

One provision to increase the safety factor of the suit is a system for automatically checking on the physiological state of the man and transmitting the data back to base. In this way the base will know immediately any fault develops. At first sight the suit appears bulky and heavy, but it must be remembered that it is intended for journeys of perhaps several days' duration when a considerable quantity of food and equipment will be needed. On the moon, the equipment will be far lighter than on earth and the occupant will, of necessity, have to be in first-class physical condition. Bulk is more important and the question that immediately comes to mind is, "What happens if he falls over?" It certainly is not obvious how he would get up again.

HOME COMFORTS IN SPACE

An amazing variety of food items now come in dehydrated form, but Hughes Aircraft are on a fairly safe thing when they claim to be the first to introduce "instant" furniture! They have developed a material which will foam in a manner resembling a detergent in a washing machine. It comes in the form of a small package which produces a foam-like mass when, and only when, it is opened in a vacuum. This plastic foam hardens, when exposed to the infra-red rays of the sun, into a tough, rigid material which is also a good insulator against extremes of heat and cold such as are likely to be found on the moon.

To make the chair and shelter shown in our final picture, a number of discs of plastic were exposed to infra-red in a vacuum chamber and foamed to a thickness of several inches. For the chair these were stuck to a crude wire frame and for the shelter to a balloon seven feet in diameter.

NEED FOR STERILISATION

Scientifically, one of the greatest incentives to reach other bodies in the solar system is the possibility of finding life; not intelligent life—little green Martian men are not seriously discussed in scientific circles—but low forms of life.

The moon, for example, may have simple plant life such as lichens; seasonal colour changes on Mars point very strongly indeed to the spread of vegetation while the continual cloud cover of Venus makes it a happy hunting ground for theorists.

Much valuable information on the origin and spread of life might be obtained. It is unlikely that life on either Mars or Venus is at just the same stage of development as our own—if Venus is almost covered in water as some astronomers think, then life could well be back to the equivalent of earth-life some millions of years ago. Mars on the other hand could well have extremely specialised life of the "dying world" type.

But what a tragedy it would be if our space vehicle contaminated the moon and planets with earth bacteria before we found out if any native life existed. Before any vehicle that is intended to land on the moon or other body is launched it is thoroughly sterilised to kill bacteria. This is done by introducing a highly toxic gas into the sealed interior of the vehicle. After about twelve hours, this is replaced by sterilised nitrogen or argon, the reason for the change being that the sterilising gas is heavy and would give a higher take-off weight. The exterior of the vehicle is adequately sterilised by the action of the ultra-violet radiation from the sun.

The Youth Hostels Association 1963 Handbook contains details of 267 hostels in England and Wales, including several new ones to be opened this year. It gives explicit directions for reaching hostels, lists local early closing days, bus services and the availability of food supplies for members who cook their own meals. There are eight pages of sectional maps, and much other useful data. The handbook is issued free to members on joining, and can be obtained by non-members for 1/– post free from Trevelyan House, St. Albans, Herts.

PYLONS ACROSS THE COTSWOLDS

By EDWARD G. HODGKINS

A NEW Electricity Grid linkage carrying 275 kV. is being built from Gloucester to Seven Springs in the Cotswolds. The project consists of the erection of 61 pylons carrying twelve cables over a distance of some fifteen miles, and is employing about 40 spidermen. Each pylon is about 140 feet high and the heaviest is constructed from 27 tons of galvanised steel. The cable is the size of a half-crown in cross-section and consists of a core of seven strands of steel surrounded by 47 strands of aluminium. The steel provides strength while the aluminium carries the current.

The method of erection is on the following lines: After the completion of survey work, gangs of men begin to pour in the concrete foundations of the first towers. As soon as these foundations set at the first site, a second team moves in with lorry loads of galvanised steel girders, a winch and an old six-wheel drive American truck (to pull themselves in and out of the mud on the site).

A 40-foot pole, looking suspiciously like an old telegraph pole, is erected and held upright by guy ropes while a pulley is lashed to the top. Using this and the mobile winch the lower portion of the tower is lifted piece by piece and bolted into position. This latter task is carried out by two men who climb the tower as easily as you or I climb the stairs, and who think nothing of walking along an unprotected girder 100 feet above the ground without even a safety belt.

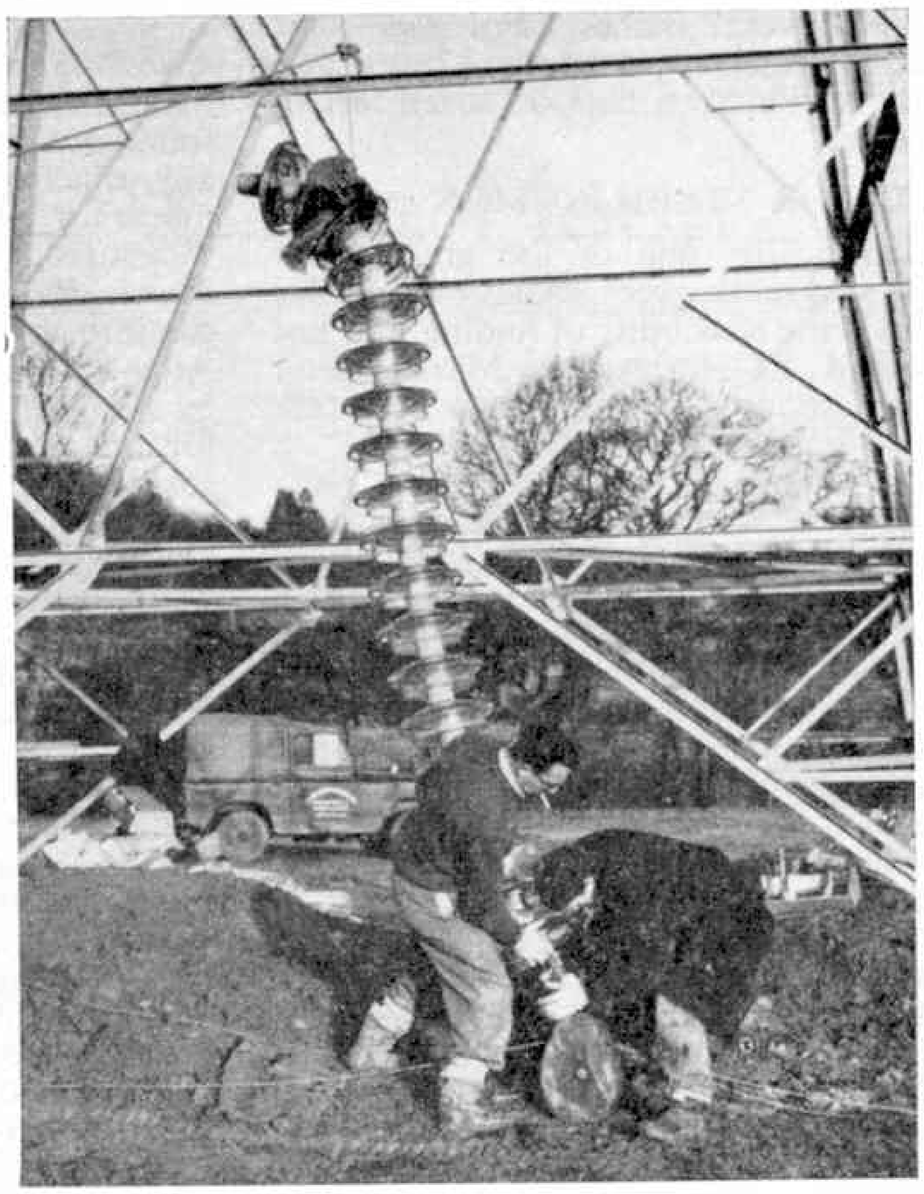
* * * *

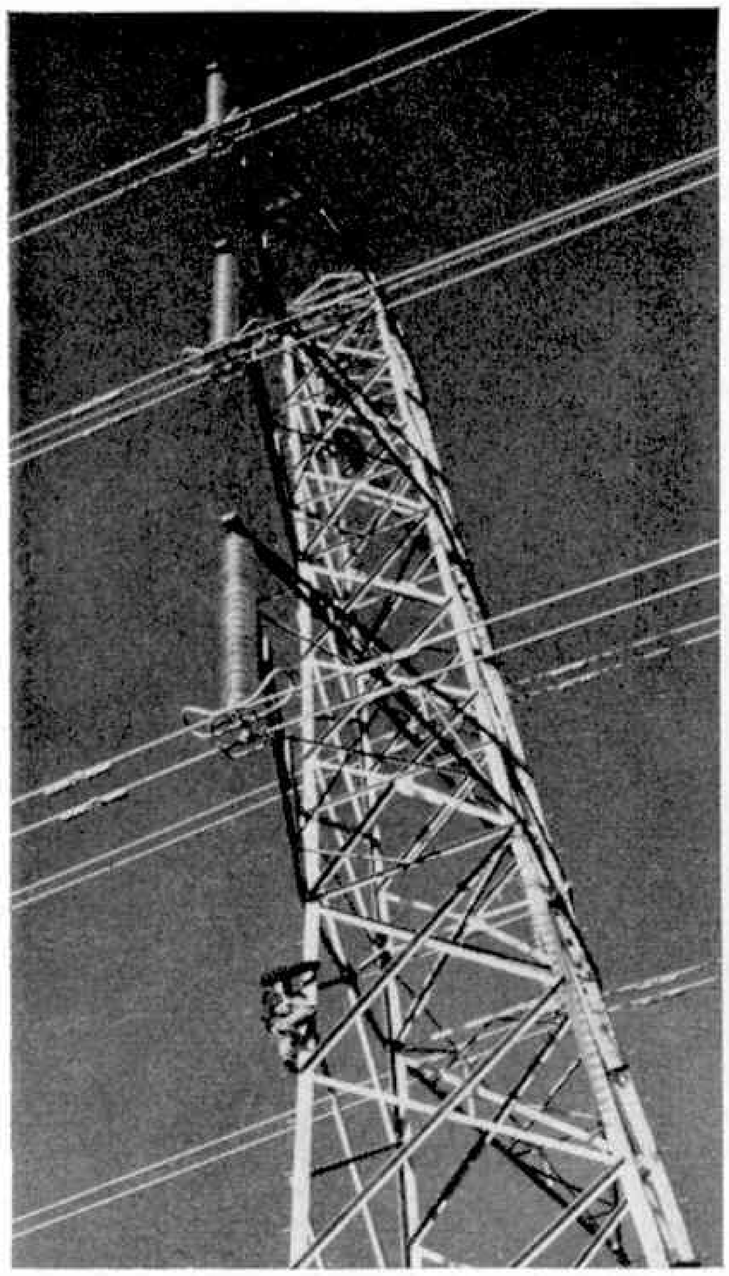
As soon as the framework reaches the top of the pole, the latter is winched bodily upwards and is lashed, still upright, to the corner of the tower. The next section of the tower is lifted into position as before, and thus the central framework is completed. The six arms of the pylon then follow and the gang moves on to the next site, taking their pole and winch with them. The erection of each tower takes little more than a week.

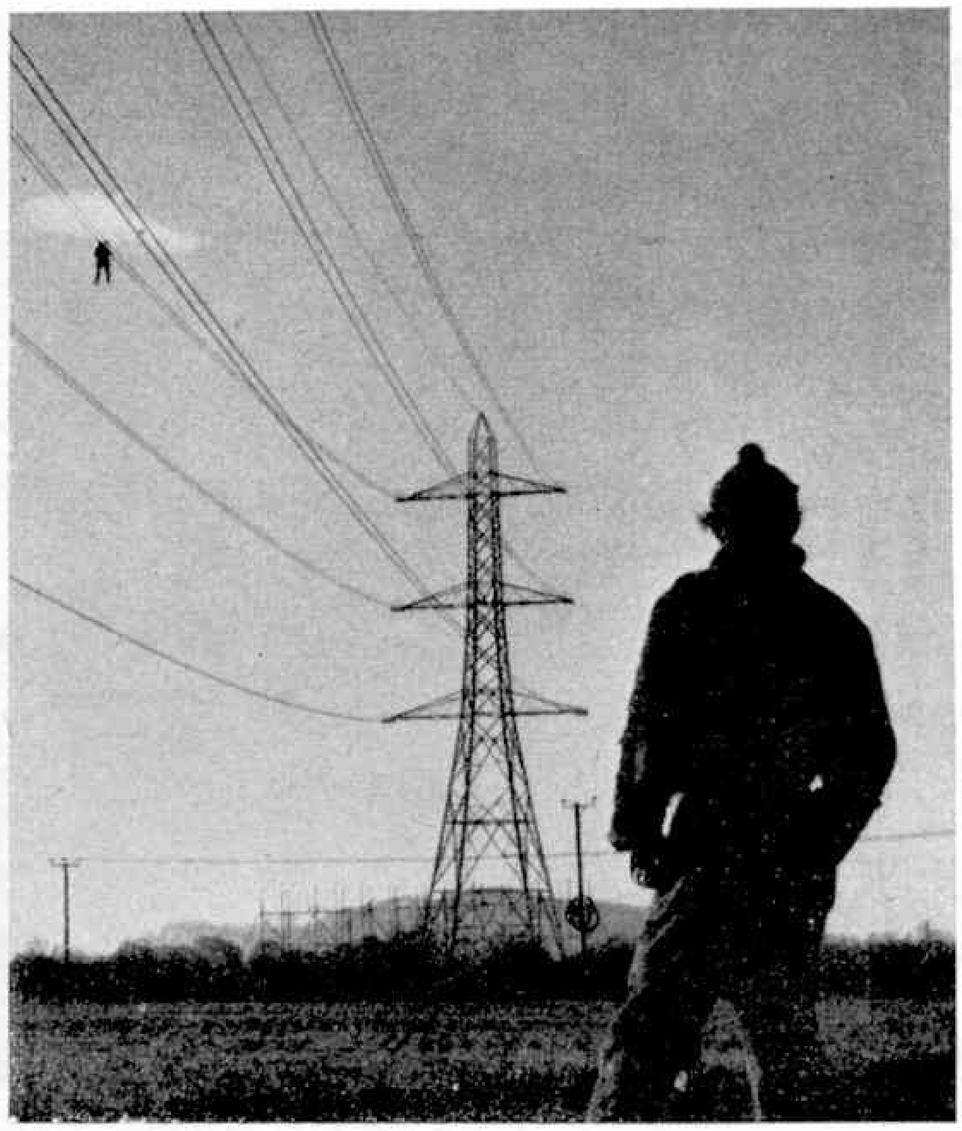
Six weeks after the first towers are built, the cable gangs move in. Twelve huge cable drums are positioned on rollers in front of the first pylon and a pair of huge Fordson winch tractors start to pull the cables across the fields towards the second pylon, a quarter of a mile away. Because of the mud and water underfoot for much of the time, the cables must be kept off the ground so, every few yards, a 3 ft. high stand carrying a roller is placed under the cable. Also, when roads are to be crossed, a scaffold gantry must be built to carry the loose cables overhead without blocking the road. Yet another complication is encountered with telephone or pole-carried electricity lines. These must be temporarily shut down and the wires lowered to the ground while the new cable is erected.

On the second pylon being reached, drag wires are spliced to the ends of the cables and the 8 ft. high glass insulators are prepared for lifting into position. Temporary pulley blocks are bolted to the

Below: A temporary pulley block is bolted to one of the glass insulators. Right: The insulator starts its journey to the top of the pylon. (Note the temporary pulley block and drag-wires.) The pictures illustrating this article are by the author







Left: A spiderman (bottom left of structure) looks tiny indeed as he climbs a pylon with the aid of bolts set into it for this purpose. Above: Completely dwarfed by his surroundings is this spiderman (top left of picture) slung in a bosun's chair in order to fit spacers between the highest pair of cables.

bottom of each insulator while a rope is tied to the top. This rope is passed over a pulley lashed to the topmost arm on the tower, and the insulator, carrying the draglines with it, is winched into place. Here again, the spidermen are lying full length over empty air while they clip the insulators to the arms.

* * * *

The six insulators having been suspended from the tower, the twelve draglines are attached to the tractors and they are pulled through the pulleys, followed by the twelve cables.

The conductors now lie like silver snakes over the hedges and fields, sweeping up to each tower and down again. Each length of cable is long enough to connect three spans; every fourth pylon, therefore, must provide a joint in the line. Here the insulators are in a horizontal position instead of a vertical one, and must be connected to the arms of the tower, with the cables attached, using the tractors to tension the cables, giving the correct amount of sag.

Once the conductors have been correctly tensioned and clamped to the first and fourth towers, the temporary pulleys on the other insulators are replaced by clamps to lock the wires into place.

* * * *

One final hair-raising job remains—probably the most spectacular of all.

Because each arm carries two cables, spacers must be attached to each pair, between pylons, to stop them being damaged by flapping together in the wind. The only way to attach these spacers is for a man to ride along the wires in a bosun's chair, bolting them on as he goes.

Watching this man climb the tower, crawl along the arm, down the insulator and out along the cables to the chair is likely to prove more than a little nerve-racking to the passer-by!

The first three spans are now completed and the cable gangs move off, after the erection teams, to carry out the same procedure on the next length of the line.

The grid to which I refer is being taken over the highest point of Leckhampton Hill, Cheltenham, near the famous "Devil's Chimney", taking the cables almost 1,000 feet above sea-level. Construction continued non-stop throughout the worst part of the winter, the men toiling under cruel conditions of fog, snow, ice, torrential rain and, probably their worst enemy—gale-force winds. To crown it all, each site has been, inevitably, a sea of slippery mud.

During Spring the 40 spidermen involved are due to leave this new and impressive line of pylons —an unmistakeable landmark — to begin their work all over again in some other part of Britain.

CAR NUMBER-PLATE RARITIES

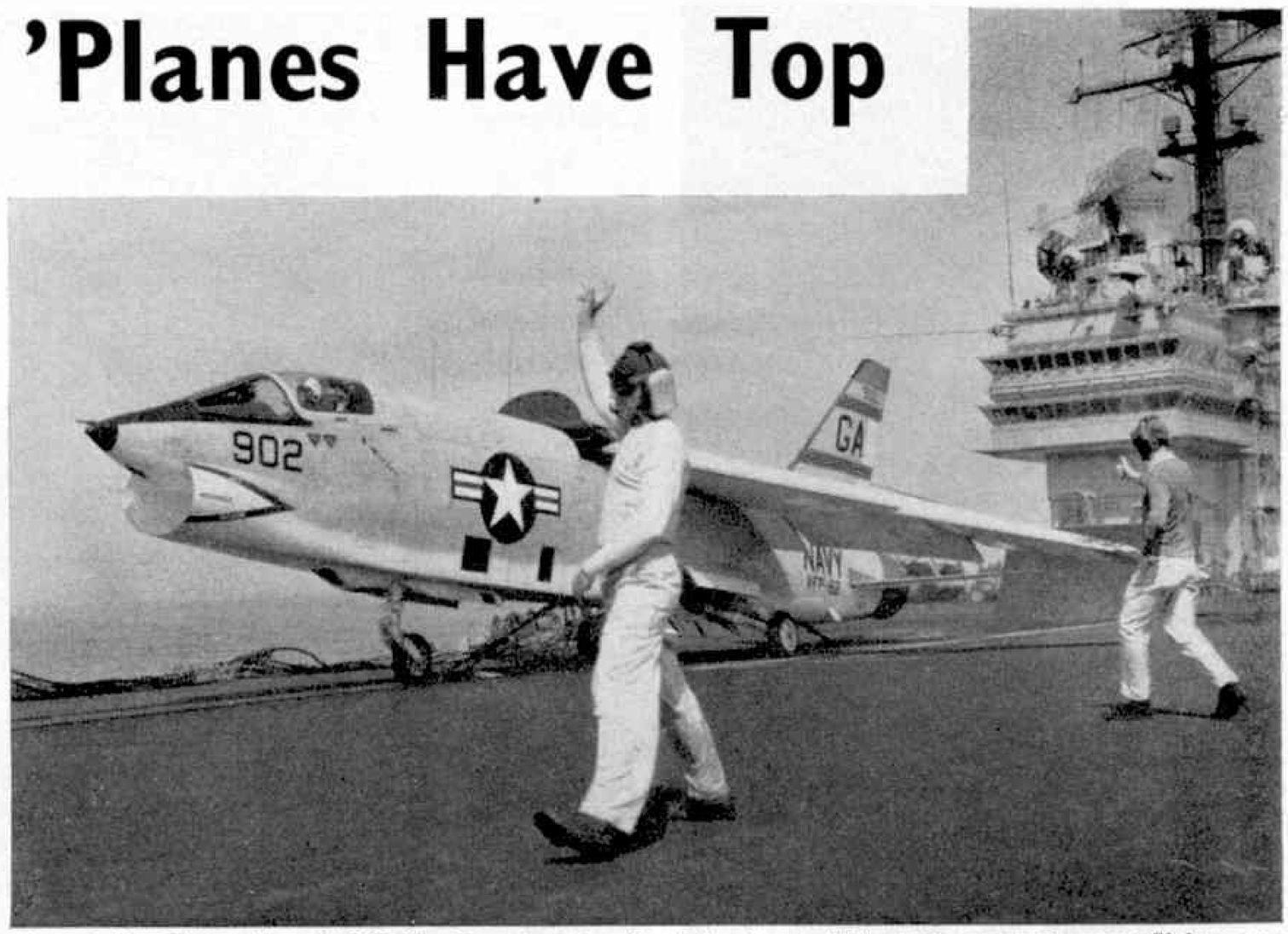
Provided proper precautions are taken and no foolish risks are involved, noting the registration details of cars can be most rewarding. How interesting it is to spot Rolls-Royce HS 92 and to know that the driver is none other than Harry Seacombe —you may also see him in the front seat of MS 88 with Myra, his wife, at the wheel, "But", you ask, "how can we be sure for instance, TT 1 is Tommy Trinder's vehicle and that, if we spotted Bentley NW 4, it really was Norman Wisdom who grinned as he passed?"

Now, at last, many of the answers you have wanted are available in handy, pocket-size form. A booklet, "Car Number Galaxy—Celebrities" has been published as the first in a series compiled by ex-RAF pilot Noel Woodall of Blackpool, an enthusiastic "spotter" of many years' standing. In this 50-page edition are 27 photographs of "Status Symbol" number-plates, including pictures of the rarest of them all—A1—together with B 1 and ABC 1 and the intriguing SO—one of the cars which never bears a number.

* * * *

Mr. Woodall is allowing copies to be sold for the funds of "Trueloves" at Ingatestone, Essex—a home for boys with muscular dystrophy and other seriously-crippling diseases. The booklet is obtainable at a price of three shillings (including postage) from Mr. Leslie Hunt, 90 Woodside, Leigh-on-Sea, Essex.

U.S. Camera 'Planes Have Top Speed of Over 1,000 M.P.H.



One of the Chance Vought RF-8A Crusader aircraft of the type which made reconnaissance flights over Cuba late last year. It is seen operating from the U.S.S. "Independence".

DURING last year's political crisis caused by the appearance of Russian missiles in Cuba, our newspapers were full of pictures showing the rockets and their launching sites. Great courage and skill are needed to take such photographs, as the camera-planes have to race in at tree-top height and fly over the target straight and level, with only their speed to protect them from the defences.

AIR NEWS
By
John W. R. Taylor

The pilots who made the photo-reconnaissance flights over Cuba knew that the defences included anti-aircraft missiles of the kind that shot down the U–2 spy-plane over Russia in May 1960. Their identity was secret until a few weeks ago, when it was announced that sixteen pilots of U.S. Navy Squadron VFP–62 had been awarded Distinguished Flying Crosses for their part in the operation.

One of the Squadron's Chance Vought RF–8A Crusader aircraft is seen on board the U.S.S. *Independence* in the picture at the top of this page. The Cuban flights were made from a shore base in Florida and the Crusaders were ideal for the job. They have a top speed of over 1,000 m.p.h. and carry five cameras in the squared-off bottom portion of their forward fuselage. Only 144 RF–8A's were built.

Graceful in flight—the prototype of the new version of the Caravelle.

NEW-LOOK CARAVELLE

At first glance, the airliner shown in the illustration below might appear to be an ordinary Caravelle, but a closer study will reveal several important design changes. It is, in fact, the prototype of an entirely new version of this fine French aircraft, known as the Caravelle Super.

Hollywood film-makers encountered an unexpected problem while shooting "The Greatest Story Ever Told", a movie based on Fulton Oursler's novel of the life of Christ.

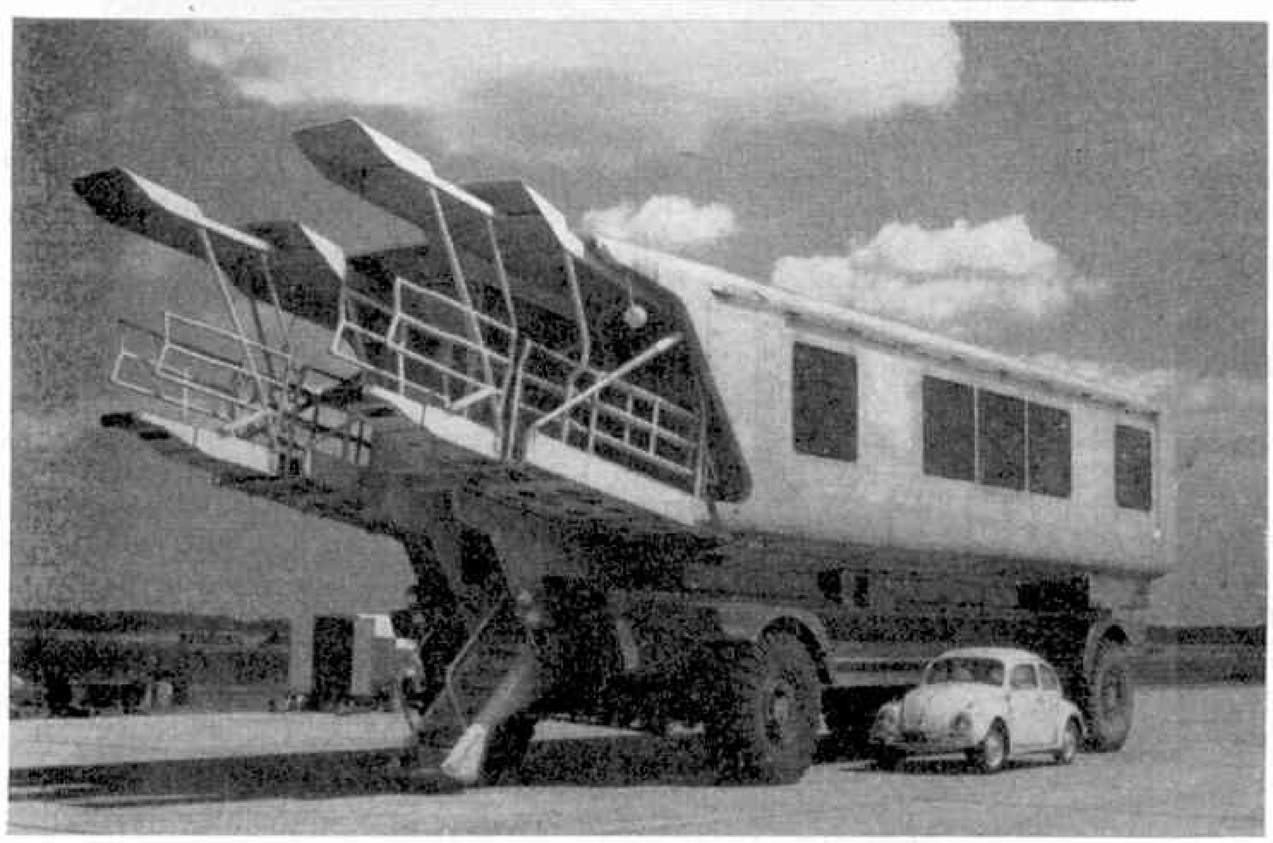
One scene, on a set representing the shore of the Sea of Galilee, required some unusual "extras" in the shape of 3,000 fish. It was not good enough to use any old fish; they had to be Karpfions, which are also known as St. Peter's Fish.

The Israel airline El Al quickly came to the rescue. A few Karpfion fish were packed in ice and flown from Tel Aviv to New York in one of their Boeing 707 jet-liners. Trans-shipped to Hollywood in a matter of hours, the real items then served as models for the 3,000 fish which will be seen in the film—and which will be made of rubber!

First flown on August 31 last year, it is powered by two 16,100 lb. thrust General Electric CJ805–23C turbofan engines. This explains the rings around the rear of the cowlings, to take in extra air for the rear-mounted fans.

Behind the engine mounting pylons are new curved fairings on the sides of the rear

Left: Something new in helicopters—the Ring-Tail Piasecki Model 16H.



Below: One of the enormous mobile lounges used at Dulles International Airport, Washington, for linking direct to airliners. The two adjustable "walkways" are clearly seen. Note the huge size of the vehicle compared with that of the car alongside.

fuselage, and there is a pointed fairing aft of the intersection of the fin and tailplane. The wing leading-edges are extended forward near the fuselage and double-slotted high-lift flaps are fitted on the trailing-edges. Less apparent is the fact that the fuselage has been lengthened by about three feet, enabling the Caravelle Super to carry up to 89 passengers, nine more than current versions. The airframe improvements give a 25 m.p.h. increase in maximum cruising speed, to 534 m.p.h.

The version with CJ805–23C engines is known as the Super A. An alternative version is the Super B with 14,000 lb. thrust Pratt & Whitney JT8D turbofans.

LONGEST AIRLINE

The longest scheduled airline service in the world was opened on December 29, 1962, when a Tupolev Tu–114 turboprop airliner touched down in Moscow after flying non-stop from Havana, Cuba. The giant aircraft, which is able to carry up to 170 passengers, took less than fourteen hours to cover the distance of over 6,800 miles.

Cuba is the twenty-ninth country to be linked by air with the Soviet Union, and Aeroflot aircraft now fly on some 50,000 miles of international routes.

RING-TAIL HELICOPTER

The Piasecki Model 16H, illustrated at the top of this page, is something new in helicopters. Powered by a 500 h.p. Canadian Pratt & Whitney PT6B–2 shaft-turbine engine, it is designed to carry five people at speeds up to 169 m.p.h.

Key to this high performance is the ducted propeller, known as a Ring-Tail, at the rear of the aircraft. During take-off, landing and hovering flight, this propeller is used to provide directional and anti-torque control by means of four vertical vanes mounted behind it in the duct. At a safe height, increased power is put into the propeller for forward propulsion, and the small fixed wings reduce the amount of work the rotor has to do in cruising flight by providing considerable lift.

At this stage of its flight testing, the Model 16H has its undercarriage fixed down, but the main wheels will eventually retract inward into the fuselage in flight. The Model 16H has a rotor diameter of 41 feet, fuselage length of 25 feet and loaded weight of 5,700 lb.

LATEST IN LOUNGES

Passengers at Dulles International Airport, Washington, U.S.A., step straight from the airport lounges into their aircraft without having to walk or take a bus ride over the parking apron.

This is made possible by the use of unique mobile lounges, one of which is shown in the lower picture on this page. Biggest passenger-carrying vehicles ever built to operate on rubber tyres, the lounges each measure 54 feet in length, 16 feet in width and 17 feet 6 inches in height. There is a driving cab at each end, with passenger doors on either side. Seats are provided for 73 passengers and standing room is allowed for seventeen people.

Passengers arriving at Dulles enter the upper floor of the departure terminal directly from the inclined approach road. They pass through the usual ticket and passport checks, have an opportunity to do last-minute shopping, and then walk through a departure gate directly into one of the mobile lounges, without having to go up or down any stairs.

When departure time arrives, the lounge is simply driven out to the aircraft. Passengers then move from it into the airliner's cabin, via one of the two "walkways", which can be adjusted up or down, sideways, forwards or backwards to line up with the aircraft's door.

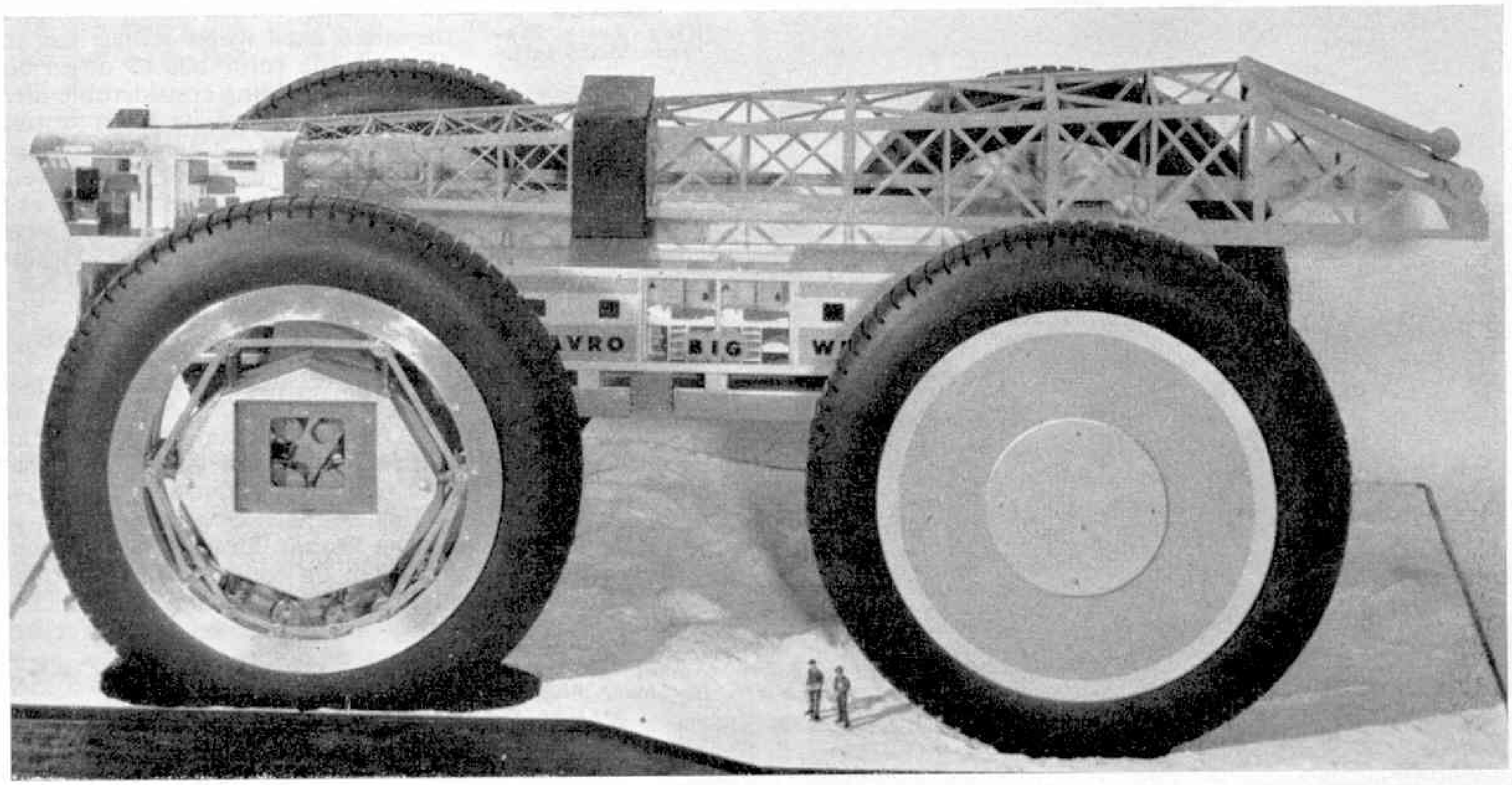
Each mobile lounge is powered by two 172 h.p. Chrysler V–8 engines, which are used independently or together, depending on load and weather conditions. The interior is fully air-conditioned and heated.

AIRSHIP COME-BACK?

One of the most surprising developments in recent months has been a revival of interest in large metal-framed, or rigid, airships. The Russians are studying the possible use of such aircraft for freight-carrying in remote areas of the Soviet Union where airfields are few and far between, and an incredible, three-hulled airship is nearing completion in America.

Few details of the American airship are yet available, except that its three hulls are arranged side by side and are held together by cross-spars. It is made of conventional aircraft light alloys, with fabric-covering, and is driven by a propeller mounted at the rear of the centre hull. Each hull is 83 ft. long and houses six gas-bags.

Big Wheel Transporter



THE wild Canadian northlands contain mineral resources vast enough to make Canada one of the richest countries in the world. Millions of tons of ore and immeasurable gallons of oil await man's use before Canada becomes one of the industrial powers of the age.

The problem is to tap this wealth. How can all these minerals be transported from the desolate north to the cities of the south where they would be used to produce the nation's consumer goods? To meet this need, the Canadians are developing a vehicle known as the Big Wheel Transporter. This will be so large and powerful that it will be able to plough through virgin forest, wade across rivers and span arctic crevasses as big as a highway—all to wrest minerals from the wilds and to develop the country until more conventional vehicles can take over the job.

The size of the Transporter can be gauged from the picture, but even this tells only a little. Each of those wheels is a towering 50 feet high—as tall as a four-storey office block. And the enormous deck, over 3,000 square feet in area, is so high above the ground that it could straddle an average house.

Quite naturally, a vehicle so gigantic must have an enormous weight. The Big Wheel Transporter weighs no less than 540 tons fully loaded, which is the weight of about 250 motor cars. But the amazing thing about it is that it presses on the ground more lightly than just one of these cars! This is because the vast tyres are kept at the low pressure of 15 pounds per square inch, which also enables the vehicle to negotiate 10-feet deep holes, and even boulders, with no more effort than a car riding ruts and stones.

Above: The Big Wheel Transporter, which may well transform some of the wilder parts of the Canadian terrain.

A Canadian Giant described by DARYL MAY

Power to drive the machine comes from sixteen 750 h.p. petrol engines, four of which are mounted in each wheel. Together they give a total of 12,000 h.p.—as much as some big airliners use. With this power, maximum cruising speed is 35 m.p.h.

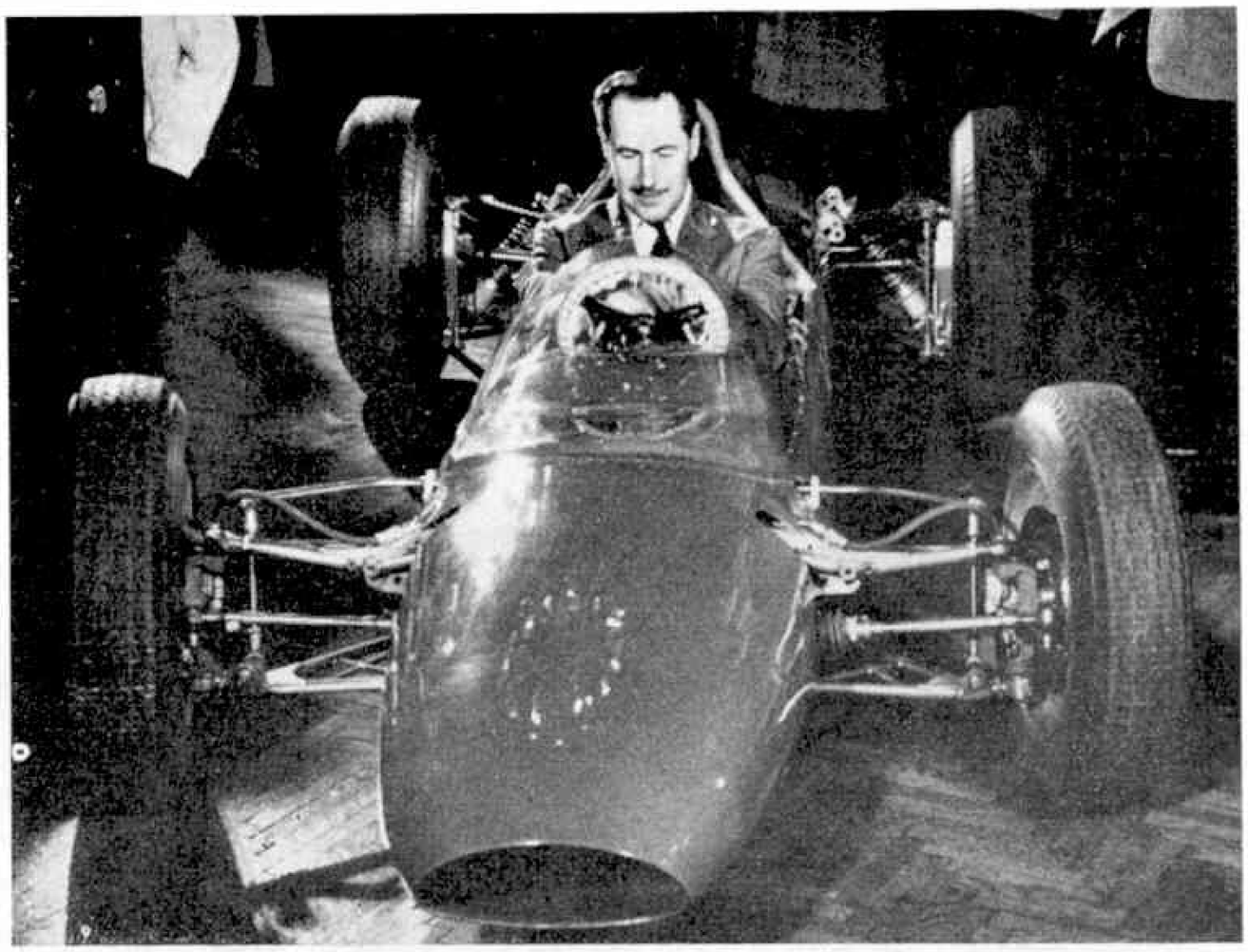
Much has been said about the Big Wheel Transporter's size and power. But why the need for such overwhelming size? This is dictated by the roles in which it is designed to operate. They are:

1. For oil survey work. The Transporter in this case carries a drill-rig more than 100 feet high, plus the supporting pumps and drilling equipment. Accommodation is provided for a crew of 40 who live in air-conditioned comfort inside the vehicle. They have bedrooms, recreation rooms, showers, washrooms, a dining room and a modern kitchen.
2. As an ore-carrier. In this guise it will be able to carry 200-ton loads from inland mining sites to ships and barges. There is even an amphibious version which will enable the ore to be loaded directly into the ore-ships' holds.
3. As a combined tree harvester, lumber mill and lumber transporter—a role which will revolutionise the Canadian lumber industry.
4. As a mobile pipe manufacturing plant. Used for this purpose it would be able to carry coiled metal strip which it would form and weld into a continuous length of tested pipe. This would be fed into trenches already made by the Transporter. It will be possible to house helicopters and standard off-highway vehicles on the deck or inside the hold. These would be used when required to perform survey and supply duties, and in emergency.

The Big Wheel Transporter will do for mineral transportation what the whale factory-ship does for whaling, and what the aircraft-carrier does for air power. But in one special feature it outstrips them both—the transporter can be carried by air! Not in one piece, of course, but it can be broken down—even the wheels and tyres—into many smaller components which can be carried in standard transport 'planes. It will then be flown into the heart of the country to be re-assembled and despatched for use.

Its mission is to develop two-thirds of Canada which is desolate icy waste. It needs nothing less than an engineering marvel to achieve this. The Big Wheel Transporter could prove to be just that.

FORMULA ONE DEVELOPMENTS



Jack Fairman at the wheel of the new A.T.S. Photograph by courtesy of "Motoring News".

WELL done, Graham Hill and BRM, who ended an exciting 1962 Grand Prix season by taking the Drivers' and Manufacturers' World Championships. Few people know that 33 year-old Graham Hill has never had a driving lesson in his life. He bought his first car, a 1934 Morris Eight tourer, for £110 only ten years ago.

"Can you drive it?" asked a friend. "Oh, yes, I think so," was Graham's reply. So to make sure they drove round the block with an uncertain Graham Hill at the wheel. Even then his friend did not realise that the future world champion *had never driven a motor car before*.

His only previous experience had been on motorcycles, but so confident was Graham Hill that he actually applied for his driving test a fortnight before buying the Morris. Two weeks later he passed with flying colours and without any tuition.

ROAD AND TRACK

By Jerry Ames

Having been driven quickly round Brands Hatch by Graham in a special Speedwell Sprite, I can say from experience he is a very fast, safe and polished driver, worthy of the champion's laurels. When the new season opens he will have an even faster BRM. This year's competition will be much stiffer, not only from Lotus, Cooper and Ferrari, but also from newcomers to Formula One, possibly Honda of Japan and certainly ATS of Italy, although both these firms may need the first year in which to settle down.

The new ATS Formula One machine (the initials stand for Automobili Turismo Sport), has been built in a splendid new factory at Bologna. Design is by former chief Ferrari engineer Chiti, and the design team is backed by two of Italy's wealthiest men, Dr. Giorgio Billi and Jaime Ortiz-Patino. British racing driver Jack Fairman will do all the development testing and may occasionally race the new car. They could not have picked a better man. Jack tells me it is one of the lowest, slimmest Formula One cars built, and its light weight should rival even the Lotus 25.

The ATS engine is a 90 degree V–8 with bore and stroke of 66 by 54.6 mm. to give a capacity of 1,494 cc. At the moment Marelli coils and distributors are fitted; they may soon be replaced by a Lucas transistor system. Fuel is admitted through four double choke 40 IDM Weber carburettors. Compression ratio is 10 to 1. Power output is expected to be 190 b.h.p. at 10,500 r.p.m., which seems feasible enough as the engine gave 175 b.h.p. on its first bench test. The car has not yet been tested on the road. The body is extremely shallow. Top side members of the tubular frame are less than 18 inches above the ground, and the highest point of the body, the cowling over the rear engine, is only 22 inches off the ground.

Other track news is that Tony Maggs has re-joined Cooper as team-mate to Bruce McLaren. They will have new cars with much modified shorter stroke V–8 Coventry Climax engines, most likely with Lucas petrol injection.

Jimmy Clark and Trevor Taylor will again drive Formula One Lotus. This firm has now entered into a racing partnership with Fords of Britain and plans have been made for some fascinating road cars in the future. Expect to see interesting developments in suspensions that will benefit Ford saloons in due course.

One of the first fruits of this Ford–Lotus marriage, as Sir Pat Hennessy calls it, is the new performance version of the Ford Cortina saloon, known as the Consul Cortina Sports Special. Coinciding with the introduction of a 1½ litre Cortina, the sports Special goes considerably further by using a Lotus developed, twin overhead camshaft, Ford engine, producing 105 b.h.p. Colin Chapman tells me this car in saloon form will exceed 106 m.p.h. and allows over 90 m.p.h. in third. It goes from standstill to 100 m.p.h. in something like half a minute.

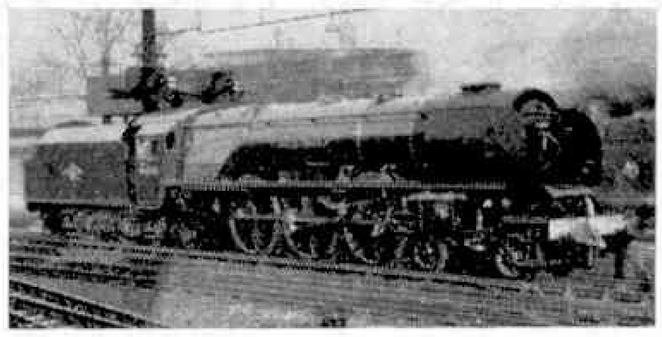
As you will see from the illustration it is a very handsome looking car. Although a live axle is still retained at the rear, Colin Chapman has considerably modified the back suspension, using coil springs instead of semi-elliptic as on the standard

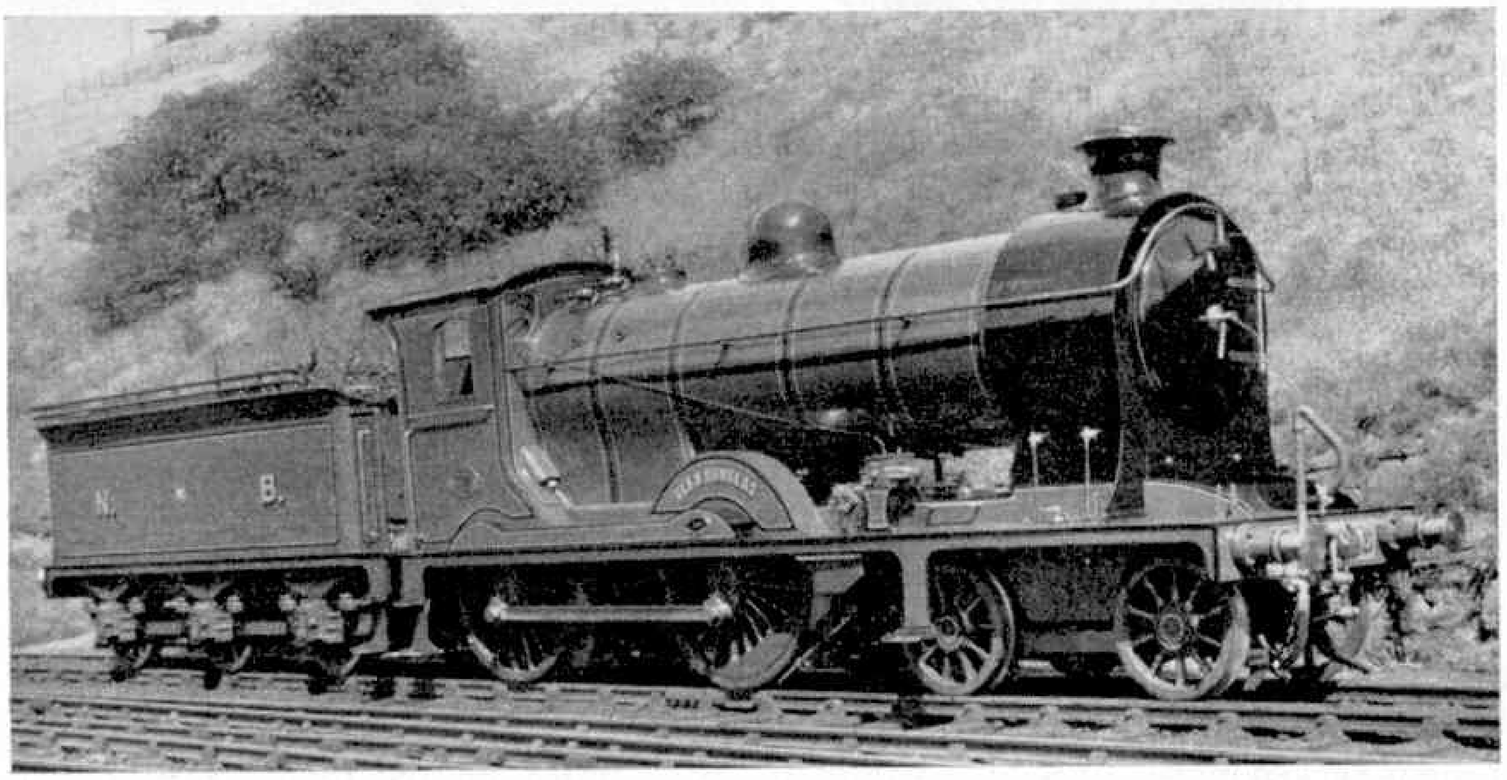
(*Continued on page 140*)

The Lotus developed Cortina with twin o.h. camshaft Ford engine.

RAILWAY NOTES

Contributed by R. A. H. Weight





NO STEAM AT LIVERPOOL STREET

READERS will remember my references in several issues of the *M.M.* during the past year or two to dieselisation, electrification and acceleration schemes recently completed or in hand along various East Anglian and outer-suburban routes of the Great Eastern Line. At the close of last summer's service it was announced that normal operation of steam locomotives to and from Liverpool Street, as well as over a considerable extent of the Great Eastern Line, E.R., had ceased.

The last steam main line workings were performed by B1 4–6–0s on relief Harwich (Parkeston Quay) Continental boat expresses to London. Earlier in the season I saw a B1 waiting to take a similar northbound extra service, also two B.R. 2–6–4T engines on empty carriage duties, and one of the old ex-G.E.R. J15 0–6–0s coming up from an East London yard with wagons. These were the only examples of steam power I saw in the course of the journeys that follow.

I had my exciting first experience of the new over-60 m.p.h. Liverpool Street–Colchester start-to-stop timing in one of the two-hour, two-stop London–Norwich expresses. This was in a full nine-coach train weighing about 335 tons gross behind Type 4 diesel locomotive No. D209, similar to that illustrated last month. Following an easing through Stratford and acceleration to 67 m.p.h. in the suburbs came a slowing for track repairs. Beyond Romford we were soon up to 70 m.p.h. uphill, dropping only to 54–55 on the ensuing climb, which steepens to 1 in 85 after Brentwood. We sped through Chelmsford, 29¾ miles in 30½ minutes, accompanied by the usual slight braking, before a sprint at 80–90 m.p.h. past Witham and Marks Tey. Now came a swift slowing to about 35 owing to renewal operations at Lexden, level crossing, then

Above: A typical North British 4–4–0 Locomotive, No. 256 "Glen Douglas", restored to working order and N.B.R. livery. The Glen 4–4–0s were designed for the West Highland line, but were used on other sections as well. B.R. Scottish Region official photograph.

Right: A six-car Inter-City multiple-unit diesel train leaving Edinburgh, Waverley, for Glasgow. Our contributor A. F. Smith found a splendid vantage point over a short tunnel for taking this photograph.

with Colchester almost in sight, full power acceleration took us quickly up to 68 m.p.h. With a rapid stop at the rebuilt, curve-free, down main platform, amid much-changed surroundings, we had improved slightly on the tight 50-minute schedule for 51¾ miles, two extra restrictions included!

I left the train at Colchester. If conditions were favourable, it is likely that after the second stop, at Ipswich, a typically fast run was made over the 46 undulating miles on to Norwich, such as that I reported in 1959 when time was made up and only 42 minutes were taken with similar load and locomotive. During the years immediately prior to the introduction of English Electric and Brush diesel locomotives much excellent running was performed each way along that stretch, as well as further south, by Britannia class 4–6–2 steam locomotives.

On my way back, I made observations at Shenfield, 20 miles from Liverpool Street, during the evening peak period, and I noted Type 3, D6700 class diesels pass on *The Essex Coast* and fast Norwich expresses, and on other main line or Clacton trains in both directions. A Brush diesel at speed with a short southbound freight and fast electric trains to Chelmsford–Colchester and Rayleigh–Southend respectively also went by. The last-mentioned train passed on to the Southend branch by way of the burrowing junction just north of Shenfield; other electric trains in the frequent outer-suburban service used the older surface junction from the down main track.

Multiple-unit electric sets are running through to Clacton-on-Sea via Colchester, also locally, although the full improved London service with express journeys provided by new maroon rolling stock, including buffet and griddle car facilities, is not expected until next summer.

Much of the complicated trackwork outside Liverpool Street has been remodelled and renewed.

INTER-CITY DIESELS

In addition to several through East Coast, Anglo-Scottish expresses, frequent and well patronised six-car express diesel sets built at Swindon, many with buffet car, run between Edinburgh, Waverley, and Glasgow, Queen Street. They cover the 47 miles in about one hour or less according to the number of stops. When I rode the 11.30 a.m. from Glasgow, we arrived in the Scottish capital within 59 minutes, after a good deal of steady running at about 70 m.p.h.

After a steep rise out of Queen Street through tunnel and cutting, which presented problems in the earlier days of small steam locomotives, the course was remarkably level and for some distance still quite rural. Having passed Falkirk, near industrial centres and a network of through and cross-country lines, we stopped at Polmont, 25 miles, in 26¾ minutes. We made the next halt at Haymarket, in the west end of Edinburgh, one and a half miles from Waverley, by 12.24, and reached our terminal at 12.29 p.m.

On the country, or western side of Haymarket, are seen the Motive Power Depot and Murrayfield Football Stadium. Trains from Perth, Aberdeen, etc. via the Forth Bridge join the route on which I was travelling at nearby Saughton Junction.

My memory recalls that when these services were all steam operated engines used included 4–4–0s of the ex-North British Railway Scot, and Glen (illustrated this month) classes; L.N.E.R. D11 Director and D49 Shire series; N.B.R. Atlantics; L.N.E.R. Pacifics and K3 2–6–0s.

CEMENT EXPRESSES

More fully-braked freight trains conveying through loads of specified goods, cars, and other commodities are now being run on fast regular schedules. They are often loaded in wagons specially designed to meet firms' requirements, and in association with newly-provided loading and unloading facilities at stations or depots concerned.

An interesting example of which I received details last year was the "Presflo" bulk cement service operating almost daily between Cliffe, near Gravesend, Kent, and Uddingston, Lanarkshire, not far from Glasgow—well over 450 miles each way—via London connecting lines and the East Coast route. A single train may convey 800 tons of cement, which can be discharged from each aluminium-alloy tank wagon into under-rail reception hoppers in five minutes. The wagons, fitted with vacuum brake and roller bearings, are of striking appearance as the photograph shows.

S.R. diesel locomotives—either singly or in pairs, according to the load—have been working these trains right through from the Kent works to York and back within 24 hours. After running northbound on the loaded train they have a short pause in York Yard before taking over the return empty one at midday. An N.E.R. Type 4 diesel has been noted in charge north of York.

SOMERSET AND DORSET LINE

Interesting news from Messrs. D. H. Ballantyne and S. C. Nash covered some of last summer's through train working on the hilly cross-country Bath–Bournemouth route of the Somerset and Dorset Line. This traverses pretty countryside but has small possibilities in the way of local (*Cont. on page 140*)

Above: A view by C. Ord of S.R. Type 3 diesel locomotive No. D6584 leaving York with a block train of empty "Presflo" tank wagons. Right: B.R. Standard 2–10–0 No. 92001 is heading for the climb over the Mendips with a Bradford–Bournemouth train in this picture by D. H. Ballantyne.

HOW TO DRAW ON SCRAPERBOARD

SCRAPERBOARD drawings are now widely used for illustrated advertisements, since they overcome some technical difficulties and give a wealth of fine detail on poor quality paper. You will find this a fascinating project whether or not you happen to be good at drawing.

HOWARD STANLEY describes a hobby for readers with an artistic outlook

The process is not far removed from the making of woodcuts, etchings, lino-cuts and engravings, although scraperboard drawings cannot be reproduced in the same manner. In addition to advertisements we find illustrations which have been originally cut on scraperboard and you will find lots of examples in magazines. When analysing these, however, it must be remembered that they will probably have been considerably reduced from the original and this can be very misleading to the student who may attempt the technically impossible.

The board itself is available with a white or a black surface coated with a substance containing china clay. If a scratch is made on the black board with a sharp instrument it will leave a white line, and larger portions may be scraped for white areas. The white board is treated differently. You may either paint a wash of Indian ink in the shadow areas or add washes of poster colours. Then cutting proceeds for the detail as required.

Any sharp tool which will scratch a line is suitable and you may improvise tools made from razor blades or gramophone needles pushed into a piece of stick. A portion of a hacksaw blade will make parallel lines. Most suitable for this work, however, are special nibs called trimmers. Various types can be procured. Some are pointed, like spearheads, and some are rounded at the end, like scalpels. I use the latter type almost constantly, since the point achieves a fine line while the wider lines can be made by adjusting the angle. Other useful tools for making arcs and circles are dividers, French curves, metal set squares and rulers.

If you will now refer to Fig. 1, you will see an example showing lines produced both in freehand and with the aid of a ruler, or curves. The arcs for the petals were made with dividers. You will also see that we can vary the thickness of a line by using an appropriate tool, or scraping away large areas. But the aim should be to scratch or scrape away the surface, and on no account must you apply too much pressure or dig into the board. There is a sound reason for this. Sometimes you may have to make corrections or adjustments by painting over already treated parts with Indian ink and then re-texturing. If the surface has been too deeply scored, it is impossible to make such alterations. Incidentally, your tools must be sharp if they are to scrape with a minimum of pressure, so it is always advisable to have a piece of emery paper handy. Moreover, you will not cut a clean line if the board is damp because of the presence of the china clay. When a wash of Indian ink or colour is applied, leave the board aside for half an hour before continuing the cutting.

You may buy a trial packet of scraperboard for as little as 2/– from an artists' materials shop, and this packet includes a pen nib trimmer. You can buy other nibs as required.

Let us imagine you have obtained some card and assembled the few necessary tools. Now we can explain the actual process of creating drawings. Fig. 2, being a freehand example, will help our explanation.

First, we make a pencil drawing of our subject on a piece of transparent tracing paper. This need only be the outline, and there is no need to worry about the detail. See that the drawing is reasonably correct

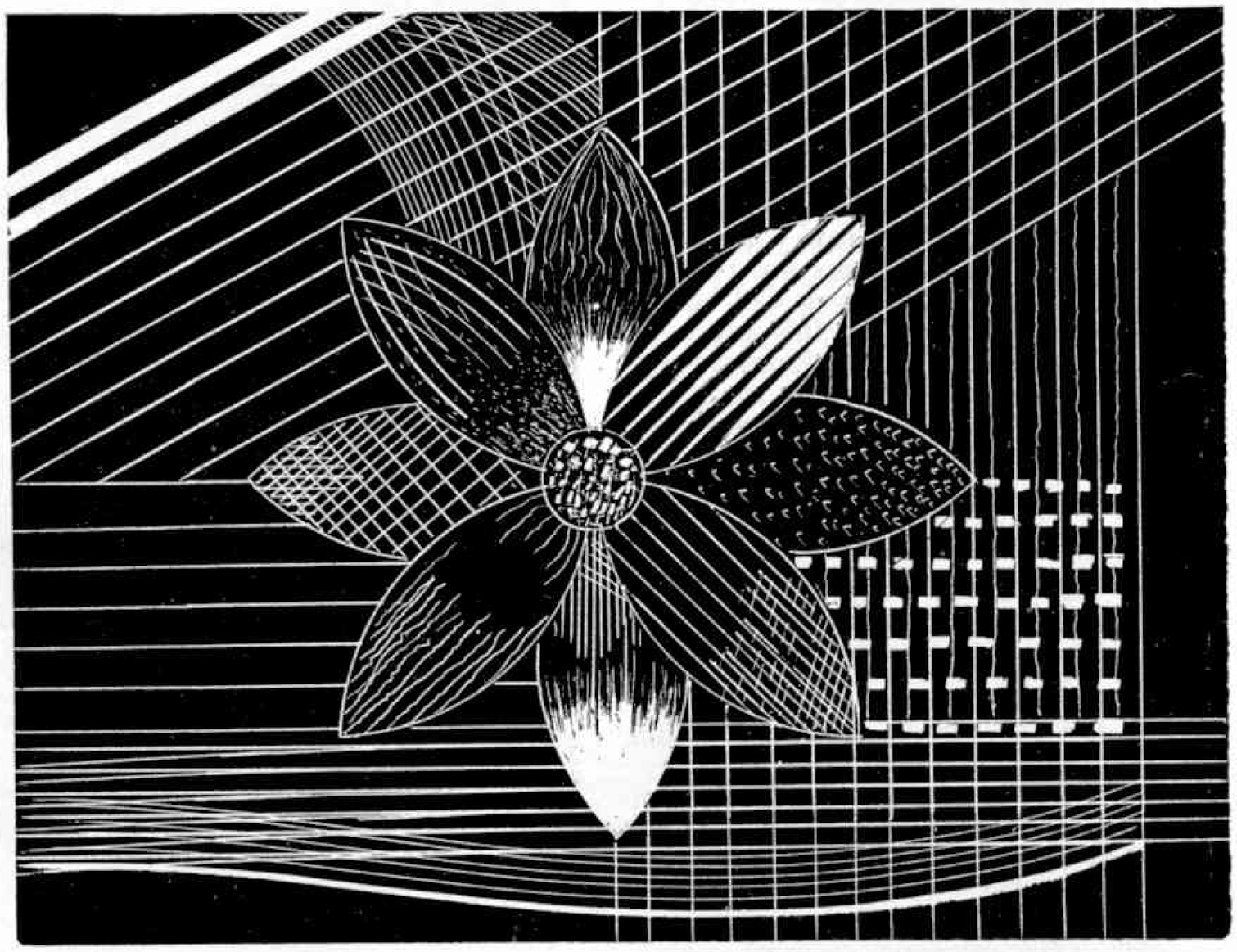


Figure 1. A flower drawing produced both in freehand and with the aid of a ruler.

Figure 2. Notice, in this picture, the textures employed for the foliage, the water and the masonry.

so far as perspectives are concerned and that your outline is sufficient. Turn the tracing over, rub white chalk on the back and all over the outline. Blow away the dusty surplus and rub in the chalk with the finger, applying a little more if considered necessary.

Next, apply the tracing, correct side uppermost, to a piece of black scraperboard, tracing the outline with a pencil. Use a soft pencil for this process as a hard one will make an impression on the board which will interfere with subsequent cutting. On removing the tracing paper you will have an outline tracing in white on the black ground. The chalk will quickly rub away, so to counteract this we cut the outline with a fine tool—quite lightly—and we can then add the detail at our leisure.

Scraperboard is rather brittle and you will find it an advantage to fasten it down to a small drawing board, when you will be able to turn it round as you wish. Furthermore, you may find it better to work at an angle and direct artificial light is better than daylight.

Once the outline has been cut, it is up to you to decide the textures required to illustrate the various features as well as the light and shade. You are recommended to peruse books containing examples of wood engravings, and for your help we would mention that the *Radio Times* often bears brilliant examples. In Fig. 2 you should note the textures employed for the foliage, the water and masonry, remembering at the same time that you will have your own interpretations. You should also refer to Fig. 1 again and observe the effect of cross-hatching, i.e. lines crossing each other either at right angles, diagonally or both of these combined. Remember that the entire work is composed of scratched lines—long, short, straight, curved, thin and thick, but all are at your disposal.

A freehand drawing of this description is quite easy to make. Your main difficulty may be knowing when to stop, but we will have to leave this for you to decide.

Another experiment you can attempt is a silhouette. Once again, trace the outline, then all that remains to be done is the ruling of straight lines on the surrounding area about 1/12 in. apart. If a line runs over the actual outline, touch it out with Indian ink. You will need a metal set square and a ruler for this work. Silhouettes can be made from profile photographs or shadows. Alternatively, you can create a silhouette of buildings against the horizon. Add the moon and a few wild ducks in flight, and there you are.

* * * *

An entirely different effect is produced by using white scraperboard, following the same basic treatment but using pencil on the back of the tracing paper instead of chalk. Or you may draw direct on to the board with a soft pencil. You may then either lay a wash of Indian ink, for the shadow areas, or may use poster colours (not water colours) as required, scratching away the detail as before. But be sure to allow adequate drying time, or the board will not cut.

In Fig. 3 you see an example of a picture made on white board. White has been used because the finished sketch bears the greater proportion of white and obviously there is no point in cutting away large masses of black. Here, you should take careful observation of the sky treatment and the tree, painting on the shadow side and then cut. Note, too, the shadow areas of the houses.

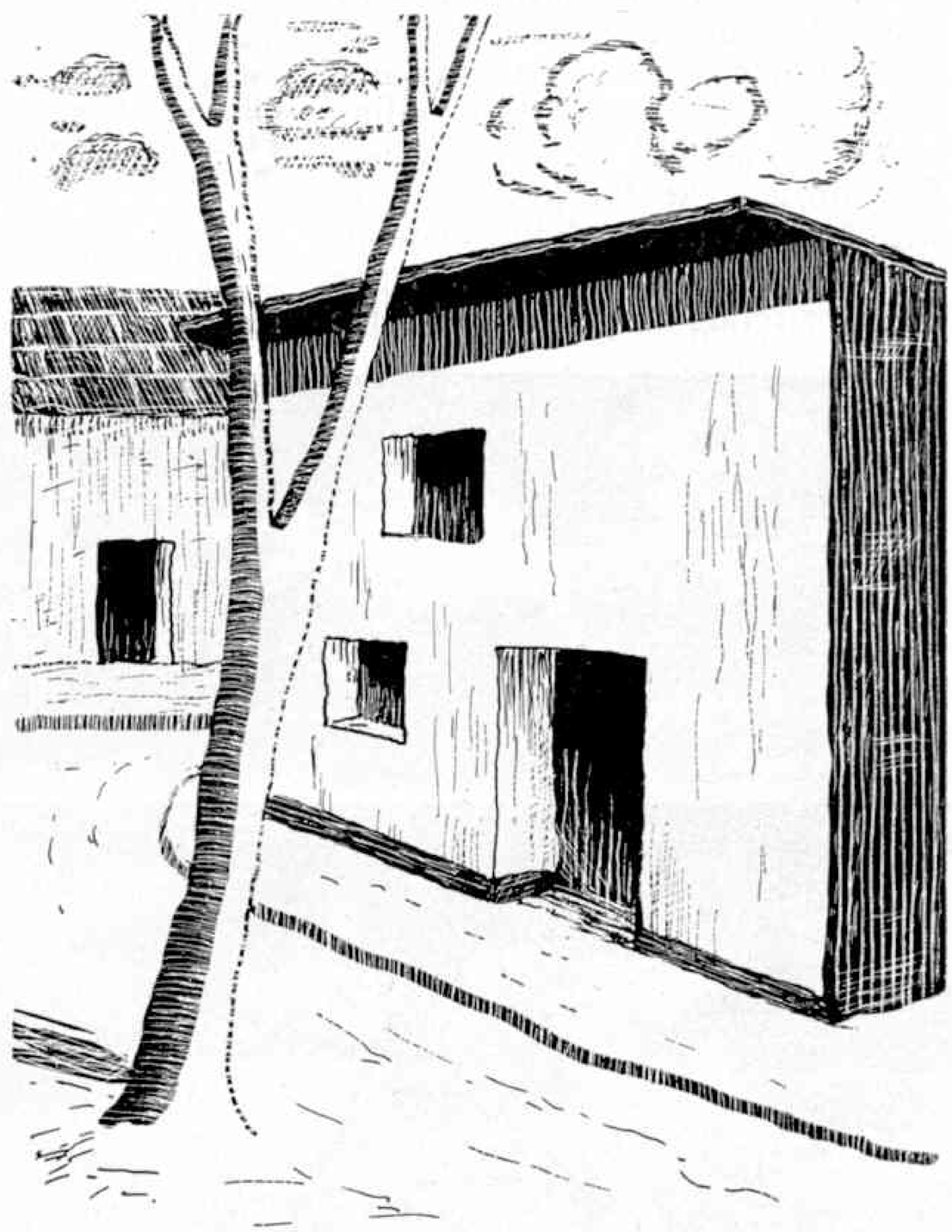
When working on white board it is also possible to use pen and ink for some of the line work, but in Fig. 3 some of these lines have been cut to adjust the tone.

The technique is fascinating and not beyond the ability of anyone who can use a pen. It is ideal for lettering, designs and pictures of many kinds, and you can have lots of enjoyment simply by experimenting with a trial packet of scraperboard.

Before embarking on a particular project, I suggest you use a piece of card for doodling. This will give you some idea of how to handle the tools and will show their effect. And remember—keep the tools sharp and the board perfectly dry.

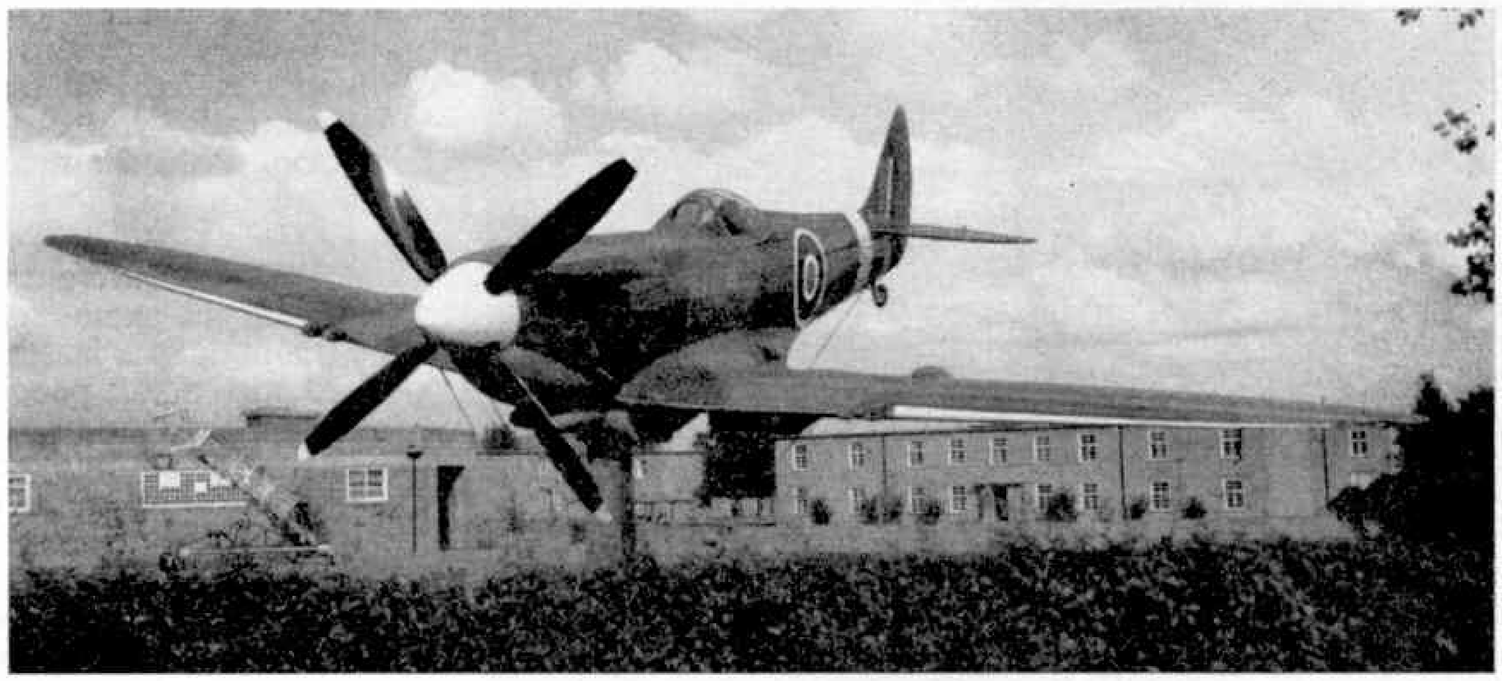
Larger sizes of scraperboard are available in both small packs and single sheets. In addition there are textured surfaces which produce interesting results when you have had some practice.

Figure 3. This drawing was on white board. The effect of shadow should be observed.



AIRCRAFT IN RETIREMENT

GUARDIANS OF THE GATEWAY



". . . along the road adjoining R.A.F. Horsham St. Faith, Norfolk you might look up suddenly from your map or guide-book and see, overhead, what appears to be a low-flying fighter." This picture of Spitfire SL542 appears by courtesy of the Royal Air Force.

MANY readers who live within easy reach of London, and who are aircraft enthusiasts, will have visited the aeronautics collection in the Science Museum, South Kensington, where there are many original aeroplanes, or replicas,

By
LESLIE HUNT

dating from the days of the Wright Bros. to the jet age. In the Imperial War Museum in Lambeth Road, London one can also see fine specimens of military aircraft, including a Mk. I Spitfire (R.6915) which flew during the Battle of Britain with No. 609 (West Riding) Squadron and whose record was five enemy aircraft destroyed and three damaged. After being flown by more than a dozen different pilots it later went to No. 602 (City of Glasgow) Squadron (from January to July 1941) and, ceasing operational usage, was used for training at Nos. 61 and 57 Operational Training Units.

How wonderful it is to see these veteran machines at close quarters, especially during the cold winter days when one can walk around a well-heated museum in comfort, pausing to note the details and trying to visualise the machine as it was, years ago, in flight. Those of us, however, who like to see aircraft in the open air—perhaps for the opportunity of photographing them—look forward keenly to "Battle of Britain Week" or to the air displays often staged by the Royal Air Force for its Benevolent Fund and for that of the Association.

Survived Collision

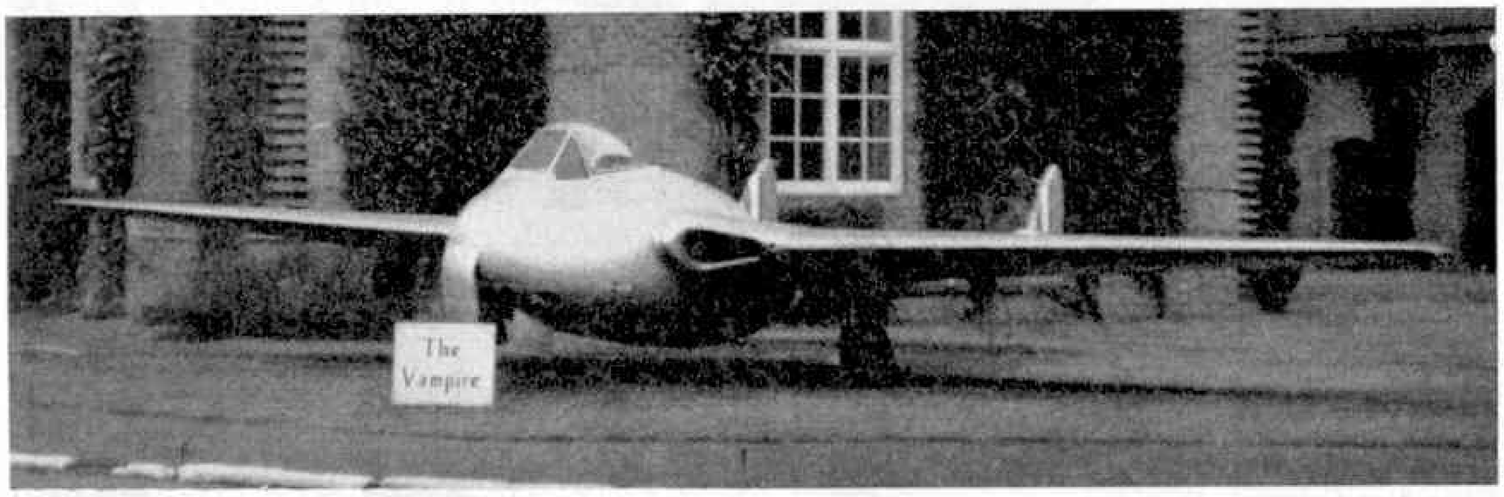
Yet there is another chance to see—and usually to sketch or photograph, after seeking permission—some of the greatest British military aircraft, many of which have magnificent war records. This grand opportunity is at the gates—or just inside—many of the existing Royal Air Force bases where these machines are preserved as tributes to the men who flew them during hostilities, or to those who designed them in the post-war years.

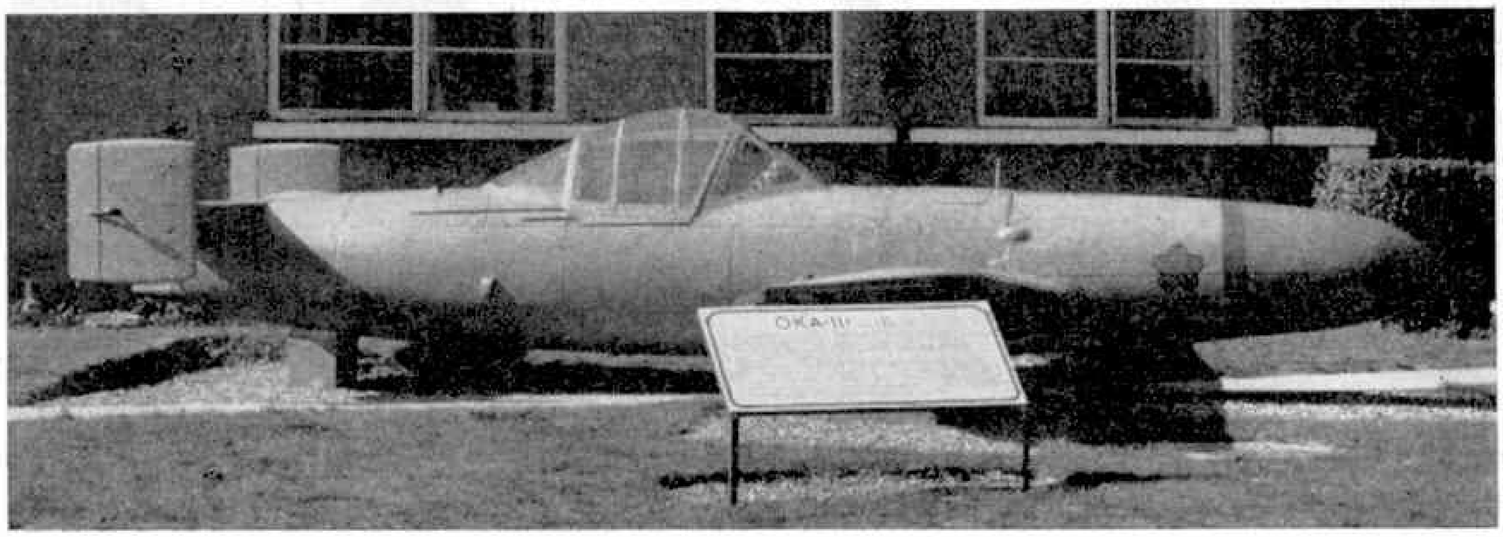
Most famous of all the retired aircraft is, of course, the Lancaster Mk. I bomber R.5868 on permanent display at the gates of R.A.F. Scampton, Lincs., on the A15 road, easy to approach by car, bus and bicycle. This Lancaster first joined No. 83 Squadron (Guy Gibson's first operational unit) in the summer of 1942, at Scampton, taking part on operations for the first time on July 8, 1942, against Wilhelmshaven. Later, it became part of the Pathfinder Force at Wyton and, on its eightieth trip, survived an incredible collision with another Lancaster, after bombing Berlin. The pilot brilliantly controlled "Q" Queenie as she dived for the ground, and brought her safely to base. On May 11, 1944, "Queenie" notched her 100th "Op" from Waddington, Lincs., having returned from Wyton, and personnel there stayed up to toast, mainly in early-morning tea, the achievement of a century scored against the Nazis.

Persistent attacks

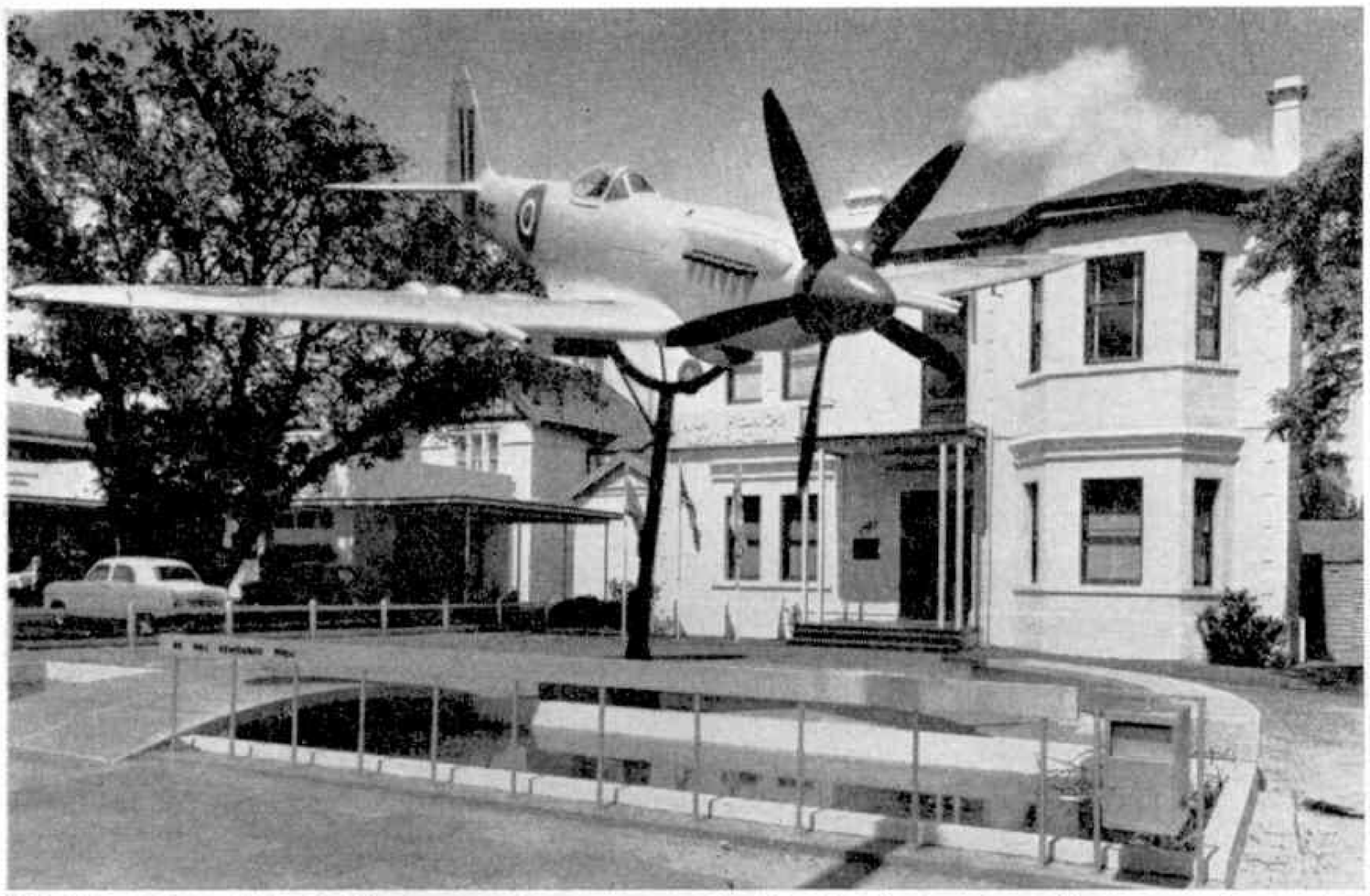
In point of fact, the officers and airmen concerned almost had their wait in vain for within a short ten minutes two JU 88 night-fighters of the Luftwaffe made persistent attacks on "Queenie" and, once again, only the skilful piloting and co-ordinating action of the gunners kept her airborne. The 137th—and final—sortie came against Flensburg on April 23, 1945 but owing to thick cloud, the bombs were not released.

On the side of the aged Lancaster, beneath the port window, are the 137





Left (Top) A photograph by the author of the Vampire which can be seen at Cardington. (Below) An official R.A.F. picture of the Japanese OKAII suicide 'plane at Cottesmore, Rutland.



This illustration of the Spitfire preserved as a memorial at Perth, Western Australia, appears by courtesy of Viscount Knollys.

bomb silhouettes and the emblems of a D.S.O. and three D.F.C.s won in "Queenie". Below are inscribed Hermann Goering's own words, "No enemy planes will fly over Reich territory".

Now, whether as "Q" Queenie or as "*S*" Sugar—as she flew when with No. 467 Squadron of the Royal Australian Air Force—this grand old lady of the air spends her days in honourable retirement, with the Vulcans of No. 83 Squadron taking off and landing above her.

Another four-engined machine—this time a flying boat—is the Sunderland now beached at Pembroke Dock, thanks to the valiant efforts of a young enthusiast, Peter Thomas, a keen A.T.C. officer. The crusade to obtain one of the last flying Sunderlands was supported by Mr. H. Oswald Short, last remaining of the Short Brothers who built the plane, and by Air Chief Marshal Sir Philip Joubert, formerly Air Officer Commander-in-Chief, Coastal Command. Sunderland ML 824, first with No. 201 R.A.F. Squadron as "Z" Zebra, was generously donated by the French Admiralty and flown to her old base, escorted by one of No. 201's present aircraft—a Shackleton.

Now Peter Thomas is fighting to obtain an Anson, standing unwanted at Southend Airport, and also hopes to trace other "legendary" machines which, as yet, have not been preserved for posterity. These will be put on display and collections will be taken for charities.

If you are ever walking, cycling, or driving along the road adjoining R.A.F. Horsham St. Faith, Norfolk, you might look up suddenly from your map or guide-book and see, overhead, what appears to be a low-flying fighter. In fact, as you will soon realise, it is a Spitfire (SL 542) cleverly mounted on a post as if in flight. An interesting story attaches to this machine for, after being airworthy until 1957, when it suffered considerable damage following a heavy landing, it was on display at Duxford, Cambs., R.A.F. Station. In 1959 it was planned to get the Spitfire airworthy, but lack of suitable spares prevented this. However, as two famous Spitfire squadrons, Nos. 64 and 65, were based at Duxford—now they use jets—the Commanding Officer decided that SL 542 should bear on one side the letters SH–N (64's markings) and on the starboard the letters YT–N, the markings of No. 65 Squadron. The aircraft was subsequently dismantled and, later still, re-erected at Horsham St. Faith for passers-by to admire.

Glorious setting

This aircraft is not the only one mounted in such a manner. At the South African Air Force base at Waterkloof, Transvaal is a similar Spitfire mounting and in faraway Perth, in Western Australia, is perhaps the most glorious setting for any retired aeroplane. The Air Force Association, looking for a suitable tribute to World War II airmen, appealed for an aircraft and the Brighton and Hove Branch, Royal Air Force Association offered a Spitfire Mk. XXII. The Perth company of Vickers Ltd. (of which Viscount Knollys, G.C.M.G., M.B.E., D.F.C., is chairman) manufactured an ingenious light-weight support for it. On a visit to Air Force Memorial House, Viscount Knollys, who is also chairman of the R.A.F. Benevolent Fund Council, brought back the photograph you see in these pages.

Another Spitfire has been offered to Australia—a Mk. 14 version formerly on display at the Aircrew Selection Centre, R.A.F. Hornchurch—and may eventually be seen in the Kingsford Smith Memorial Collection, at Canberra. This machine, RM 694, joined No. 91 Squadron at Deanland, near Eastbourne to join in action against the flying bomb menace in July 1944. It was subsequently transferred to No. 402 (Canadian) Squadron at Hawkinge, near Folkestone, then at Antwerp, but following a crash went to No. 6 M.U. Brize Norton, and was rebuilt for the Central Fighter Establishment, West Raynham, Norfolk. It was eventually re-numbered 664 OM and converted for ground instruction at Locking, Somerset before going to Hornchurch.

Mark 16 Spitfire TE 353, loaned by the R.A.F. to the Royal Canadian Air Force for exhibition at Parliament Hill, Ottawa, has now been donated as a gift to the R.C.A.F. Also preserved is a Spitfire XVI, serial TE 330 which was first used in 1945 and then, from 1947 to 1950, flown by No. 601 (County of London) Squadron at R.A.F. North Weald, Essex. It later featured in the Malta epic portrayed during the 1957 Royal Tournament and, made airworthy by R.A.F. Biggin Hill after herculean efforts against the clock, flew over London on "Battle of Britain" Sunday, 1957, in company with a lone Hurricane. Now this well-tried "Spit" occupies a place of honour at the United States Air Force Academy.

(*Continued on page 118*)

Being taken back to its normal position opposite the entrance of Turnhouse Airport, after being repainted, is the Spitfire which is the memorial to No. 603 Squadron (City of Edinburgh) Royal Auxiliary Air Force. Photograph by courtesy of "The Scotsman".

DINKY TOYS NEWS

TWO MORE INTRIGUING NEW MODELS FOR COLLECTORS

"Pride of possession" seems an appropriate description of this young Dinky Toys enthusiast with his fine array of models.

VOLKSWAGEN WITH OPENING BONNET AND A SPRIGHTLY GRAND PRIX FERRARI

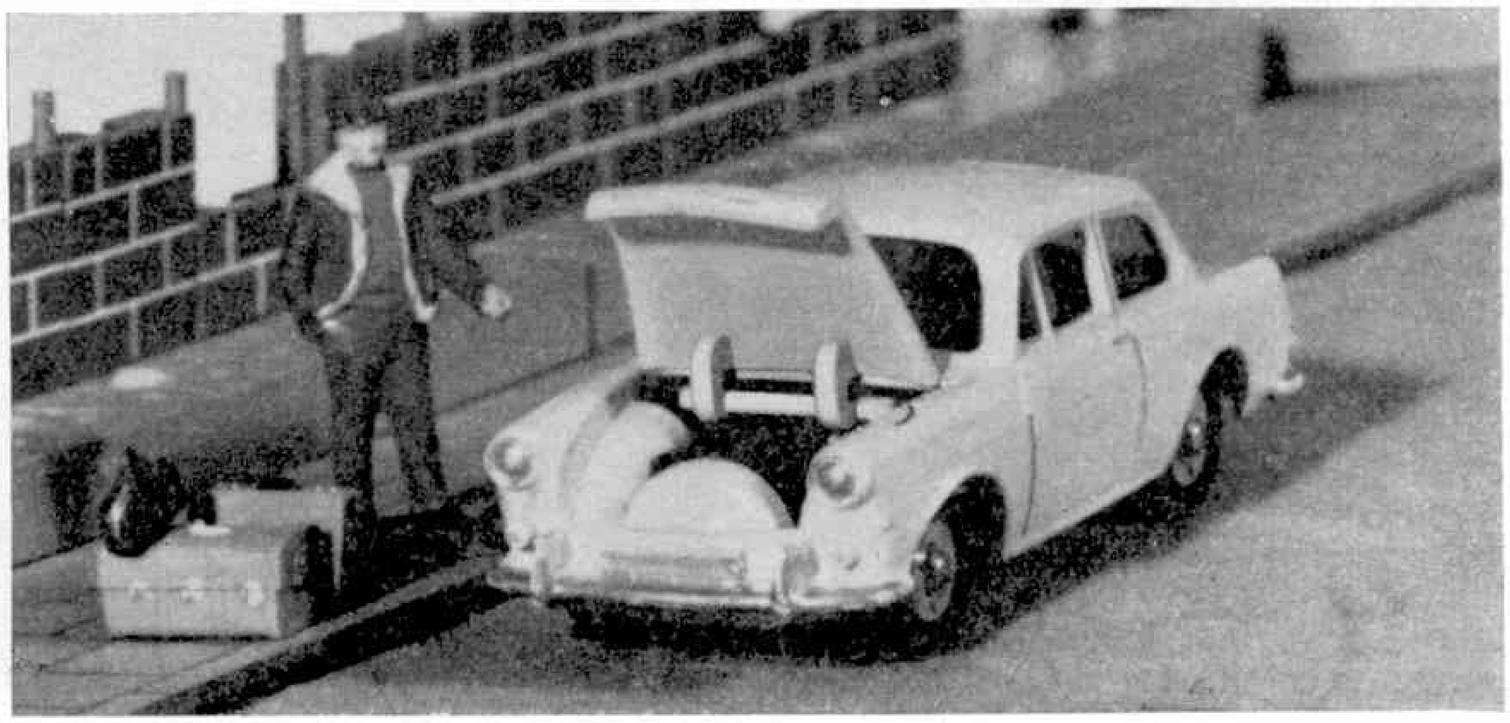
COLLECTORS everywhere write to tell me how enthusiastic they are about the additions to the Dinky Toys range over the past seven or eight months. In that time we have seen many innovations introduced, in addition to the "standard extras" such as Prestomatic steering, four-wheel suspension, windows and interior fittings—such things as opening doors (M.G.B.), opening tail gates (Superior Criterion Ambulance), flashing lights (Airport Fire Tender and Criterion Ambulance), opening boot (Jaguar Mk X), opening bonnet (Morris 1100) and, of course, the superb new Polychromatic colour finish.

All these are excellent yet, judging from your letters, while all these things appeal normally to you, each

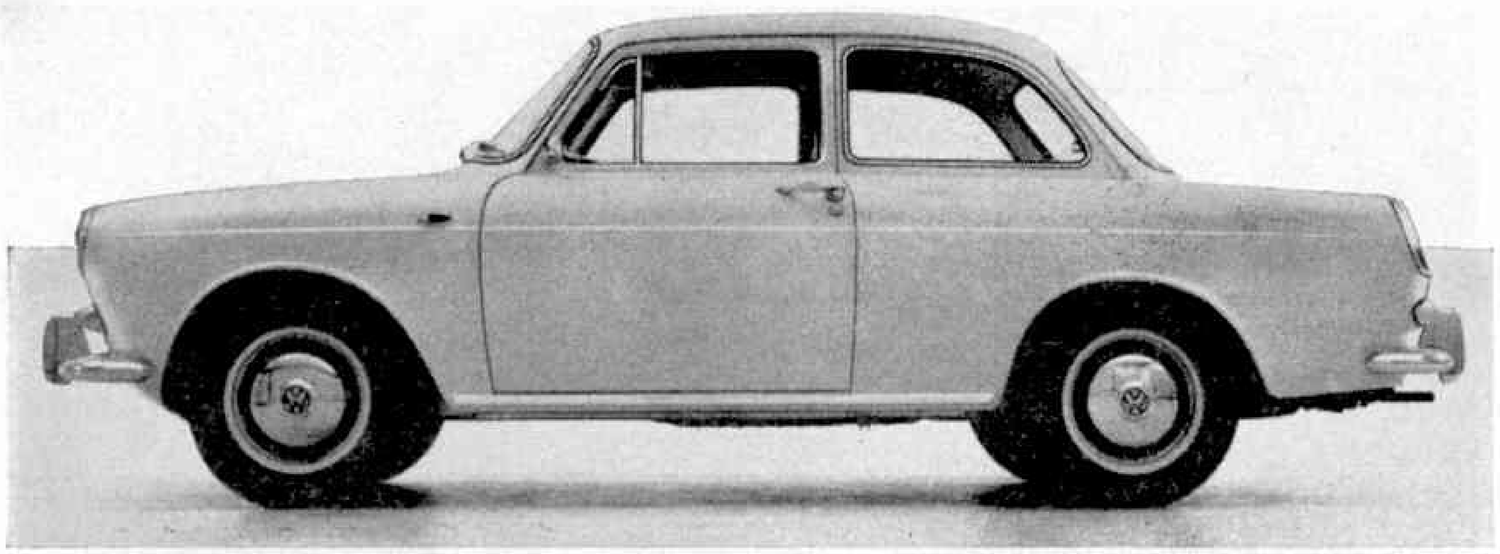
BY THE TOYMAN

of you has a particular liking for one of these aspects. It would be difficult to say which item has the most appeal, but the opening boot or bonnet claims many votes. Most of you will, therefore, be delighted to know that this month our two new models include another car with a lift-up bonnet—the recently-introduced Volkswagen 1500.

Normally, when you open the bonnet of a car, you expect to see the engine and if you lift up the boot you expect to see luggage. In the case of the Dinky Toys Volkswagen however, you open the *bonnet* and find inside it the luggage—a miniature, moulded suitcase. The reason for this, of course, is that the Volkswagen 1500 is a rear-engined car and therefore the luggage space



The Dinky Toys version of the Volkswagen 1500 is seen on the right. There is a suitcase provided with the car, but the sporting gentleman on the footpath, who is a Dinky Toys figure, has obviously got some extra luggage to take away with him.



This view of the actual Volkswagen 1500 shows its neat and graceful lines.

must be at the front. To make it a little more confusing, though, if you opened the boot of the prototype you still would not see the engine.

"How is this?" you may well ask, "No engine under the bonnet or the boot-lid!"

Well, the answer to this is that the engine *is* situated at the rear but, instead of it actually being in the boot, it is neatly concealed beneath the boot floor, with the result that the car's luggage accommodation is almost unlimited.

Following my usual practise I give below details of the actual vehicle, for I know readers like to have such information available.

The actual vehicle is made in Germany at Volkswagenwerk A.G., Wolfsburg, Brunswick. Power is supplied by a 4-cylinder air-cooled engine—which is only sixteen inches high—of 1493 c.c. capacity which develops a power output of 53 b.h.p., enabling the car to cruise comfortably at its maximum speed of 78 miles an hour. This, in itself, is remarkable for not many cars can travel "flat-out" for any distance without causing wear to the engine. It is claimed that the Volkswagen 1500, however, is well able to accomplish this cruising speed.

The vehicle's overall dimensions are: Length 13 ft. 10½ ins; width 5 ft. 3¼ ins; height 4 ft. 10 ins; wheelbase 7 ft. 10½ ins; front track 4 ft. 5 ins.

Average fuel consumption over a long journey is over 33 miles per gallon and the vehicle has ample room for four or five people. Both front seats are fully adjustable while driving, each seat having 49 possible combinations. There are mounting points for safety belts.

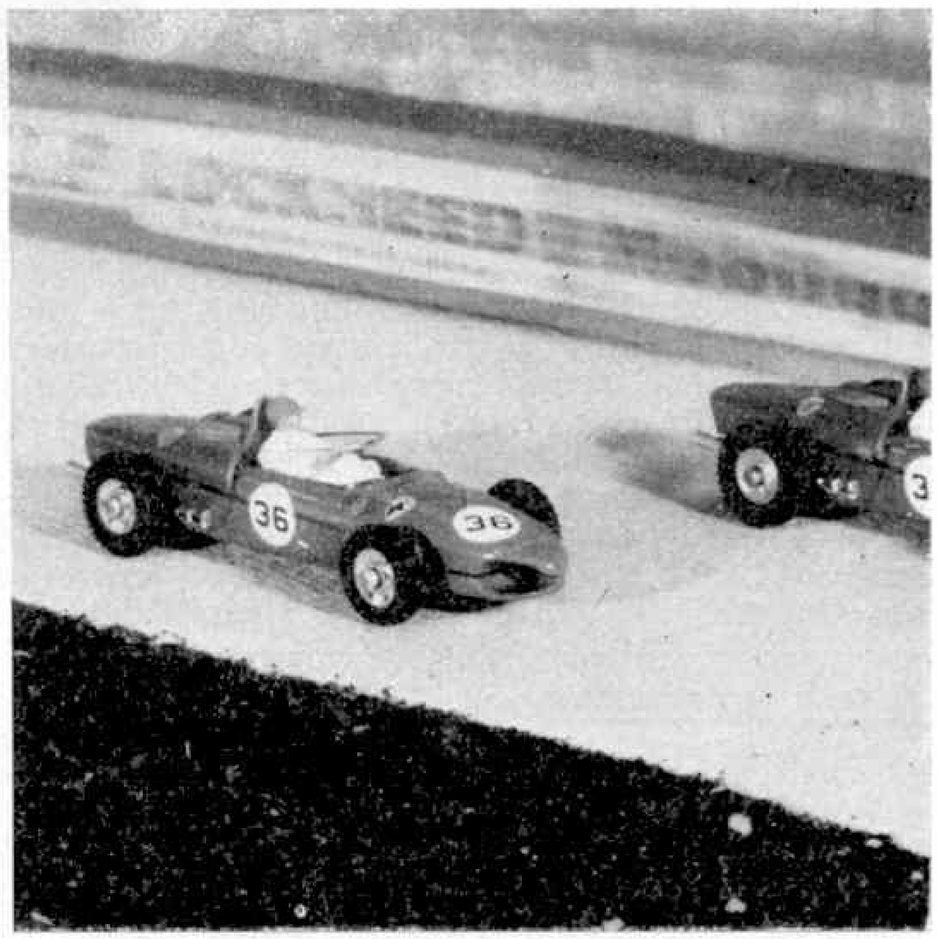
If the prototype is a splendid vehicle, so also is the Dinky Toys model. Numbered 144 in our lists, it has as I mentioned earlier, an opening bonnet complete with a piece of luggage—a smart little suitcase.

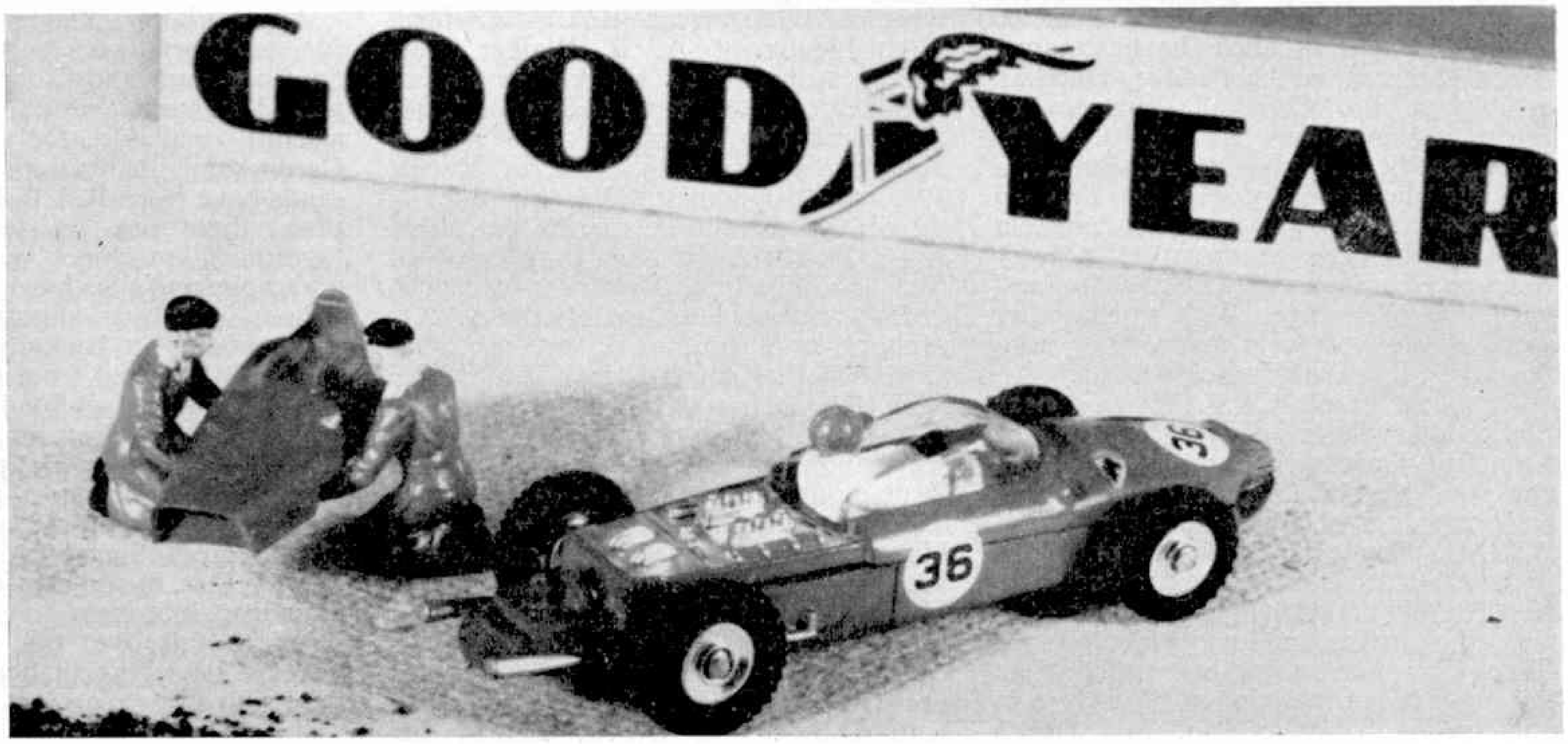
Placed vertically in the floor of the bonnet is a simulated spare wheel, the upper portion of which is showing.

The Dinky Toys Volkswagen has 4-wheel suspension, windows, seats, steering wheel and Prestomatic steering and is finished in a high-lustre, pale cream gloss with red seats. Its overall dimensions are: Length 3½ in.; width 1 5/16 in.; height 1 3/16 in.; wheelbase 1 15/16 in.; maximum track 1 1/16 in. This model, I am sure, will prove extremely popular with all miniature car enthusiasts.

If your letters are any indication, and I am certain they are, then the majority of Dinky Toys collectors are also deeply interested in motor racing. This leads me to our second new model this month—the F.1 Ferrari—first of a new Dinky Toys series of three famous racing cars all of which will be to the new scale of 1:42.

For many years Ferrari has been a leading name in track events throughout the world and this new Dinky Toys miniature of their Grand Prix car is based on a model which has figured in many European battles over recent months. As a Continental model skilfully driven in Formula One races it has provided lively opposition





(Right): The Ferrari Grand Prix car has called in at the pits and the cowling has been removed for a quick look at the engine. Note the detail on this new model. The smaller picture shows the Ferrari humming along in a track event, chasing a car from the same stable.

Where, in Liverpool, is this? The problem picture which was put before readers of the "Liverpool Daily Post".

to British racing cars such as the Lotus, the Cooper and the B.R.M. From their headquarters in Turin, the Italian Ferrari concern have produced many world famous cars. That on which the Dinky Toys model is based is powered by a 6-cylinder engine of 1476 c.c. with a compression ratio of 9.8 to 1. Power output at 9,500 r.p.m. is 190 h.p. and, as Formula One regulations require it, the car is fitted with a starter motor and battery, the former mounted on the clutch. Principal dimensions as follows: Length 13 ft. 4 in.; width 2 ft. 10 in.; height 3 ft. 3½ in.; approximate weight 926 lb. I should point out here that the height is to the top of the crash hoop behind the driver. The height of the actual car is 2 ft. 4½ in., this being the height to the top of the carburettor air intakes, which are the highest points of the bodywork.

The Dinky Toys Ferrari (No. 242) institutes a break-through in miniature racing car manufacture. It is the first of our model racers to be fitted with 4-wheel suspension and, as if this was not enough, it also has a removable engine cowl giving access to a fully-detailed engine.

The model is finished in a hard red gloss with the Ferrari Crest—a prancing horse—in front of the windscreen and the number 36 on both sides of the body and on the nose. A green-helmeted driver in white overalls completes a neat and thoroughly workmanlike model. Dimensions: 3½ in. long; 1¾ in. wide; ⅞ in. high.

Remember—this is the first of a new series of racing cars. The others will be the Cooper and the Lotus, and their arrival in due course will be announced in these pages.

Now I want to draw your attention to the photograph above which appears by courtesy of the *Liverpool Daily Post*.

Two or three months ago that newspaper published a photograph in "Motoring Notebook" under the heading "Where (in Liverpool) is This?" Readers were asked whereabouts in Liverpool they could expect to find a Rolls-Royce Phantom V and a new M.G.B. Sports Car parked together in such sylvan surroundings, and it was explained that the picture had been taken in Liverpool by a *Daily Post* staff photographer. On a separate page, readers were given the answer to the problem—that the cars were photographed at the Meccano Factory in Liverpool and that the whole picture was, in fact, "a table-top" study. I thought our readers would like to see what a first-class job the *Daily Post* photographer made of this very striking picture.

Aircraft in Retirement—

(*Continued from page 115*)

Not all the veterans are of allied origin though and, at R.A.F. Cottesmore, Rutland, stands "an early guided missile" in the shape of a Japanese OKA II—called the "Cherry Blossom", one of the suicide aircraft which wreaked havoc among Allied shipping in the Pacific. Once an exhibit at the Cranwell Museum of Interesting Weapons it now decorates armament headquarters at Cottesmore, a "V" Bomber base of No. 15 (Victor) Squadron. Carried in the bomb-bay of a Japanese bomber such aircraft as "Cherry Blossom" were released at 27,000 feet and had a 50-mile range. With a maximum speed of *620 m.p.h.* in a dive they were flown by "Kamikazi" suicide pilots.

At the gates of R.A.F. Weeton, near Blackpool, where No. 8 School of Technical Training is situated, a pair of grounded jet planes grace the entrance. On one side is a Gloster Meteor Mk. 3 (722IM). This is flanked by a Hunter F.5 (WP 147) which claimed proud association with No. 111 (Treble One) Squadron—the men who thrilled millions before No. 92 (Blue Diamonds) took over as Fighter Command's aerobatic team. This role is now in the hands of No. 74 "Tiger" Squadron, who fly in P.I. Lightnings.

The most advanced version of the Spitfire used during the second world war was the Mk. 21, delivered to squadrons only a few weeks before "V.E." Day. When, years later, the Central Flying School, Little Rissington, obtained one of this type, LA 226, from R.A.F. Cosford, Flight-Lieutenant A. B. Walker, then Station Adjutant, set himself the task of unearthing the aircraft's background. He discovered that it first went to No. 91 Squadron at Manston, Kent, in March, 1945 and that its first "Op" was—almost incredibly—an anti-submarine patrol on April 10, 1945. It was transferred to No. 122 Squadron, Dalcross, Inverness, in 1946 and was later used by the A.T.C., probably in Shropshire.

At R.A.F. Kenley, Surrey is a Spitfire XVI (RK 263) wearing the code letters "LZ-B" of No. 66 Squadron. This is an apt tribute to a fine squadron which throughout World War II carried as a mascot the framed combat report of Lieutenant A. Jerrard who gained the Victoria Cross for No. 66 Squadron in March, 1918, in a Sopwith Camel. During the 1939–45 struggle one of the squadron's Commanding Officers was Squadron-Leader H. A. C. Bird-Wilson who gained both D.S.O. and D.F.C. leading his Spitfires against the Luftwaffe. Now an air commodore, "Birdie", as he is affectionately known, has added a Bar to his D.F.C., has been awarded the A.F.C. and Bar post-war, and, more recently, the C.B.E. He is one of the R.A.F.'s greatest pilots.

Appropriately, Biggin Hill—renowned for such aerial aces as "Sailor" Malan, Stanford Tuck and "Johnnie" Johnson—and Tangmere, Sussex, possess fighter aircraft available for inspection. At Cardington, Bedfordshire, where thousands have worn R.A.F. blue for the first time, there are no fewer than four "grounded" machines—a Spitfire, a Swift, a Vampire and a Seahawk—plus a barrage balloon which is almost certain to be flying and, as a background, that enormous airship shed from which the R101 left on her last, ill-fated flight to crash at Beauvais, in France. At Turnhouse, near Edinburgh, now probably better known as a civil airport, a Spitfire stands as a memorial to those of No. 603 (City of Edinburgh) Squadron whose justifiable boast is that, in conjunction with No. 602 Squadron, it brought down the first enemy plane to fall over the British Isles—a Heinkel III trying to bomb Rosyth and the Forth Bridge, on October 16, 1939.

COASTER COMMENTARY

Robert Gore Writes About

A MODERN TANKER THAT IS DRIVEN BY STEAM

READERS will recall that my previous article, in the January *M.M.*, was mainly devoted to coastal tankers. However, I am quite sure that many of you will also be interested in some of the more specialised types of vessels, and so we shall be discussing them from time to time. One of these in the tanker class which comes to mind is the s.s. *Esso Preston* illustrated in the two pictures on this page.

This 1,965-ton vessel is an individual one in that she has no sister ship. She was built for the Esso Petroleum Company Limited, by Messrs. Hall, Russell and Company at Aberdeen, where she was launched late in 1955. As is often the case these days, the hull of the s.s. *Esso Preston* is of welded steel construction, and the ship is worthy of note because she was designed and equipped for the bulk transportation of bitumen, a petroleum by-product, and was the first one of this type to join the owners' fleet in 1956.

She comes within a range of the bigger coasters, having an overall length of about 300 feet, with a somewhat large three-deck bridge connected to the afterstructure and forecastle by a catwalk. Other distinctive features are the very tall ventilators immediately behind the bridge, and a funnel surmounted by a cage-like top which was fitted after her delivery to the owners, following upon extensive research and wind-tunnel tests, in order to prevent fumes and smoke from hanging around and fouling the after-deck and re-entering the engine room by way of the skylights.

Most modern coasters are powered by diesel engines, but the *Esso Preston* is an exception, being steam-driven—and for a very good reason. You will probably know that bitumen is a very thick, sticky substance which becomes liquid when heated. It is loaded at a temperature of 280–300 degrees Fahrenheit and during a voyage and discharge this temperature is maintained by a bank of steam-heated coils in each of the five cargo tanks.

The cargo suction and discharge piping, and the two electrically-driven cargo pumps (each with a capacity of 125 tons an hour) are steam-jacketed and, to prevent loss of heat through the ship's sides, cargo is only carried in the centre tanks, the wing tanks being used for salt water ballast.

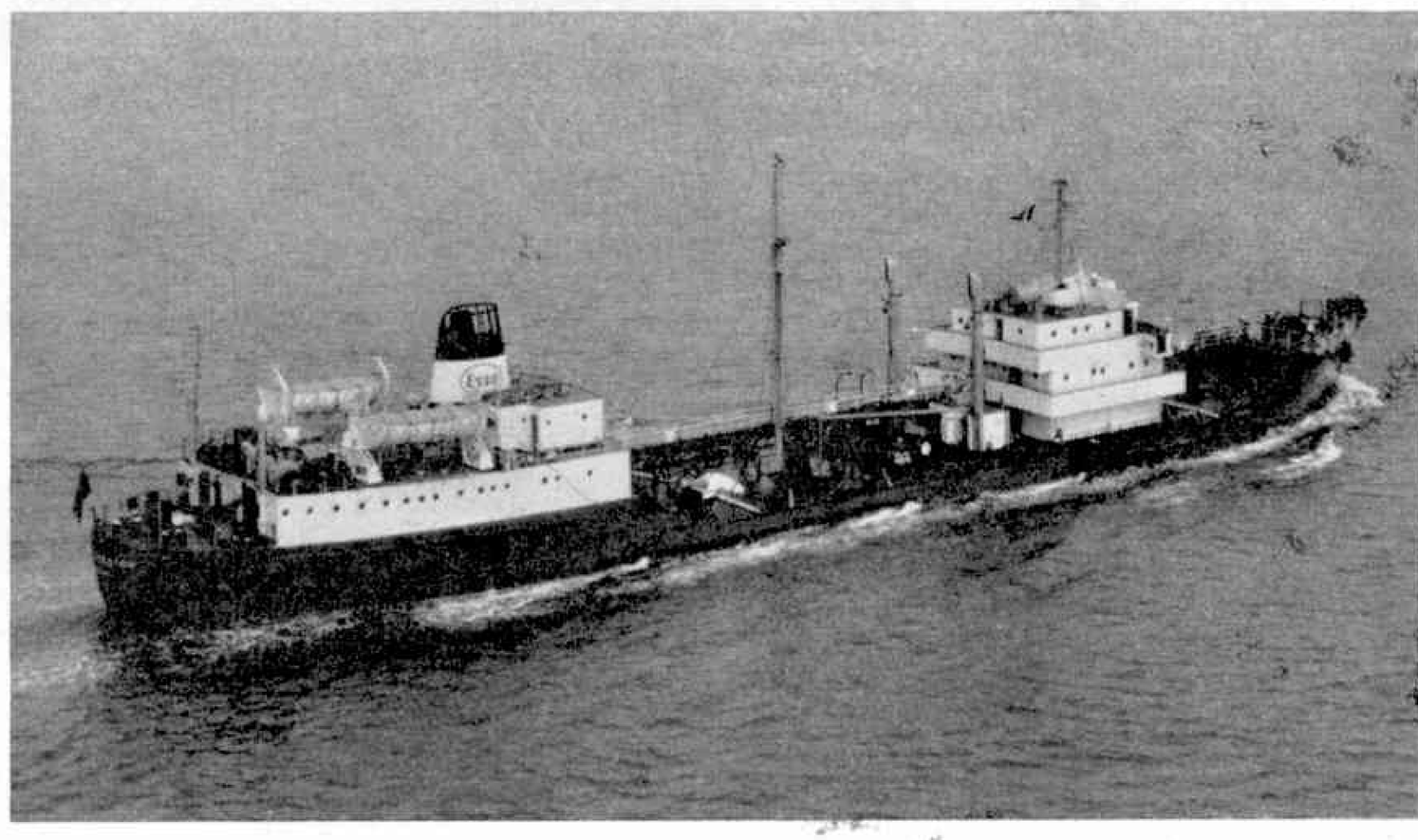
The steam heating is provided by two three-furnace, multi-tubular boilers each having a maximum evaporation of 14,000 lb. of steam per hour and a heating surface of 2,265 square feet at a working pressure of 225 lb. per square inch.

These boilers also provide steam for the main machinery, which comprises a triple expansion engine developing 1,300 i.h.p. and propelling the tanker at a service speed of ten and a half knots.

Normally, bitumen is taken from Fawley to Preston, Dublin, Purfleet and Grangemouth, but as an alternative fuel oil can also be carried to ports such as Avonmouth, Belfast and Manchester, and in both cases the cargo capacity is 2,300 tons.

The ship has a total crew of 26, and the comprehensive navigational equipment includes a Decca navigator and radar, gyro-compass, and echo-sounding device, together with a radio-telephone and V.H.F. installation.

Top picture: The s.s. "Esso Preston" photographed as she left the shipbuilders. Below: This more recent aerial view of the vessel shows the funnel "head-gear". Photograph by courtesy of Skyfotos.



Hornby Railway Company

By The Secretary

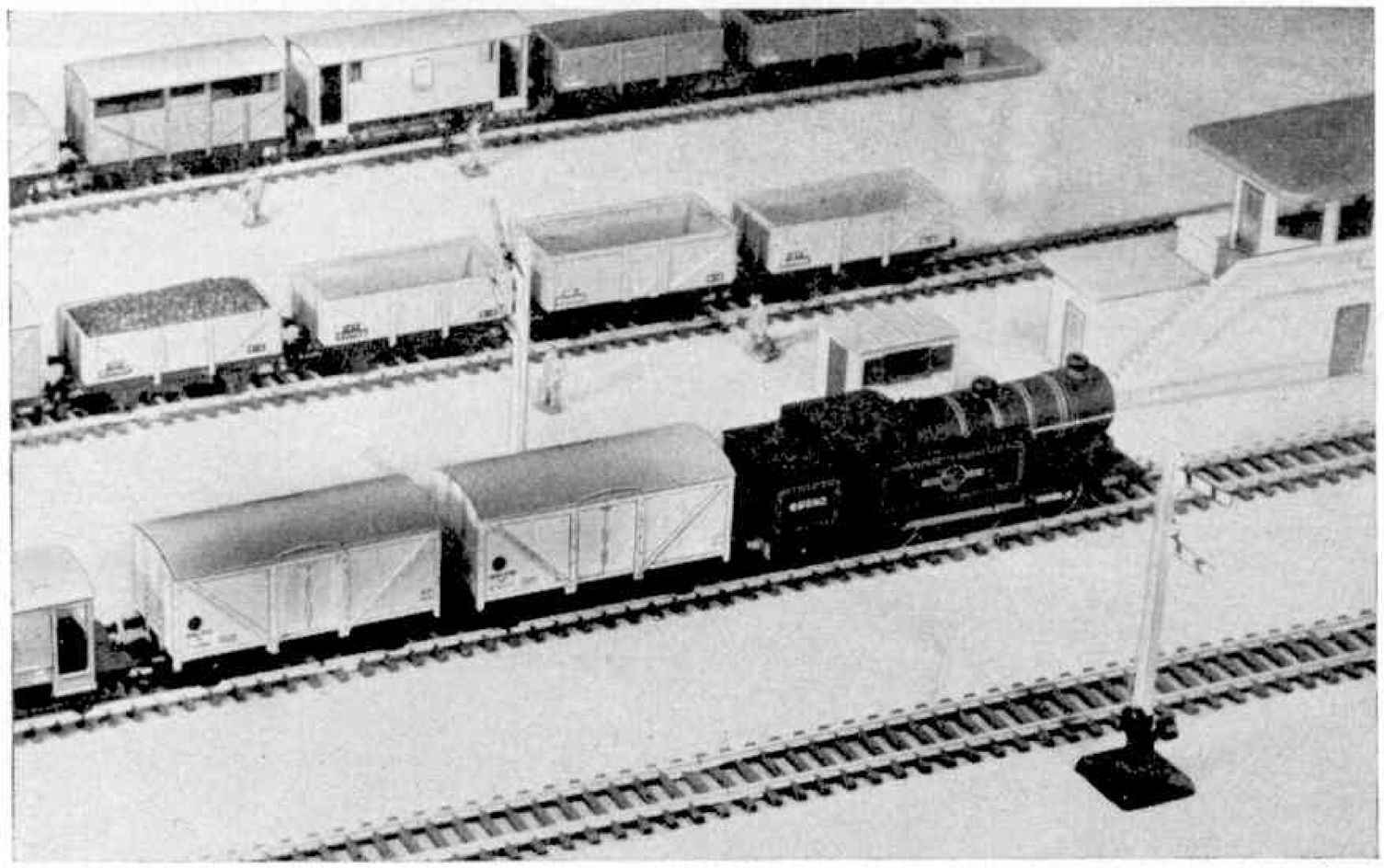
Miniature Train Formation Schemes

Carriage sidings and shed on a Hornby-Dublo layout. In the centre of the picture an 0–6–0 Tank is about to couple to some empty Corridor Coaches ready to form a train.

ALTHOUGH the subject of train formation has cropped up in these talks from time to time I sometimes receive varied and interesting inquiries from Hornby-Dublo owners regarding the use of this or that particular type of rolling stock with a given locomotive. So far as passenger vehicles are concerned, reference to the types of coaches used with particular locomotives in Hornby-Dublo Train Sets forms a useful guide. Most of you have a copy of the Hornby-Dublo catalogue, in which the Sets are illustrated, but not all of you are necessarily familiar with practice on the different main line routes of British Railways. Things can be difficult at times for a Hornby-Dublo Train owner who favours one particular Region and who happens to live miles away from any place where its trains are to be seen!

As the *Bournemouth Belle* Train Set includes the West Country Locomotive and Pullman Cars to run with it, a favourite inquiry from youthful owners of the Locomotive concerned is its possible use with other vehicles. My answer to this is that first choice of rolling stock after the Pullmans in the Set would be the Nos. 4054 and 4055 Corridor Coaches in the bright S.R. green livery that made their appearance as Hornby-Dublo models almost twelve months ago. These are ideal for representing many of the main line steam-hauled trains of the Southern, apart from the Pullman service represented by the Hornby-Dublo Set.

Here two "Blue Spot" Fish Vans, representing a section to be added to the main train at a junction station, are being hustled along by a Hornby-Dublo 0–6–2 Tank.



In addition, as there is a fair amount of through traffic between the Southern and the other Regions, there is no reason at all why a miniature West Country should not be seen hauling a train of maroon-finished Corridor stock, such as Hornby-Dublo Nos. 4052 and 4053. In fact, one or two illustrations showing this sort of thing have appeared in these pages, and the S.R. 0–6–0 Tank in our first illustration is about to couple to such a train, no doubt to form a through service to another Region.

* * * *

Similarly, the popular *Cardiff Castle* Locomotive need not always be used to haul trains of the attractively-finished brown and cream Nos. 4050 and 4051 Corridor Coaches contained in *The Red Dragon* Train Set. Many real W.R. trains

are formed of maroon coaches, so the practice will certainly add an authentic touch to the miniature layout.

One favourite variation on the Train Set that is practiced by quite a number of Hornby-Dublo enthusiasts—particularly those who have a leaning towards the practice of the East Coast route—is to run a train of Hornby-Dublo Pullmans with an A4 streamlined 4–6–2 Locomotive, either *Golden Fleece* on Two-Rail, or *Mallard* on Three-Rail layouts. Since the production, too, of the Co–Co Deltic Diesel Locomotive in Hornby-Dublo, Pullman trains on Hornby-Dublo layouts are frequently found in charge of this modern example of miniature motive power.

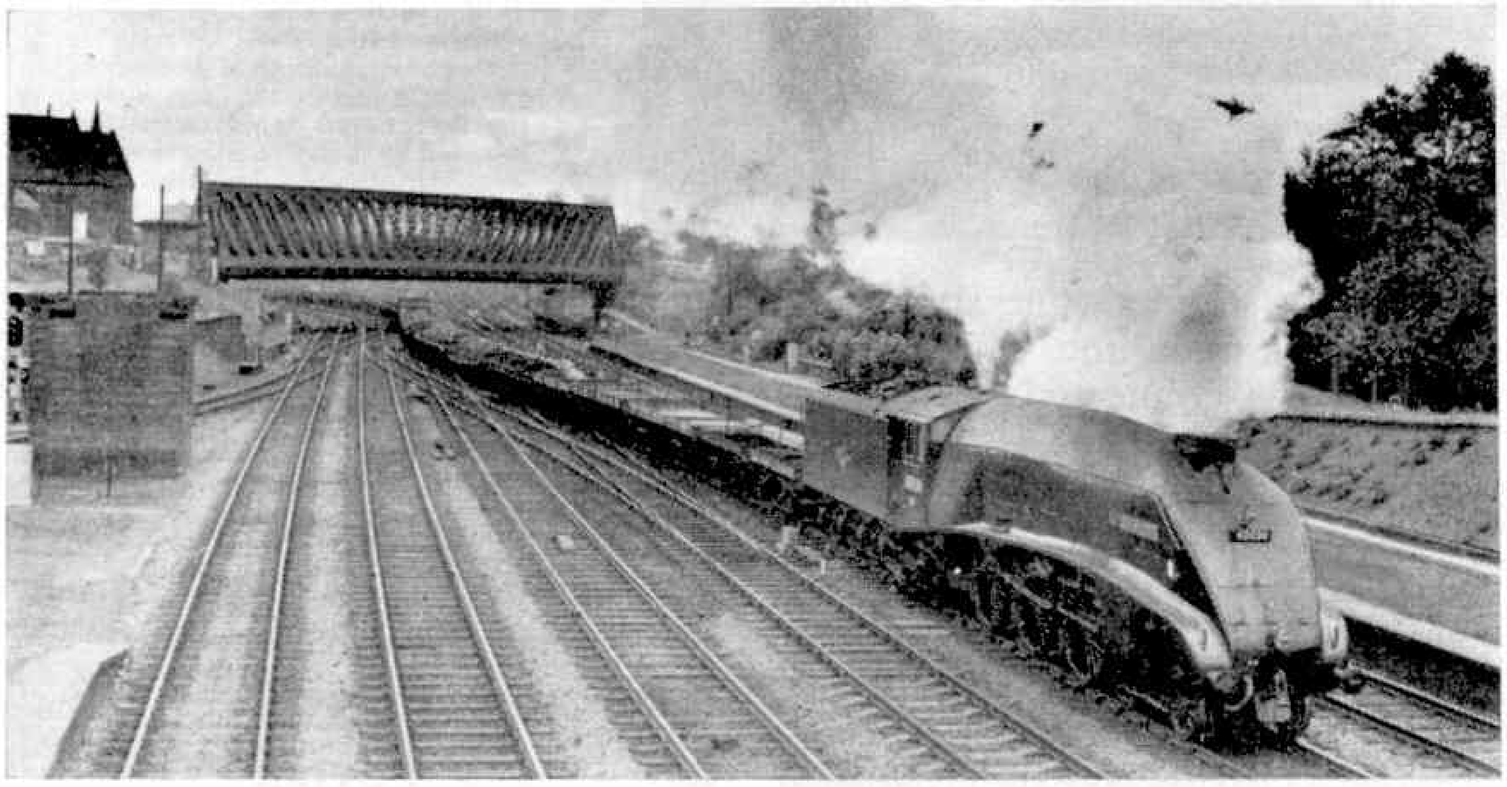
Some time ago, in dealing with train operations, with special reference to the miniature "Blue Spot" Fish Van No. 4300 in the Hornby-Dublo list I gave some details about the working of the "Blue Spot" express fish train between Aberdeen and the South. Owners of fairly extensive layouts will be able to reproduce the main line journey of the complete train, but those with more restricted facilities can do at least a bit of "Blue Spot" working. In the lower picture on page 120, two Fish Vans, with a Goods Brake Van, are in charge of a Hornby-Dublo 0–6–2 Tank Locomotive. This train could quite well represent the section of the "Blue Spot" formation that runs separately between Fraserburgh and Aberdeen, before the main train leaves the latter point. Alternatively, it could be one of the separate sections making its way to destination after being detached from the main train.

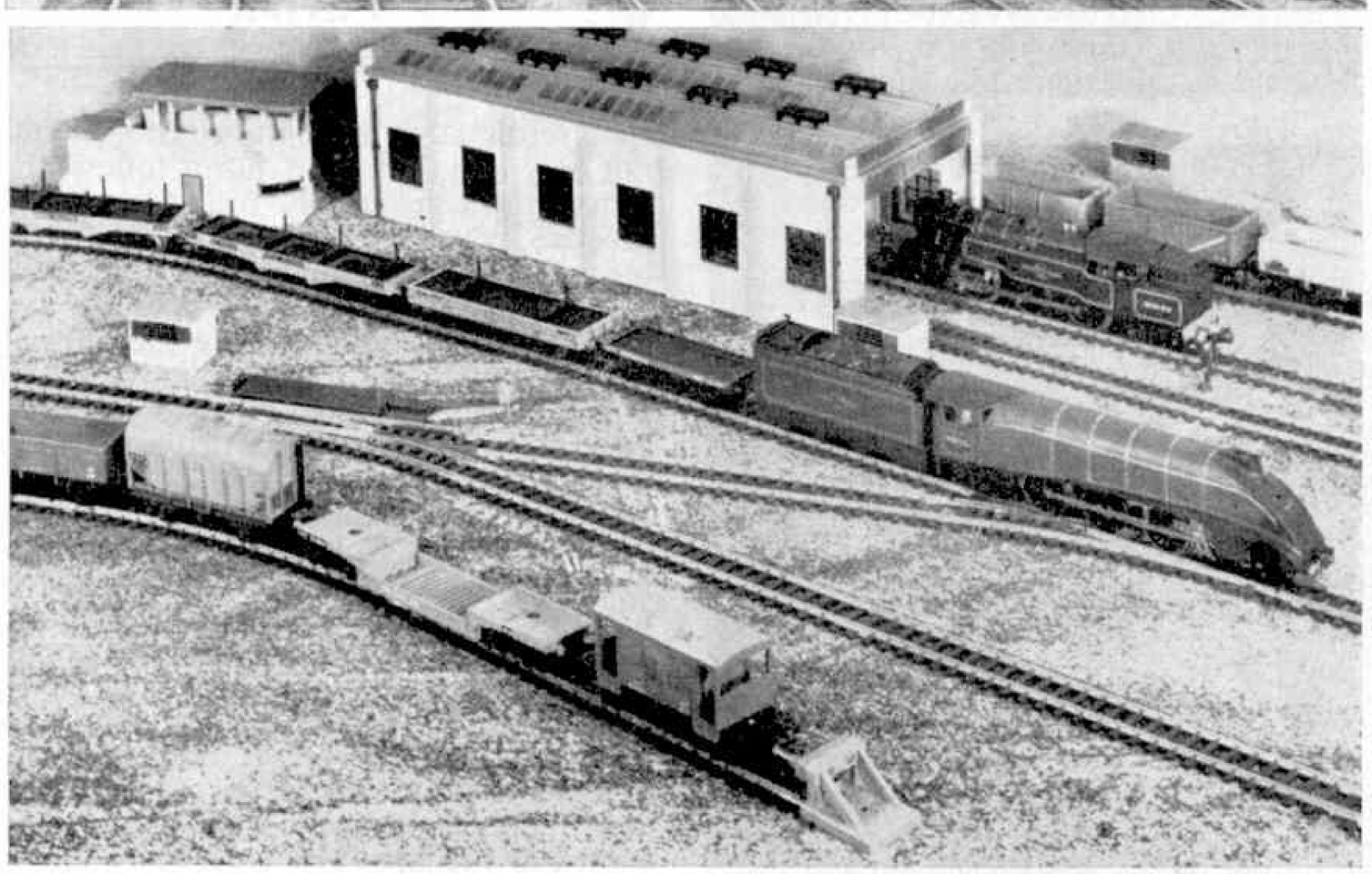
A question that is always cropping up concerns the use of passenger engines on freight trains and vice-versa. I suppose this sort of exchange of duties has been going on ever since there were railways, and in the upper picture on this page our contributor P. J. Lynch, of York has caught no less an engine than an A4 streamliner heading a train of low-sided plate and bolster wagons. Apart from this use of a high-speed express locomotive for hauling a train of wagons, the view is of special interest to Hornby-Dublo owners, as the engine involved, No. 60030 *Golden Fleece*, is available in Hornby-Dublo Two-Rail form under catalogue No. 2211. In the lower picture you can see it hauling a similar train on a Two-Rail layout. There is a Low-sided Wagon next to the tender, then comes a Double Bolster Wagon, followed by a couple of Bogie Bolsters before the tail of the train is cut off at the edge of the picture.

Express locomotives have often to lend a hand in the running of fast freight trains —particularly if these trains are brake-fitted throughout for running at high booked speeds—for a passenger locomotive can can be expected to whisk such a train along at a pretty good pace. I know Hornby-Dublo owners frequently use their passenger engines in this way, with every justification.

Matters are rather different when it comes to the more lowly freight trains, but with the advance of diesel power on British main line routes, such ordinary jobs can fall to the lot of engines hitherto regarded as for express work only. Letters from readers indicate that a similar situation exists on many Hornby-Dublo layouts, for many owners, wishing to reproduce the latest practice, find plenty of use for the several varied Diesel Locomotives that form part of the Hornby-Dublo range, so there may be steam-type engines to spare at times. It is not clear in what circumstances the real *Golden Fleece* was assigned to the movement of the train of wagons illustrated here, but almost any engine available might be employed for a special job of some urgency. The need for wagons of a particular kind to be transferred from one part of a system to another, perhaps to cope with some special traffic offering, frequently arises, but in this particular instance, some at least, of the bolster wagons seem to be carrying a load, possibly material required for engineering purposes.

A point of interest in connection with the Hornby-Dublo formation shown is that each of the Wagons is of the die-cast variety. This form of construction results in a sturdy vehicle with reasonable details, but they are somewhat heavy and too many of them in one train could make things difficult for the engine. The formation shown is not regarded as excessive, however, for the *Golden Fleece* Locomotive in normal layout conditions. As most of you know, track conditions generally, quite apart from the actual state of the rails themselves, do have their effect on locomotive performance. One tends to envy the long stretches of straight, or nearly so, track offered on many real main lines, but it is seldom possible for the Hornby-Dublo owner to reproduce this feature to any great extent. The space available, and baseboard limitations, impose restrictions. On the whole, I think that Hornby-Dublo owners overcome these conditions with considerable success. The pictures and details which appear in "Layout Man's" monthly article certainly confirm this.

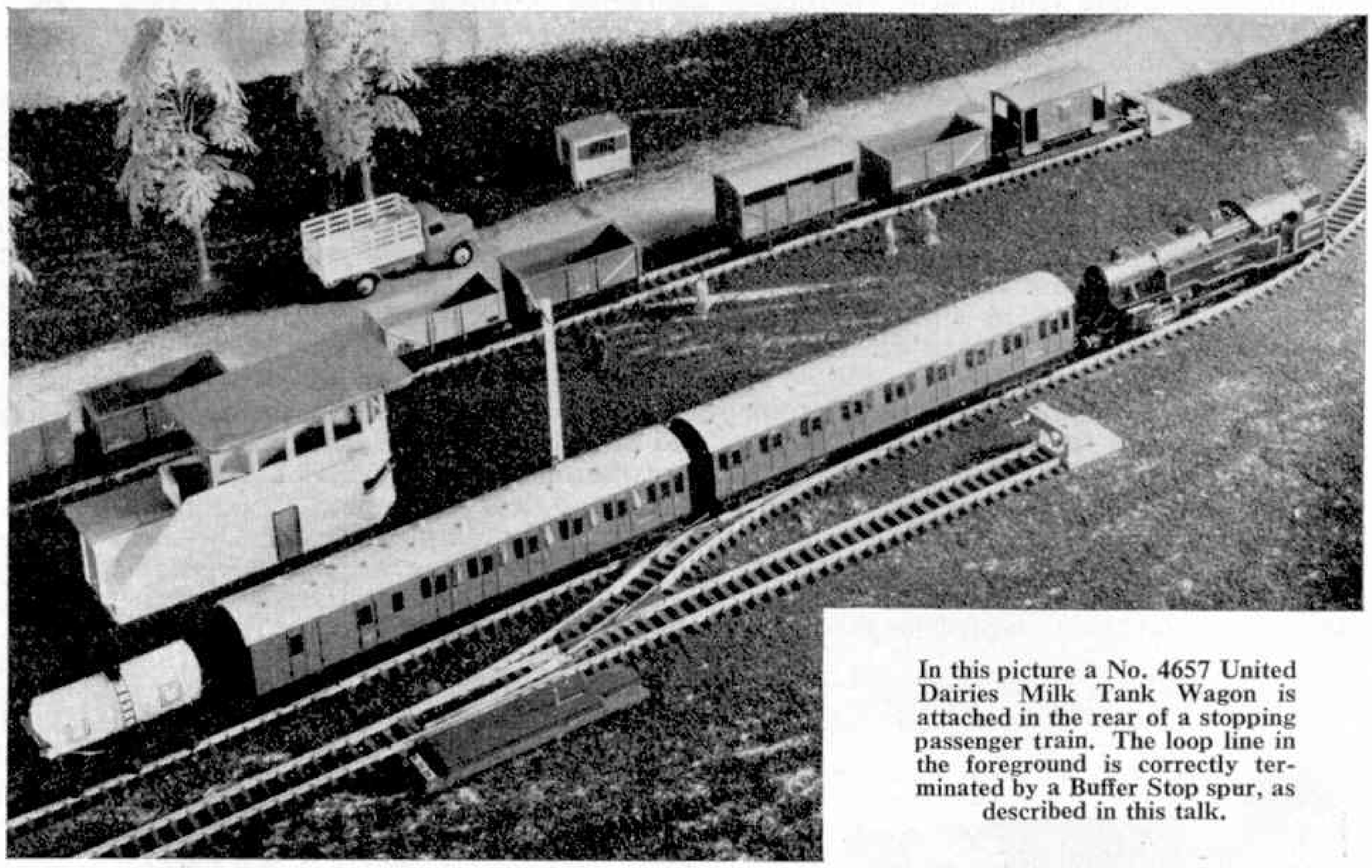




Top: In this photograph by P. J. Lynch, A4 Pacific No. 60030 "Golden Fleece" is heading south from York on a train including low-sided plate and bolster wagons. Below: A Hornby-Dublo scene corresponding to that above, with a train of four-wheeled Double Bolster and Bogie Bolster Wagons hauled by the streamlined 4–6–2 "Golden Fleece," well-known to many miniature railway owners.

How The Other Chap Does It!

Hornby-Dublo Schemes in This Country And Abroad



In this picture a No. 4657 United Dairies Milk Tank Wagon is attached in the rear of a stopping passenger train. The loop line in the foreground is correctly terminated by a Buffer Stop spur, as described in this talk.

THIS month, instead of dealing mainly with one layout, I have selected several points that we can discuss from the various scenes in our pictures on this page and the next. With the exception of the top illustration—which was taken in our studio at Binns Road—the miniature scenes in question show parts of layouts belonging to Hornby-Dublo owners.

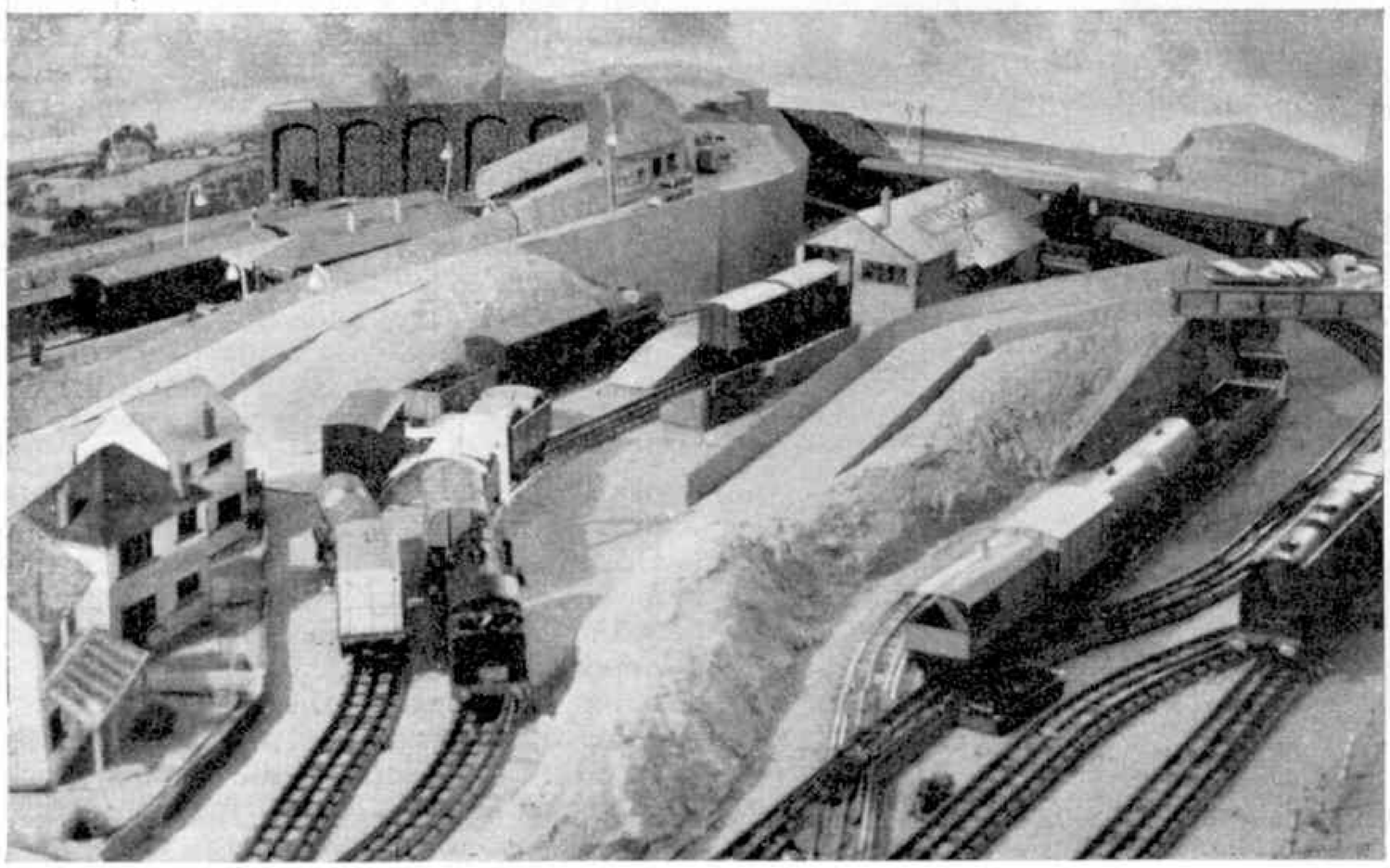
Let us deal first with our heading picture—a typical example of the numerous scenes or layouts that illustrate the *M.M.* pages dealing with Hornby-Dublo matters. Here we have a simple scene showing a single track main line, with which a loop line is connected. Owing to the restrictions of space, I am only able to show you one end of the loop, but you can readily imagine the other end as it will be similar in general plan, but with Right-hand Points instead of the Left-hand Points in the photograph.

Such a loop is always to be preferred to a plain siding, especially if it is to be used for holding one train while another makes its way round the track. Where it is used merely for the storage of rolling stock the situation is slightly different, so that a dead-end siding would be just as useful, if not quite so convenient in use.

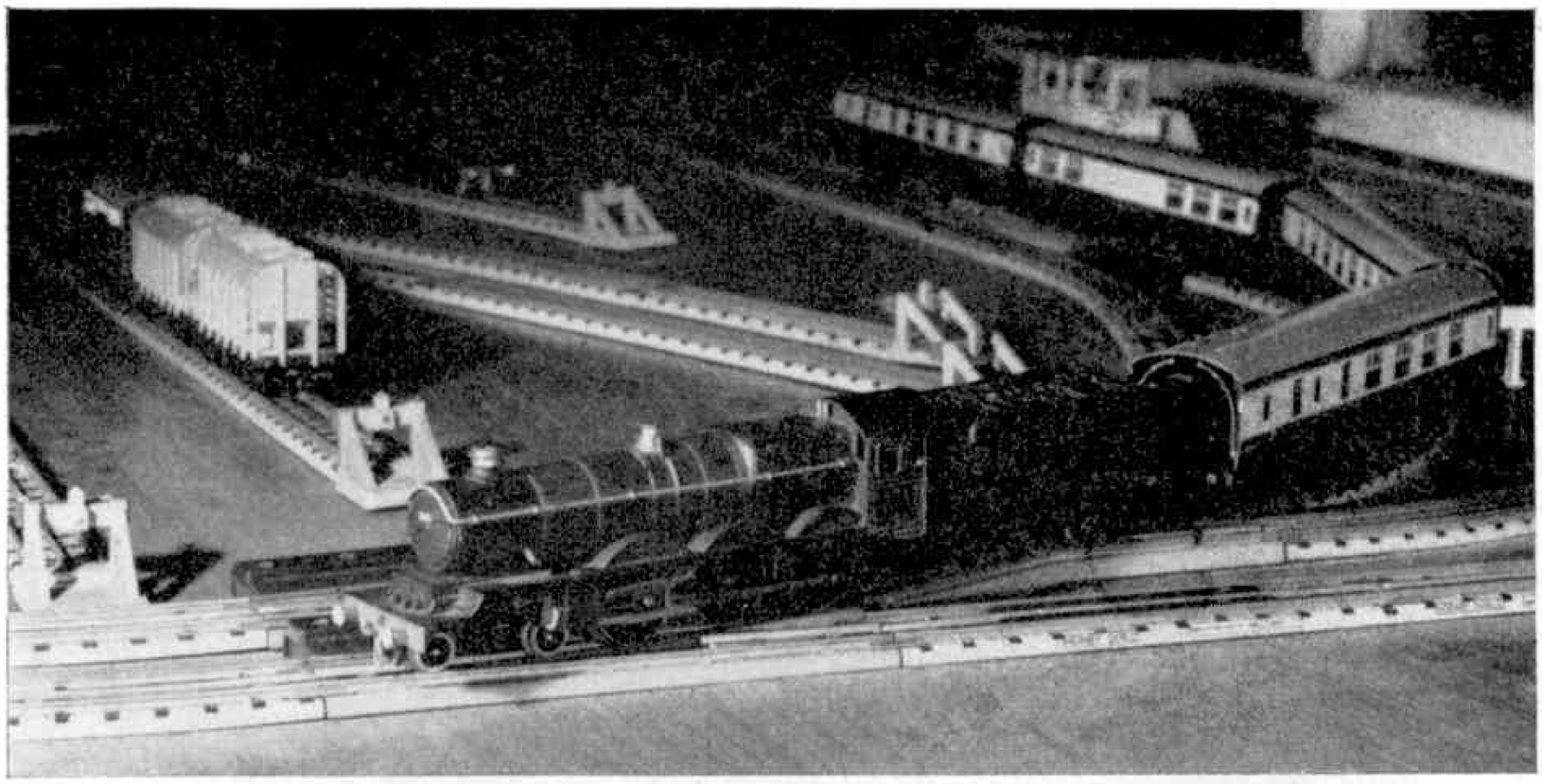
In this instance, take particular notice of the ending of the loop itself. Beyond the Points nearest to the camera is a short spur terminating in a Buffer Stop. This not only looks effective, but it follows the arrangement invariably found in actual practice where running loops are concerned. The short length of track provides a sort of over-run, so that if a movement is made inadvertantly, before the refuged train is actually authorised to move, it will not foul the main line, but will probably be stopped before any particular harm is done.

Monthly Chat by "Layout Man"

A Diamond Crossing is prominent in the foreground of this view of the Three-Rail layout owned by John Mason. This railway was last described in the "M.M." in February 1962.



Now I want you to look at our second picture. This is from the layout of John Mason, of Ruislip, which has been referred to before in these pages, and here we see one end of the railway—a continuous one—in an attractive setting. While it is exciting to have over-bridges here and there on a layout, it is not always so easy to arrange the road approaches in a suitable manner, but you must agree that John has managed his very well indeed. The slopes are not too abrupt, and instead of the approaches being straight, they are gently curved. This adds considerably to



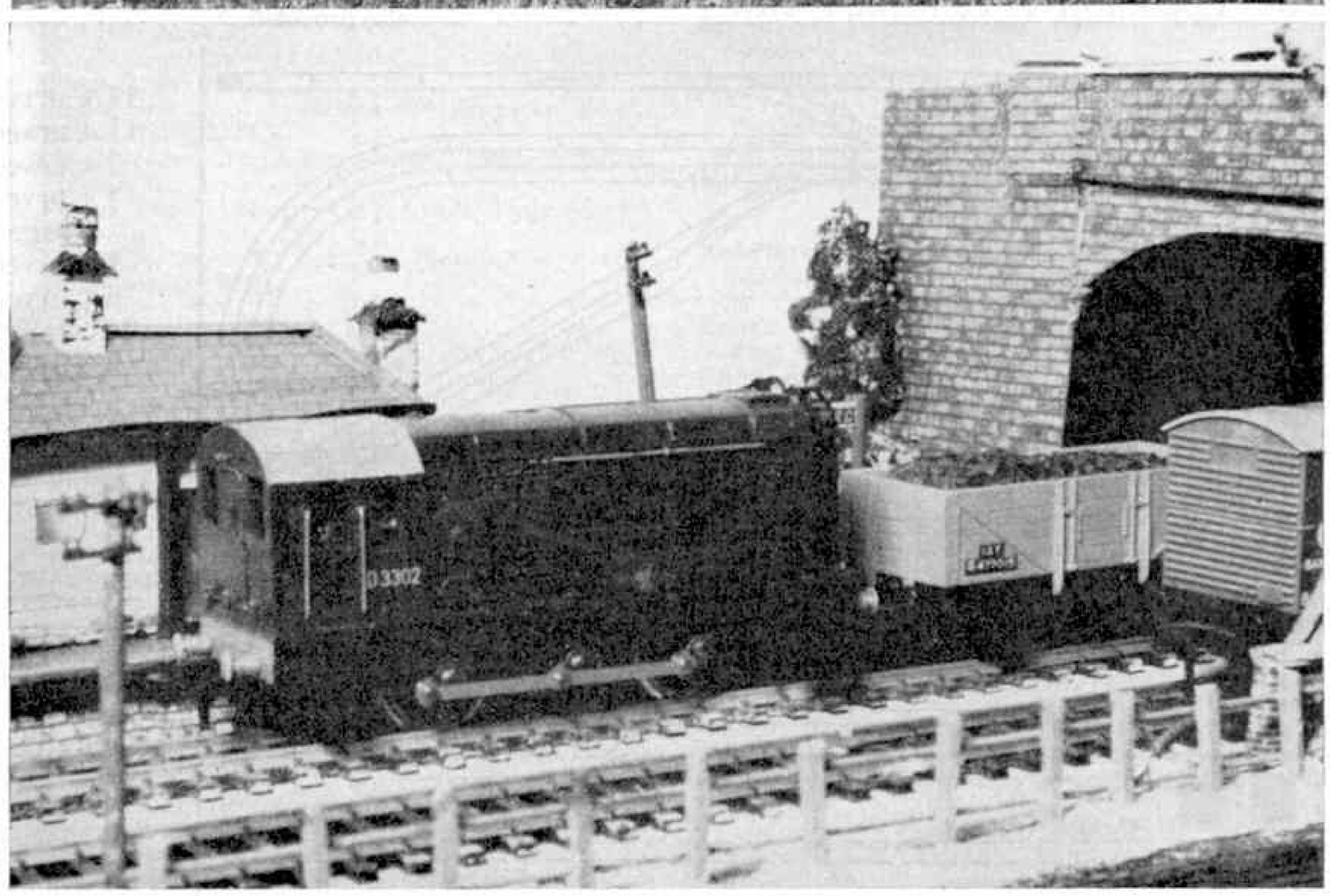
A Hornby-Dublo Castle makes its way through a double junction forming part of the Three-Rail layout of Australian enthusiast David Rees.

the effect, for they fit in splendidly with the general conditions on the layout. There are, of course, true road approaches on the near side of the track only. As the outer edge at this end of the layout is bounded by background scenery, the roads concerned lead up to the background and, as it were, blend into it.

There is something else in the picture that makes a good talking point and that is the Diamond Crossing shown in the foreground. This useful track component is well known to all Hornby-Dublo owners and in the situation shown it is used in the simplest possible manner. There is, out of sight below the bottom edge of the illustration, a Left-hand Point in the centre of the three foreground tracks. This Point joins up to the Diamond Crossing, which is necessarily of the Left-hand type, and in this way the diverging route is able to cross the track on which the freight train is moving. The Diamond Crossing is described as a Left-hand one because it is designed to be used in conjunction with a Left-hand Point. Had a Right-hand Point been employed in a similar situation elsewhere, then a Right-hand Diamond Crossing would have been required. I feel this is something that may interest some of those younger readers who, from time to time, write to ask the significance of the Left-hand and Right-hand Diamond Crossings in the Hornby-Dublo System. The inclusion of the two arises from the geometrical requirements of the track design.

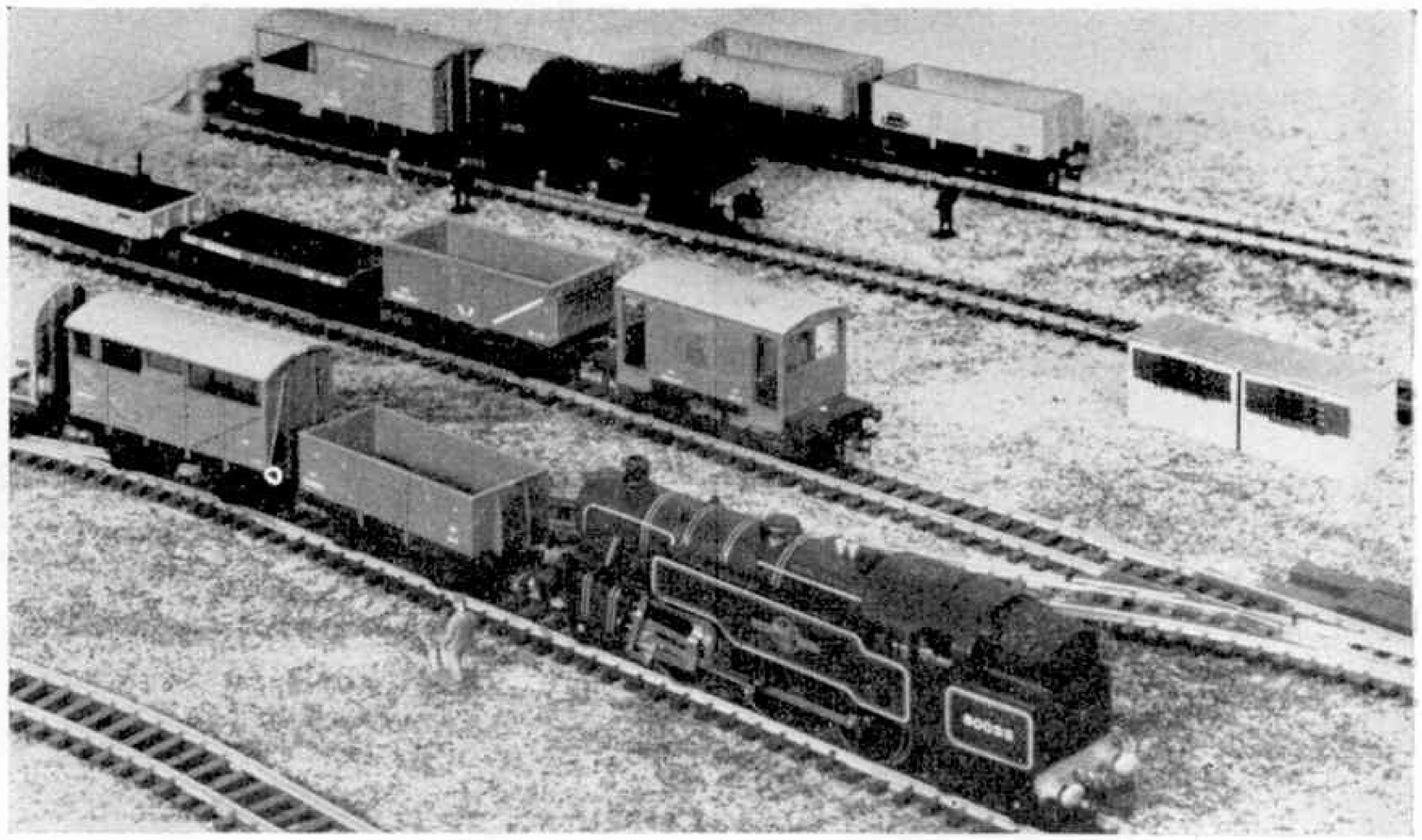
For our next illustration we travel quite a long way—across the world to Australia, where David Rees, of Nambour, Queensland, has an effective layout. In this case, perhaps, the emphasis is on operation rather than scenic effects, although these may well have been added in the interval that has elapsed since the picture was taken. Here we have another instance of the use of the Diamond Crossing, again a Left-hand one as it is used in association with Left-hand Points, in forming part of the double track junction in the foreground. The Castle Locomotive, as you can see, is sailing through the junction smoothly and easily and the tender is actually on the Diamond Crossing itself.

The situation reminds one very much of that shown in Fig. 18 in the booklet *Hornby-Dublo Three-Rail Layouts*, concerning which publication several readers have written to me recently. Your Hornby Dealer should be able to provide copies of the booklet at sixpence each, but if not they can always be obtained at this price from H.R.C. Headquarters. Twenty-six layouts, starting from a simple oval of single track, are described in this interesting book. You will notice from our picture what an effective and realistic make-up David's train has. There is a Corridor Brake–second at each end, while a First/second Corridor and a Restaurant Car are the second and third vehicles respectively. Needless to say, the stock is in the attractive brown and cream livery of the Western Region, entirely appropriate for running (*Continued on page 140*)



(Above) Smallford, a little station on a single line branch, inspired the situation shown in miniature where (right) a Hornby-Dublo Diesel Shunting Locomotive passes, with the daily freight train, on the Two-Rail layout of S. F. Page, of St. Albans.

DOUBLE TRACK WITH OUTER SIDINGS



A Hornby-Dublo 2–6–4 Tank busy on a Two-Rail layout incorporating sidings located outside the main track, as in the scheme described this month.

OUR Two-Rail layout this month consists of the familiar double track oval with several sidings, but this time, as well as having sidings within the main formation, we have provided a siding outside both the upper and lower main tracks.

This is a scheme which will allow for main line train running, as well as for goods working, and some extremely interesting train operating possibilities are presented. For

LINESMAN'S LATEST LAYOUT FOR THE TWO-RAIL OPERATOR

instance, a Locomotive can come from the engine shed tracks—those on the upper right within the oval—and reach the lower outer siding via the crossover to pick up a train. The train can then travel round the main line any number of times and finish its journey by backing into the siding from which it started. The Locomotive can then either move back to the engine shed or run into the extension of the siding beyond the Points, allowing another Locomotive to take over the train.

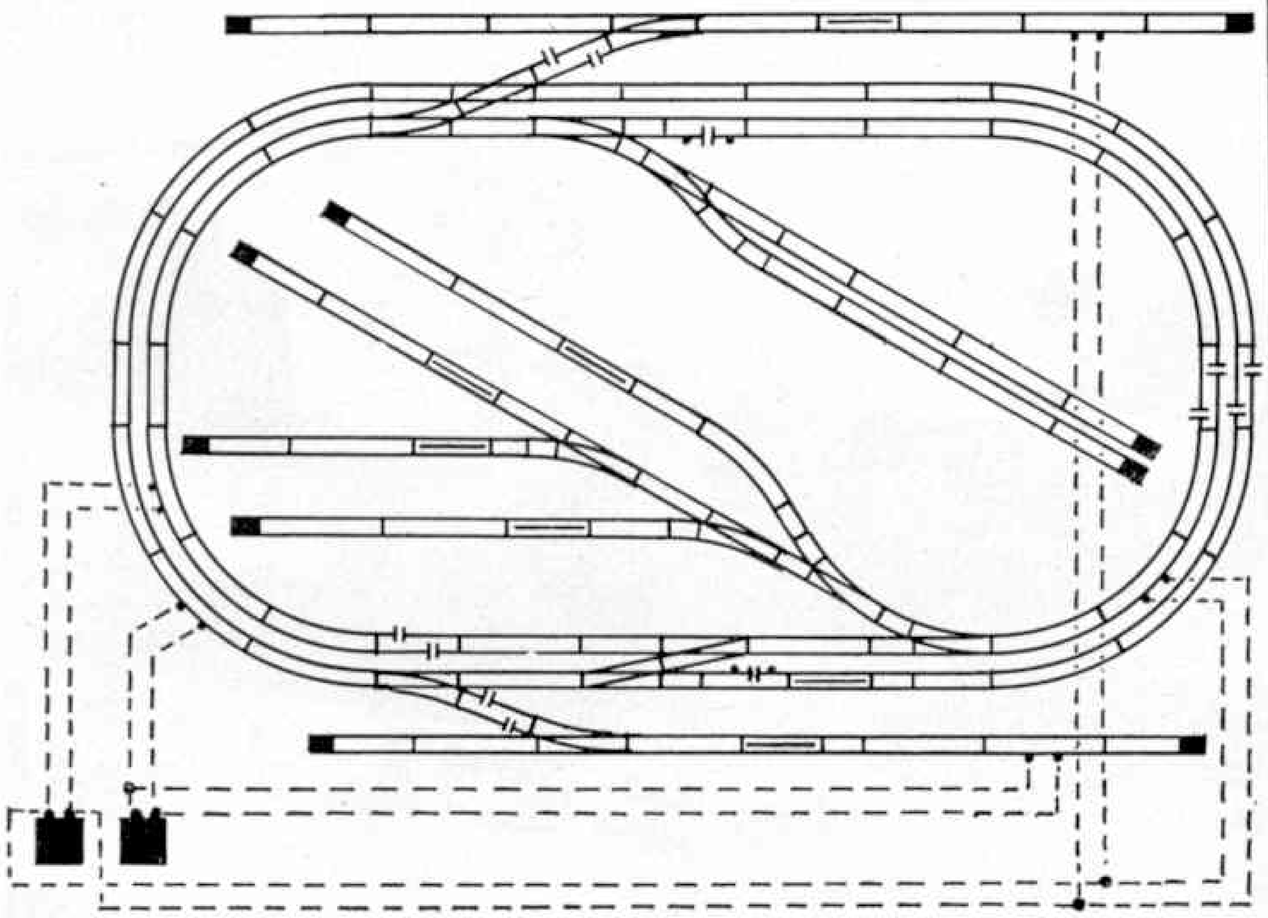
As you can see from our diagram, the outer siding on the upper track leads from the inner circuit, so that a train travelling correctly in an anti-clockwise direction on this track can dispose of its train by backing it over the Diamond Crossing and into the siding. Again, the engine can carry on into the extension and be left there, if desired, while another takes over the train.

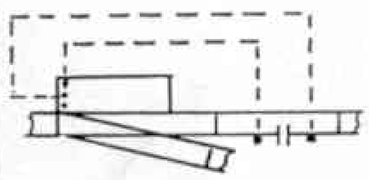
Two isolating sections have been arranged, on the inner and outer main lines respectively. These are formed by wiring a Single Isolating Rail to the Points at one end of the section and providing a Double Isolating Rail at the other end. A Locomotive or train can stand in either of these sections while another occupies part of the same main track to carry out a shunting movement or to travel from one group of sidings to another.

It would be advisable to have the Points and Uncoupling Rails on this layout Electrically-Operated, especially those furthest away from the control centre. Two Power Control Units are needed, one for each main track, and additional Terminal Rails are also required on the outer sidings to feed current into the extensions when the Points are set against the route leading to the main line. If Electrically-Operated Points or other accessories are provided one or other of the control units must have an output for working these as well as one for supplying current to the Locomotives.

The layout, complete with control units, will fit on a baseboard measuring 7 feet 6 inches by 5 feet.

The diagram below shows how to construct the layout described by Linesman. The wiring plan is also provided.



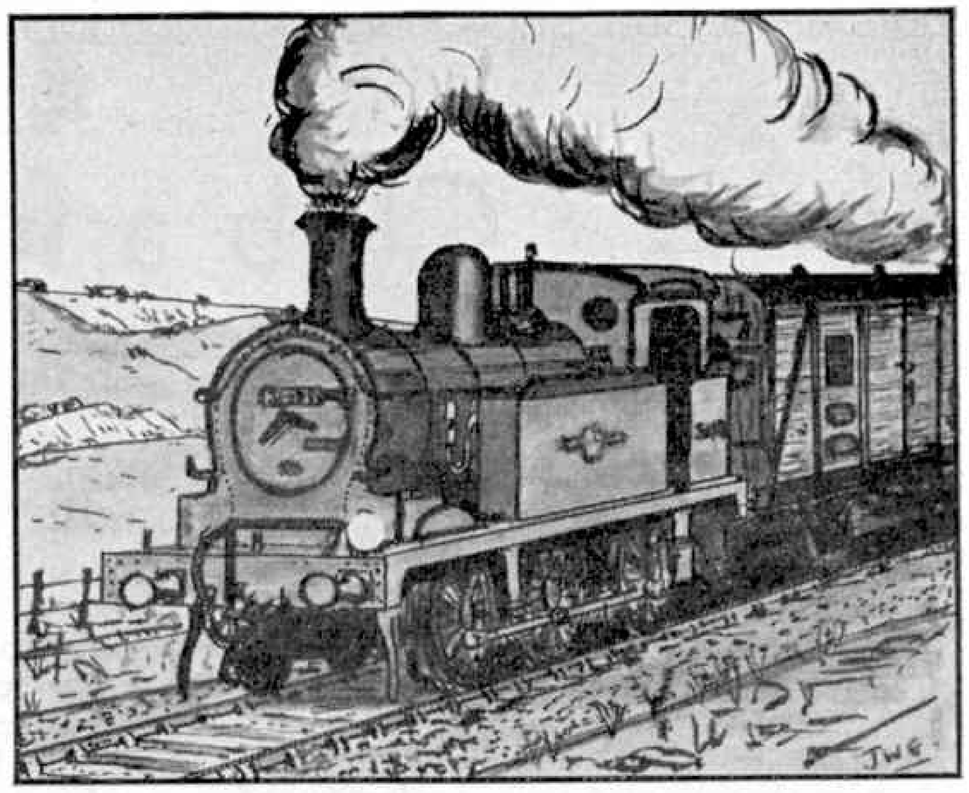


WIRING OF SINGLE ISOLATING RAIL

ITEMS REQUIRED

11	Curved Rails	2710
11	Curved Rails, Large Radius	2719
2	Curved Terminal Rails, With Suppressor	2714
1	Curved Terminal Rail, With Suppressor, Large Radius	2721
1	Curved Half Rail	2711
6	Curved Quarter Rails	2712
26	Straight Rails	2701
2	Straight Terminal Rails, With Suppressor	2707
7	Straight One-Third Rails	2703
21	Straight Two-Thirds Rails	2702
7	Uncoupling Rails	2745
2	Straight Single Isolating Two-Thirds Rails	2738
5	Straight Double Isolating Two-Thirds Rails	2739
1	Diamond Crossing, Left Hand	2735
6	Right Hand Switch Points	2728
6	Left Hand Switch Points	2729
10	Buffer Stops	2450
2	Power control units	

HORNBY REPAIR SERVICE



THE service operated by Meccano Limited to expedite repairs to Hornby-Dublo Locomotives and Tenders, Hornby Gauge 0 Clockwork Trains and Clockwork and Electric Meccano Motors is being constantly widened in its application. Dealers authorised to offer this service, who are listed below, display a distinctive Accredited Service Specialist sign. Customers may, of course, send repairs to the Service Department of Meccano Limited, at Hanson Road, Aintree, Liverpool 9, if it is more convenient for them.

ANGUS

Dundee—Brian Sherriff, 93 Victoria Road.

BEDFORDSHIRE

Bedford—H. J. Banks, 23 St. Peter's Street.
Luton—Aeromodels, 59 Wellington Street.

BERKSHIRE

Reading—E.A.M.E.S. (Reading) Ltd., The Model Shop, 24 Tudor Road.
Reading Model Supplies, 1 Hosier Street, St. Mary's Butts.

CHESHIRE

Birkenhead—Birkenhead Model Supplies Ltd., 32 Grange Road West.
Moreton—Mortimer Ltd., 254–260 Hoylake Road.
Neston—J. Bailey, The Model Shop, Parkgate Road.
New Brighton—G. Longworth, 78–80 Rowson Street.

CORNWALL

Helston—Eddy & Son (Helston) Ltd., 21 Meneage Street.

CUMBERLAND

Carlisle—R. M. Hill & Sons, 36–40 Castle Street

DENBIGHSHIRE

Wrexham—Craftoys Ltd., 4 Centenary Buildings, King Street.

DEVONSHIRE

Barnstaple—E. Gale & Son Ltd., Joy Street.
Bideford—E. Gale & Son Ltd., 2–3 Mill Street.
Exeter—John Webber (Sports) Ltd., 50–51 High Street.
Plymouth—F. T. B. Lawson Ltd., New George Street.

DURHAM

Durham—C. T. Applegarth, The Model Shop, 92 Claypath.
Stockton-on-Tees—K. Dean, 41 Bishopton Lane.

ESSEX

Basildon—H. T. Dwyer Ltd., 8–9 Blenheim House.
Chelmsford—Chelmsford Model Co., Baddow Road.
Colchester—West End Cycle Stores, 65 Crouch Street.
Ilford—Pages of Barkingside Ltd., 19 Broadway Market, Fencepiece Road, Barkingside.
Southend-on-Sea—Alco Supplies, 133 Hamstel Road, Southchurch.

GLAMORGAN

Cardiff—James Lendon, 194 Fidlas Road, Llanishen, The Model Shop, 9 Mill Lane.
Neath—Pearns Ltd., 16 Alfred Street.

GLOUCESTERSHIRE

Bristol—The White Tree Electrical and Toy Bazaar, 28 North View, Westbury Park.
Cheltenham—I. Newman (Cheltenham) Ltd., 127–9 Bath Road.
Cirencester—S. E. Trinder, The Model Hangar, 71 Cricklade Street.
Gloucester—C. & N. Ash Ltd., 106 Westgate Street.

HAMPSHIRE

Bournemouth—Deppers, 918 Wimborne Road.
The Sports Shop, 14 Seymoor Road, Westbourne.
Portsmouth—Robin Thwaites Ltd., The Hobby Shop, 28 Arundel Street.
Southampton—H. I. Dowling & Son Ltd., 265–267 Shirley Road.
Woodcraft Supplies Ltd., 38 Northam Road.

HERTFORDSHIRE

Royston—H. C. Green, 25 High Street.
St. Albans—Bold and Burrows Ltd., 12–18 Verulam Road.
Welwyn Garden City—H. A. Blunt & Sons Ltd., 38 Fretherne Road.

KENT

Beckenham—Furley & Baker, 69 High Street.
Bexleyheath—W. J. & H. G. Jennings Ltd., Department Store, Broadway.
Canterbury—Barretts of Canterbury Ltd., 2 St. George's Street.
Gillingham—J. R. Baker (Gillingham) Ltd., 14 Canterbury Street.
Maidstone—F. T. Gilbert & Son, 116–118 Week Street.

LANARKSHIRE

Glasgow—Caledonia Model Company, 478 Argyle Street.
Clyde Model Dockyard Ltd., 22–3 Argyle Arcade.
Glassfords, 89 Cambridge Street, C.3.

LANCASHIRE

Ashton-under-Lyne—Ashton Model Supplies, 201 Old Street.
Darwen—Arnold Leaver, 65–67 Duckworth Street.
Liverpool—Lucas's (Hobbies) Ltd., 7 Tarleton Street.
Rushworth, The Model Railway Shop, 137a Kensington.
Manchester—Bassett-Lowke Ltd., 28 Corporation Street.
The Sports Depot (Manchester) Ltd., 4–10 Princess Road, Moss Side.
Wigan—J. J. Bradburn, 76 Market Street.

LEICESTERSHIRE

Leicester—North's Toy and Model Stores, 5 Melton Road.
Loughborough—Clemersons Ltd., 43 Market Place.

LINCOLNSHIRE

Cleethorpes—H. Loftis, 196 Grimsby Road.
Lincoln—S. A. Nobbs & Son Ltd., 2 Norman Street, and 16 Sincil Street.
Bycrofts Emporium, 366 High Street.

LONDON

London—Allan Brett Cannon Ltd., 32 Railway Approach, London Bridge Station, S.E.1.
H. A. Blunt & Sons Ltd., 133 The Broadway, Mill Hill, N.W.7.
Hamblings (Models) Ltd., 10 Cecil Court, Charing Cross Road, W.C.2.
Model and Tool Supplies, 604 Kingston Road, Raynes Park, S.W.20.
Models (City) Ltd., 2 The Arcade, Liverpool Street Station, E.C.2.
Palace Model Shop, 13 Central Hill, Upper Norwood, S.E.19.
W. & H. (Models) Ltd., 23 Paddington Street, Baker Street, W.1.

MIDDLESEX

Edgware—Cresta, 1 Cinema Parade, Manor Park Crescent.

MIDLOTHIAN

Edinburgh—Harburn's Hobbies Ltd., 116 and 122—124 Leith Walk.
Messrs. Donray, 302 Morningside Road.

NORTHAMPTONSHIRE

Peterborough—Oliver Carley, 35 Broadway.
Wellingborough—Littlefolk, 24 Market Street.

NORTHUMBERLAND

Whitley Bay—The Whitley Model Shop, 67 Park View.

NOTTINGHAMSHIRE

Nottingham—Beecroft & Sons Ltd., 16 Pelham Street.
Gee Dee Ltd., Friar Lane and Goose Gate.

OXFORDSHIRE

Oxford—A. S. Rising, 243 Banbury Road.

PERTHSHIRE

Perth—Bob Croll, 75 High Street.

SHROPSHIRE

Oswestry—Vaughan's, 56 Beatrice Street.

SOMERSET

Bath—Pram and Toy Shop Ltd., 22–23 Southgate Street.
Cyril Howe's of Bath Ltd., 15 Abbey Churchyard.
Taunton—Westlakes (Cycles) Ltd., Station Road.
Yeovil—H. J. Perris (Retail) Ltd., 9–11 Princes Street.

STAFFORDSHIRE

Burton-on-Trent—J. W. Belfield, 2–4 and 12–14 West Street and Market Street, Swadlincote.
Cradley Heath—Dunns (Cradley Heath and Dudley) Ltd., 65 Lower High Street.
Stafford—John Bagnall Ltd., South Walls Road.
Stoke-on-Trent—John Pepper (Henley) Ltd., 61–65 Piccadilly, Hanley.
Walsall—S. H. Granger, Caldmore Models, 108 Caldmore Road.
Wolverhampton—A. J. Chamberlain, 39 Darlington Street.

SURREY

Coulsdon—R. Wills (Scientific Hobbies) Ltd., 92 Brighton Road.
Croydon—Priors, 107 High Street.
Guildford—Guildford Dolls Hospital Ltd., 13 Swan Lane.

SUSSEX

Crowborough—Regent House, High Street.
St Leonards-on-Sea—A. Hammonds, 5/6 Marine Court.

WARWICKSHIRE

Birmingham—Bearwood Model Supplies, 53 Parade.
Hornton's (Models and Toys) Ltd., 32 Stephenson Street, 2.
The Perrys, 769 Alum Rock Road, Ward End.
J. Williams, 51 Comberton Road, Sheldon.
Sutton Coldfield—W. Gill & Son, The Parade.

YORKSHIRE

Bradford—Bradford Model Railway Centre Ltd., 202 Keighley Road, Frizinghall.
W. Carter, 15 Bridge Street.
Leeds—King Charles Sports Centre, 18 and 20 King Charles Street.
Sheffield—Fred Shaw, 42 Church Street.
The Redgate Co. (Sheffield) Ltd., Moorhead.

CHANNEL ISLES

Jersey—George D. Laurens, 3/5/7 Queen Street.

EIRE

Dublin—Southern Model Railway Co., Lower Leeson Street.

NORTHERN IRELAND

Belfast—The Model Shop, 36 Wellington Place.
Thornton & Co. Ltd., 40/42 Donegal Place.

WESTERN AUSTRALIA

Perth—Jack Stanbridge's "Hobbyshop", 54a Canning Highway, Victoria Park.

NEW ZEALAND

Auckland C.2—Jackson Cycles Ltd., 99 Karangahape Road.

WITH THE SECRETARY

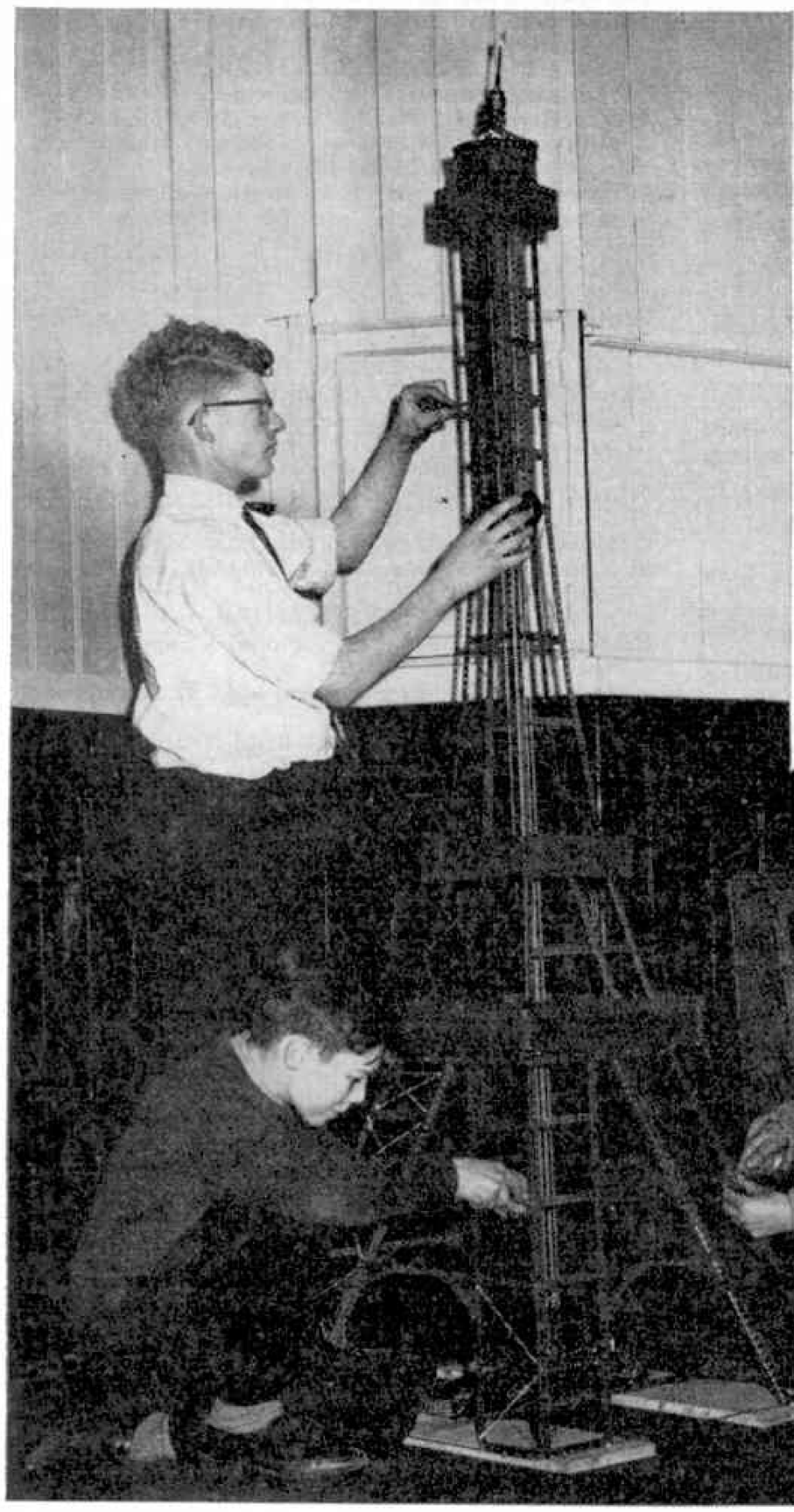
Club and Branch News

MECCANO CLUB RECENTLY AFFILIATED

WELLINGTON SCHOOL (BURY) M.C.—*Leader:* Mr. J. A. Kempster, The Wellington County Secondary School, Parliament Street, Bury, Lancs.

CLUB NOTES

ST. ANNES Y.M.C.A. M.C.—Meetings are held weekly under the leadership of Mr. G. Strangeways. A fine Meccano traction engine was recently completed, and delighted everyone as it rumbled round the Meccano room. The Leader has given many of the boys instruction on gear mechanisms, as they are keen to build working models. *Secretary:* Mr. Brian Pickett, 26 Walter Ave., St. Annes, Lancs.



Members of St. Annes Y.M.C.A. M.C. at work on the seven foot high Meccano model of the Eiffel Tower, which was the main feature of the Club's display at the Y.M.C.A. 1962 Christmas Fair. Photograph by courtesy of "Blackpool Gazette and Herald".

AUSTRALIA

MAYLANDS M.C.—A highly successful break-up party was held to end Club activities for the year. A few boys built a barbecue for the occasion, and then grilled enough steaks to keep every member supplied with steak burgers. A keg of ginger beer helped to wash it all down! Each boy brought his own plate. Games organised by the boys included table tennis, quoits and darts and a table tennis tournament held during the evening was won by Trevor Criddle, with Malcolm Criddle in second place and Robert Wissink third. On December 7–8 last the Parents' Committee held a fete in conjunction with the Club Exhibition and raised £18 15s. 7d. for the building fund.

Meccano Guild Medallions have been awarded during the year to Malcolm and Graeme Criddle, Bruce Manning, Adrian Spelt, Michael Connell, Roger Thompson, Gary McDonald and John Carter. The Green and Gold Faction won the 1962 Pennant by 55 points from Black and Gold, the 1961 winners. The winning Faction was led by Trevor Criddle, with Bruce Manning as Deputy. *Secretary:* Mr. Trevor Criddle, 17 Kenilworth Street, Maylands, Western Australia.

NEW ZEALAND

CHRISTCHURCH M.C.—1962 proved to be a very successful Club year, with larger membership, bigger attendances and keen competition. It finished on a very good note of fellowship and gaiety, with about 65 members and parents attending the break-up night and presentation of trophies. The evening was organised by the boys themselves.

At a recent Committee meeting the members decided that, because of the increased membership in both the Junior and Senior sections, the Club should have another Cup for competitions. A Cup was provided by the President and it was decided to name it the Saunders Cup, and to award it in open competition, the existing Ellison Cup being reserved for the best junior member. The first winner of the Saunders trophy is John Hamlyn, and the Ellison Cup, for 1962, has gone to Martin Steele. A Club certificate has been awarded to Stewart Taylor and Guild Merit Medallions have been received by John Hamlyn and Martin Steele. *Secretary:* Mr. David Archer, 33 Evesham Terrace, Spreydon, Christchurch 2, New Zealand.

ST. JOHN'S (ROSLYN) M.C.—About 25 members including "old boys", attended the Club's end-of-year meeting. Parents and friends had ample time to examine the excellent array of models prepared for them, and which included an electric monorail built by J. Salinger. A delicious tea was provided by the members, and there was a film show. The President, Mr. F. R. Harbour, presented the model-making shield to J. Williams, the 1962 winner.

The greater part of one meeting was devoted to a discussion on Meccano in general. On another occasion a trolley race was held down the vicarage drive, members paying 1/– entrance fee. *Secretary:* Mr. M. J. Salinger, 8 Maheno Street, Dunottar, Dunedin, New Zealand.

NORTHERN NIGERIA

GINDIRI BOYS' SECONDARY SCHOOL M.C.—Club activities have ranged from constructing simple Meccano models to a large penny-in-the-slot model theatre for use at the Gindiri Open Day. The School Assembly Hall is usually divided into "stands", and the Meccano section of the hall had more spectators than the stand of any other club. In fact, at no time during the open period—10 a.m. to 3 p.m.—was there less than 200 eager eyes keenly watching the Hornby Trains or trying to figure out why the pianist and the violinist played violently as soon as a penny was dropped into the slot of the model theatre. *Secretary:* James Akuse, Gindiri Secondary School, P.O. Barakin Ladi, via Jos, Northern Nigeria.

MOTHER NATURE HELPS TO FIGHT DISEASE AND CRIME

— *Says Kenneth Rawnsley*

The fight against disease is constant. This picture comes from the Glaxo Laboratory Antibiotics plant at Ulverston, Lancs.

IN this age of rockets, space-ships and nuclear-powered vessels we are apt to forget that in the unceasing war against crime and disease Mother Nature's raw materials are being harnessed to modern science. Every seaside resort in Britain gives up its natural resources—nuggets of treasure that play a vital part in providing mighty weapons used by police and doctors. One of the basic shore materials used in police and medical sleuthing is sand. Sand is rock, ground to tiny particles by the sea, and is rich in pulverised quartz, mica, feldspar and calcium. It is an active ingredient in casting compounds used by fingerprint experts to make moulds from which prints are taken. In the medical field it goes into the making of many preparations used by biochemists and pathologists for tracing active constituents of poisons.

"It's only seaweed", said a friend of mine as we tramped the shore of a leading Lancashire resort. Like many thousands of holidaymakers, he did not realise that seaweed is an effective weapon in the hands of detectives and doctors. Since the seventeenth century, when it was used as a base for soap and glass, seaweed has gone into the manufacture of countless products. A modern by-product, known as Agar-Agar, is actively working for Scotland Yard and every modern hospital, being used in such items as blood plasma, cod-liver oil capsules, drugs and anaesthetics, and as a "plastic sheeting" for combating burns. Criminologists use it as the basis of solutions for detecting blood stains.

During the investigation of murders and other serious crimes forensic Science Laboratory teams use seaweed in the form of Agar-Agar. For years it has been used in police and medical photography.

And that thick, oozing black substance that gushes from the world's oil wells has also several roles to play in the investigation of crime and the fight against disease. In its refined state it is used as a lubricant for items of hospital equipment—as it is in so many other instances—and in their crime prevention duties Scotland Yard's Flying Squad use more than 1,500,000 gallons of diesel-fuel every year. To this can be added the thousands of gallons consumed by way of lubrication by police mobile squads and the River Thames patrol vessels.

In Home Office pathological departments oil is number one requisite in the examination of clothing and other aspects of detection. After a shooting incident, for instance, when a bullet has been extracted for examination it is coated with Vinyl Plastisol, a by-product of oil. After thorough drying the bullet is then applied to a sheet of waxed paper. leaving a clear imprint for closer examination by microscope. Microscopy has long been the main method in crime laboratories—today the problem of securing specimens has been overcome by the simple expedient of coating lengths of tape with an oily substance—Polyisobutylene. The tape is then drawn across the fibre, dog hair or other substance to be examined and affixed to a microscopic slide for detailed analysis.

Crime pathologists now use petroleum-derived solvents known as Petroleum Acetone, and Simple Acetone when analysing parts of the human body in cases of suspected poisoning. This process enables police surgeons to detect specific poisons by isolating them, and endless man-hours may well be saved by this process alone. In horse-race "dope" investigations, too, oil is used to detect the presence of "dope" in otherwise harmless preparations such as food or veterinary medicines.

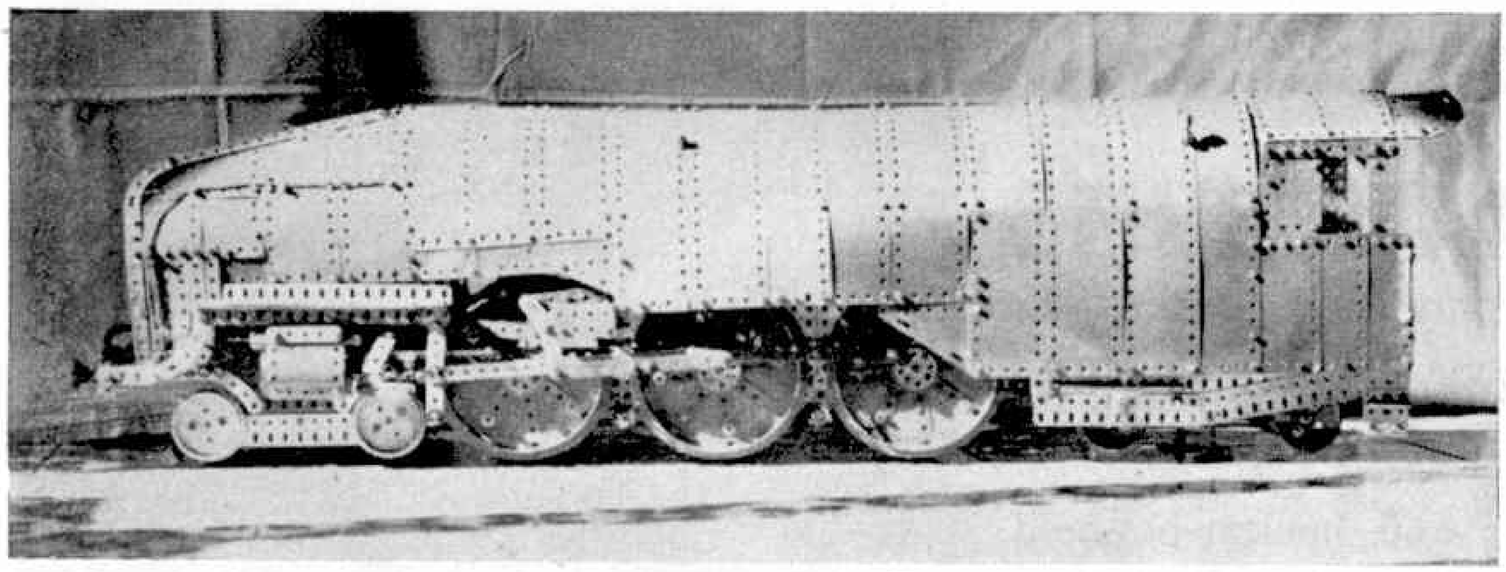
When police wish to compare footprints, a sheet of transparent Polyvinyl Chloride is used. First the sole of a shoe or boot is lightly dusted with aluminium powder and the sheet of Polyvinyl Chloride is then placed over it. The result is a form of "cake" which is then covered with another sheet, this time of Cellulose Acetate, and which can be retained permanently.

Finger-print experts and photographers examining rooms in which crimes have been committed often look for particles of dirt, paint and paper. In the past it was a difficult task to pick up these particles for laboratory examination. Now, with the aid of a brush they are swept up and mounted on slides with the use of Polythene. The use of polythene bags is also employed by the police for they enable visual identification of substances to be made more easily.

In cases of forgery, a jury always demands proof of the form of ink used—and there can be many forms of ink. A special process known as chromatographic analysis is carried out. Samples of the writing powder test are placed on a sheet of blotting paper which, when treated with butanol, acts as a solvent and enables the kind of ink used to be detected.

Examination of human hairs has always presented great difficulty to crime pathologists. Now, the use of polystyrene plastics enables microscope slides to be subjected to heat and then pressurised. Thus, a really good impression of the hair structure is obtained on the slide and, once again, detection has been made easier by the uses of modern science.

ABC Model Railways (Ian Allan, 2/6d.), now in its third edition, is a handy pocket-size booklet full of information useful alike to the miniature railway beginner and to the more experienced enthusiast. It covers scales and gauges, layouts, track material, electrification systems and equipment, engines, rolling stock, signals, line-side accessories, operations and maintenance. The booklet is well illustrated.



This is Mr. Manduca's favourite Meccano model—the old L.N.E.R. locomotive No. 10000. Photograph by the author.

MECCANO—AND ME

• *From Malta—the George Cross island—comes this fascinating story of a lifetime of interest in the Meccano hobby. The author, who is now an Assistant Director of the island's Public Works Department, tells how he was given his first Meccano Outfit as long ago as 1913, when he was six and how, since he first saw the* Meccano Magazine *in December 1920, he has not missed a single copy. Those that he could not secure during the days of the second world war he has since obtained.*

I WAS born in 1907, and although I do not claim to be the oldest Meccanoite I may well be classified as one of the "old boys".

My first contact with Meccano occurred when I was six years old. At that time I was confined to bed with a bad cold and, in order to keep me quiet, my father had the bright idea of buying me a small Meccano Outfit. I became so interested that Meccano became my favourite toy, and I still remember the thrill when my first small model was completed and made to work by turning a handle.

J. S. Manduca, A. & C.E.—a portrait taken last November.

Being so young I must have been rather careless as some of the parts were soon lost, but the rest, after all these years, are still in my possession.

My second meeting with Meccano occurred when, returning from school one day in 1917, I saw a No. 2 Outfit displayed in a shop window. As soon as I got home I asked my father to buy it for me, which he kindly did the next day. Since that day my interest in Meccano has never ceased, and has gradually grown stronger.

My first encounter with the *Meccano Magazine* happened late in 1920 when I saw it displayed in a shop. It was an 8-page affair at that time and it cost only one penny. This was the issue for November–December 1920, and was numbered 15. I bought the copy and was so fascinated with it that up to date I have not missed a single issue.

All the magazines in my possession are bound and they occupy a small library in my study. I am sorry I was not aware of its existence when the first magazine was issued, otherwise my collection would have been complete today. No matter how hard I tried, I never succeeded in getting the first fourteen issues.

In my first magazine a Model-Building Competition was announced, and so I submitted my first entry. It was in this way that my name appeared as a winner in the *Meccano Magazine* for the first time, in the issue for July–August 1921.

This, my first entry and success, gave me the encouragement I needed, and during the past years I have been successful in various competitions, particularly in the Model-Building and Drawing Contests which used to be held years ago.

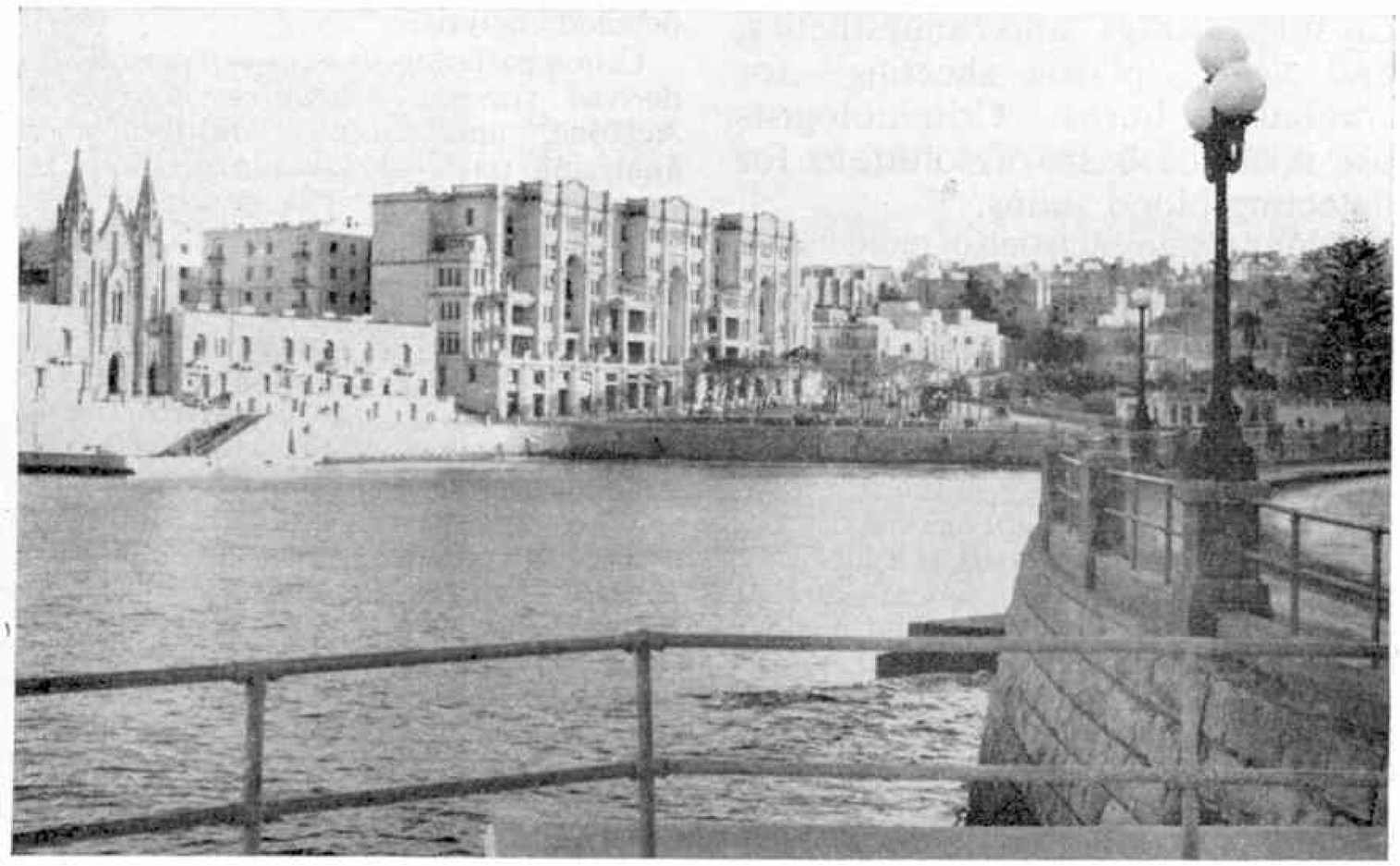
On one occasion not only was I successful in one of the Building Competitions but awards were also gained by two of my sons who are also Meccano enthusiasts. I wonder if the winning of three prizes in one competition by three different members of the same family constitutes a record. The result of this competition was published in the September 1953 issue of the *Meccano Magazine*.

My successes helped me to increase my stock of parts because, years ago, the prizes won were not cheques or postal orders, but accessory parts chosen by the successful competitor.

Slowly but steadily my Meccano Outfit grew bigger and bigger, and fifteen years ago I had to have a special cabinet made, consisting of two shelves and eight drawers, all partitioned for the different parts. The front of the oak cabinet is of the roll-top type. It is now full, and with the issue of the latest parts I am removing one shelf and fitting another drawer to acquire more storage place.

Malta, being in the centre of the Mediterranean, was in the thick of things in the last war, and during those six long and fateful years the *Meccano Magazine* was not available. My house was blitzed on the 1st April, 1943, but I salvaged all my Meccano parts and Magazines by searching through the debris and picking each part singly, storing them temporarily in a sack. I was extremely lucky, for the only part I lost was a Digger Bucket,

(*Continued on page 140*)

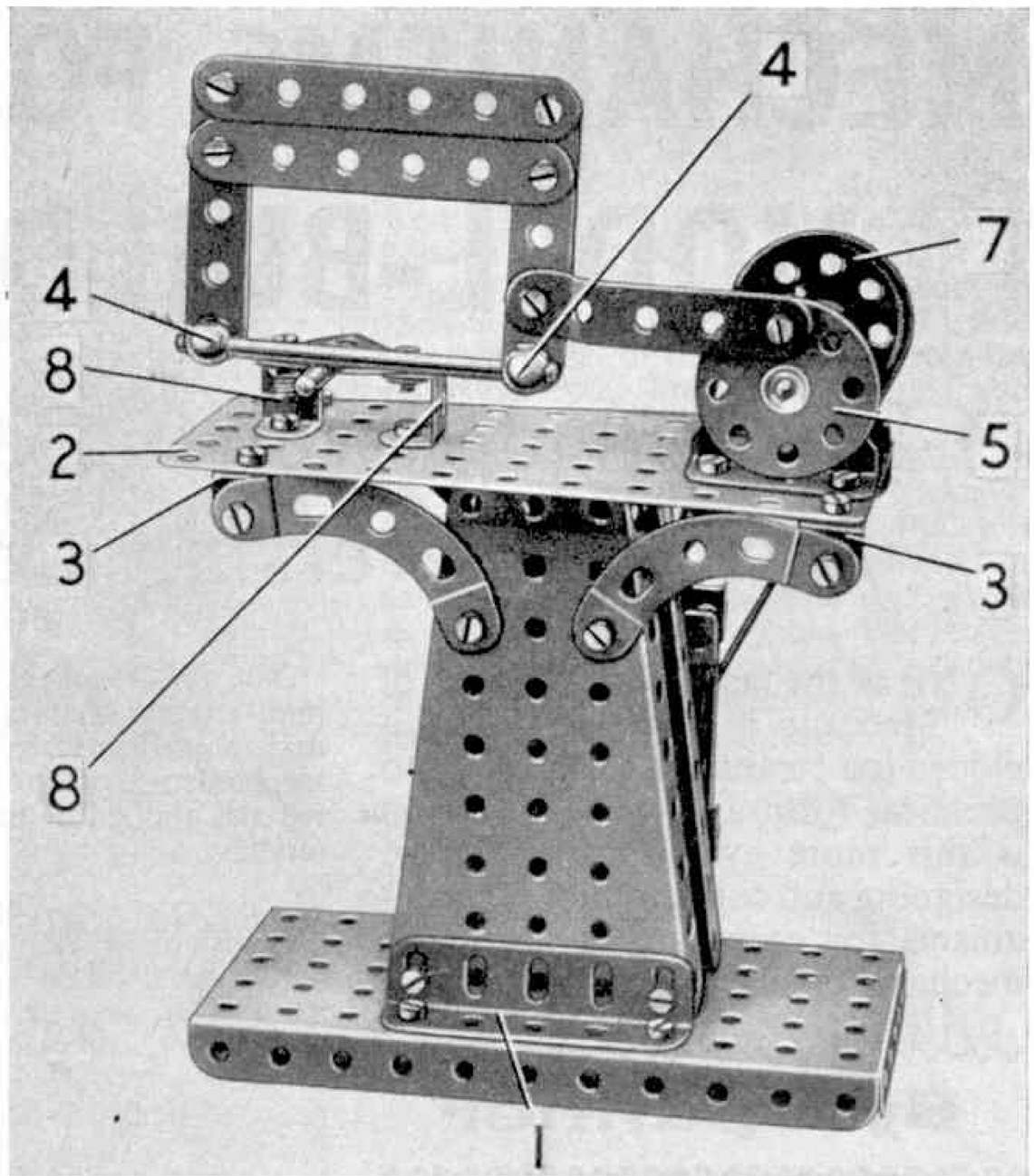


Mr. Manduca took this view of the village of Balluta, St. Julians, Malta, where he lives. He occupies one of the flats in the imposing building which forms the centre background.

A POWER-DRIVEN METAL-SAWING MACHINE

THE model illustrated on this page represents one of the many different types of sawing machines used in engineering workshops for cutting rods and bars of metal. The model is driven by a *Magic* Motor and it provides an interesting subject for young constructors.

The base of the model is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, and to this are bolted two $2\frac{1}{2}''$ Angle Girders 1. These Girders in turn are bolted to two Flanged Sector Plates, which form a column that supports the worktable. The worktable is a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate 2 that is fixed to the Flanged Sector Plates by four $2\frac{1}{2}''$ stepped Curved Strips. One end of each Curved Strip is bolted to a Flanged Sector Plate and their other ends to the lugs of $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 3 bolted underneath the $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate.

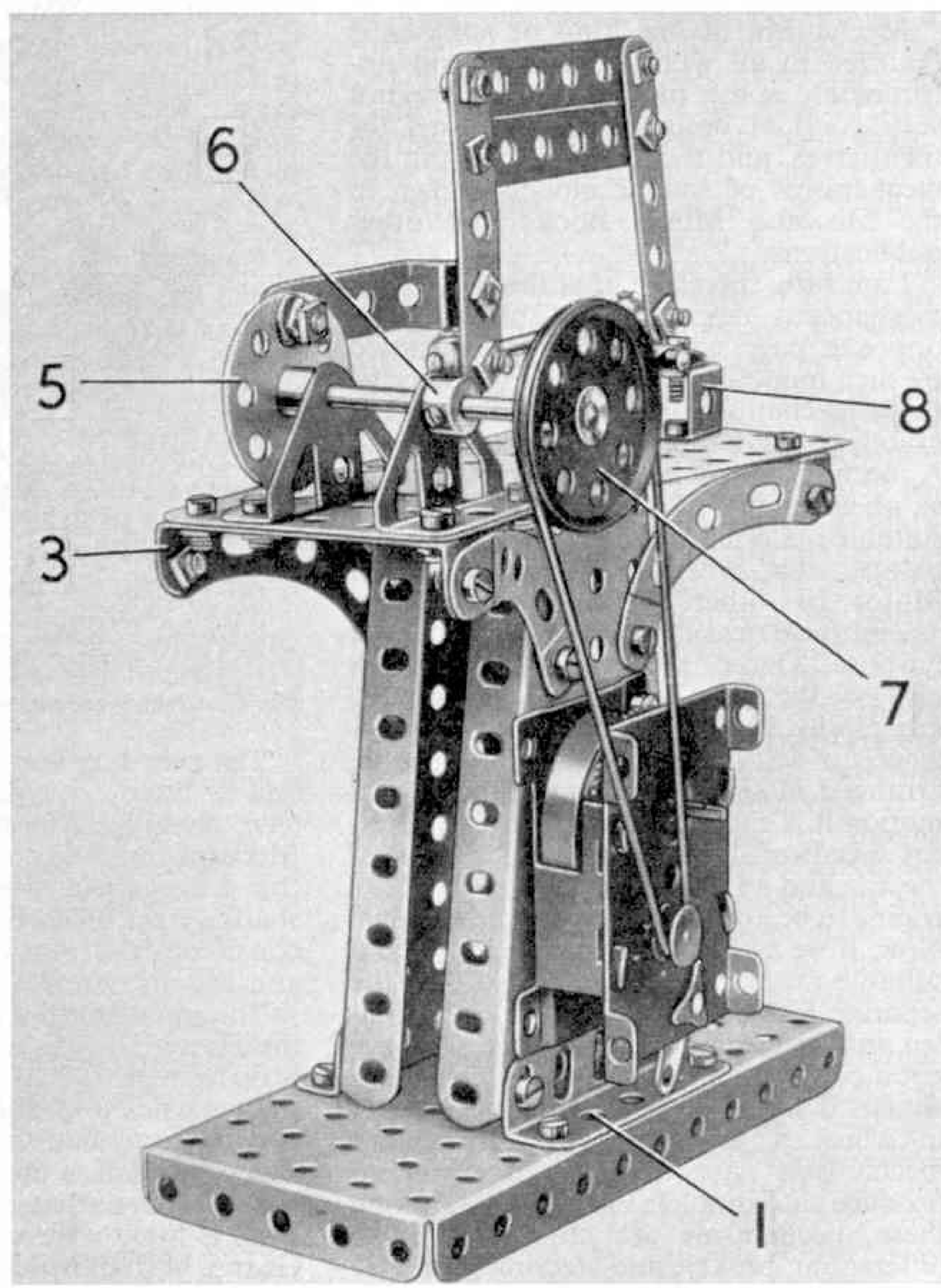


SPANNER'S ARTICLE ON

Easy Model-Building

The saw frame consists of two $2\frac{1}{2}''$ Strips and two $3''$ Strips. The saw, which is represented by a Rod, is held at each end in Handrail Supports 4 fixed to the lower ends of the $2\frac{1}{2}''$ Strips. The saw frame is pushed to and fro by a $2\frac{1}{2}''$ Strip, which is attached to the frame at one end, and at the other is pivoted freely on a $\frac{3}{8}''$ Bolt lock-nutted in a hole of a Bush Wheel 5. The Bush Wheel is fixed on a $3''$ Rod supported in two Trunnions bolted to the $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flat Plate. The Rod is held in place by a Collar 6, and is fitted with a $1\frac{1}{2}''$ Pulley 7. A *Magic* Motor is bolted to one of the Flanged Sector Plates, and its Pulley is connected by a Driving Band to the Pulley 7. The metal to be cut is held between two $1\frac{1}{2}''$ Strips fixed to Double Brackets 8.

Parts required to build the Metal-Sawing Machine: 2 of No. 4; 3 of No. 5; 2 of No. 6a; 2 of No. 9d; 2 of No. 11; 1 of No. 16a; 1 of No. 16b; 1 of No. 21; 1 of No. 24; 38 of No. 37a; 32 of No. 37b; 1 of No. 38; 2 of No. 48a; 1 of No. 52; 2 of No. 54; 1 of No. 59; 1 of No. 70; 4 of No. 90a; 4 of No. 111c; 2 of No. 126; 2 of No. 136; 1 of No. 186a; 1 *Magic* Motor.



Winter Model-Building Contest—(*Continued from page 131*)

Ten prizes of £1 1s. 0d. Certificates of Merit will be awarded in Section A to those who just fail to reach prize-winning standard.

Before posting your entry, be sure to write your name, address and age on the backs of the photograph or drawings, together with the letter A or B indicating which Section you are entering. Address your envelope to *Winter Model-Building Competition No. 1, Meccano Limited, Binns Road, Liverpool 13.*

MECHANISMS FOR THE MECCANO MODEL-BUILDER

4-Speed And Reverse Gear-Box: A Novel Reversing Device

ONE of the fascinating features of Meccano is the facility it provides for translating ideas into practical form and in no direction is this more evident than in the designing and construction of mechanisms for carrying out particular mechanical functions.

By Spanner

Mechanism of one kind or another is required in all working models and unforunately some model-builders are not very good at designing mechanisms for themselves, and they rely on copying the mechanisms of similar models shown in the Meccano Model Books and other publications.

I am sure, therefore, that the two useful mechanisms described on this and the opposite page will be eagerly welcomed by such model-builders. Before I describe these mechanisms I want to make clear exactly what is meant by "mechanism." A mechanism can best be defined perhaps as an assembly of metal parts (or other suitable material) fitted together in such a manner that when set in motion by a Motor or other means, the complete assembly carries out a particular functional purpose. One of the best examples I can give is the gear-box of a motor car. Essentially this is a collection of gear-wheels of various sizes. levers and shafts, arranged in such a manner that when in motion it is capable of transmitting different speeds of drive to the road wheels of the car and so enabling the power of the engine to be applied to the best advantage. Now, if we assemble several complete and suitable mechanisms together so that the separate functions of each are co-ordinated and applied to a specific end, we have got a complete machine. The modern car chassis is a first class example of the way in which a large number of different mechanisms are linked together to produce a complete machine. Among these mechanisms are clutch, gear-box differential, brakes, and steering gear.

The two mechanisms I am describing here are a 4-speed and reverse gear-box, and a novel form of drive reversing mechanism, both of which can be adapted and applied to many different kinds of models.

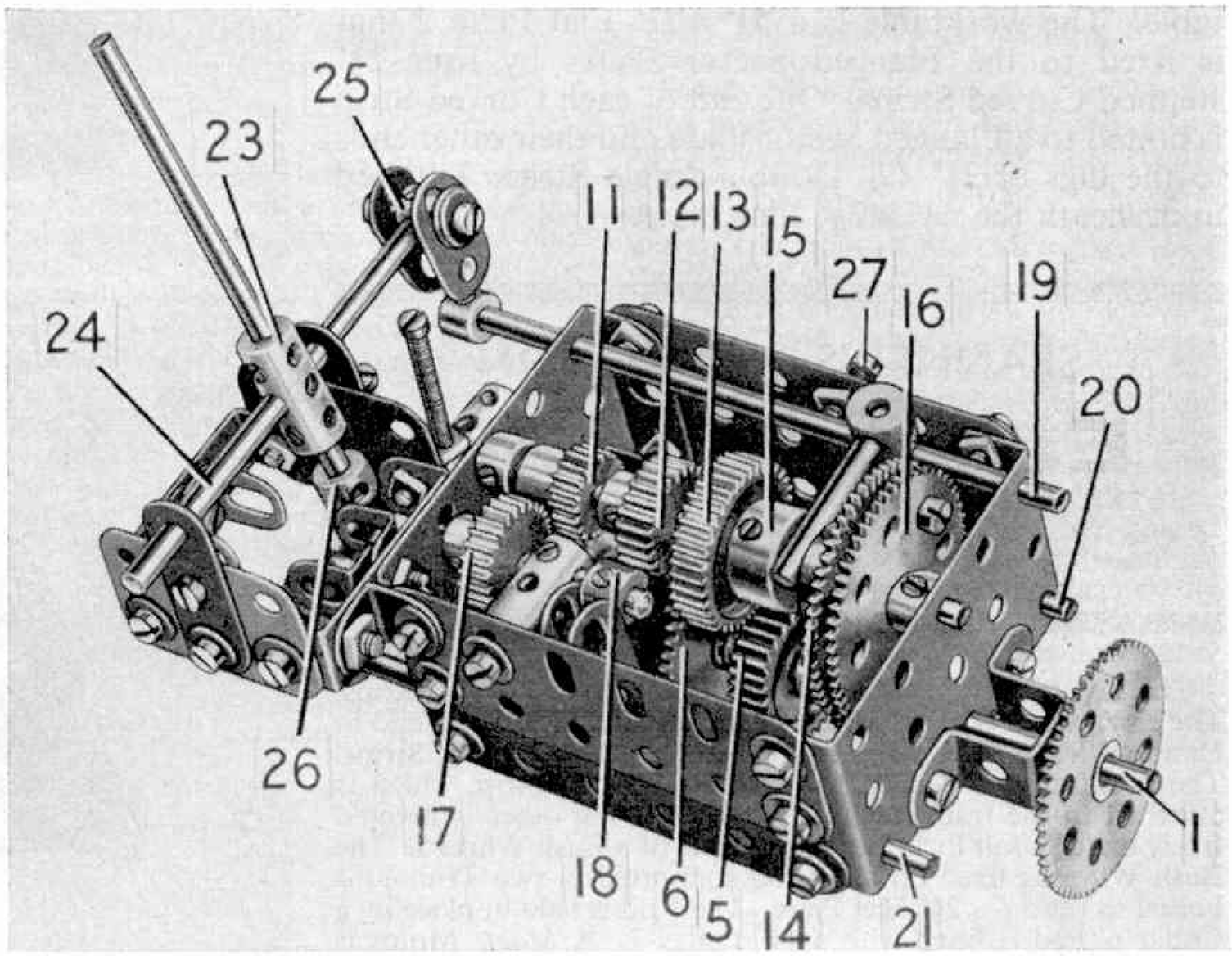


Fig. 1. A four-speed and reverse gear-box which can be adapted for incorporation in many different models.

The gear-box is shown in Figs. 1 and 2 and is fitted with a simple but effective gate change. An unusual feature in a Meccano mechanism of this kind is that the gears are arranged to slide on the shafts. Each side of the gear-box housing consists of a 3″ Flat Girder and a 3″ Strip, and the ends are $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flanged Plates.

The input shaft 1 is mounted in one of the Flanged Plates and in a Double Bent Strip bolted to it. The inner end of the shaft carries a $\frac{1}{2}''$ Pinion 2, but the Rod occupies only half the bore of this Pinion. The other half is used to locate the inner end of the output shaft 3. The output shaft is fitted with a $\frac{1}{2}''$ Pinion 4 and a 1″ Gear 5, both of which are fixed in position, and a 50-tooth Gear 6 and a 57-tooth Gear 7 held in a Socket Coupling 8. The Socket Coupling and its Gears are free to slide on the shaft, but are made to turn with it by a $\frac{3}{8}''$ Bolt fixed by a nut in a Bush Wheel 9. This Bolt engages a hole in the Gear 7.

The layshaft carries a $\frac{1}{2}''$ Pinion 11 and a $\frac{3}{4}''$ Pinion 12, fixed in position, a 1″ Gear 13 and a 57-tooth Gear 14, held in a Socket Coupling 15 that is free to slide, and a 57-tooth Gear 16 fixed on the shaft. A $\frac{3}{8}''$ Bolt held in Gear 16 by a nut engages a hole in Gear 14, so that the Socket Coupling assembly turns with the shaft.

The $\frac{3}{4}''$ reverse Pinion 17 is fixed on a $1\frac{1}{2}''$ Rod that slides in a Threaded Coupling. The latter is fixed tightly on a bolt passed through a slotted hole of one of the Flat Girders, and is adjusted so that Pinion 17 can be meshed with both the Pinion 11 and the Gear 7. The $1\frac{1}{2}''$ Rod carries a Collar 18.

The gear ratios are obtained as follows. Top gear is provided when the Socket Coupling 15 is moved to the left (Fig. 1), so that the Gear 14 engages the Pinion 4. When the Socket Coupling 15 is moved to the right (Fig. 1) Gear 13 engages the Gear 5, to provide third gear with a ratio of 3:1. The first and second gear ratios are obtained by sliding Socket Coupling 8. When this is moved to the left (Fig. 2) the Gear 7 engages the Pinion 11 and provides first gear with a ratio of 9:1. By sliding Socket Coupling 8 to the right (Fig. 2),

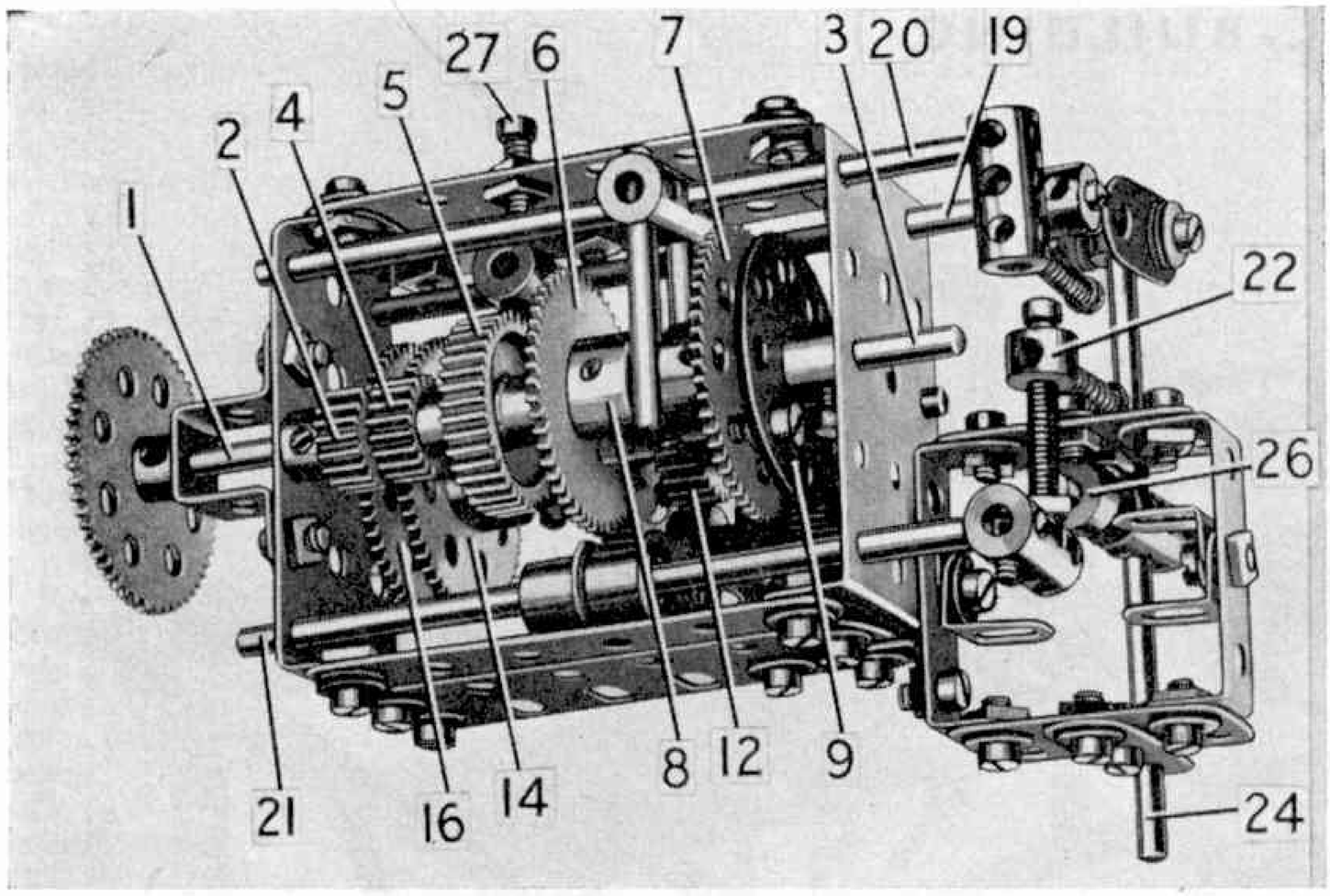


Fig. 2. The four-speed and reverse gear-box seen from underneath.

the Gear 6 is meshed with Pinion 12 to engage second gear with a ratio of 6:1.

Reverse gear is engaged by sliding Pinion 17 to the right (Fig. 1) when the other gears are neutral. The Pinion then engages both the Pinion 11 and the Gear 7 and provides a reverse drive with a ratio of 9:1.

The sliding movement of the Socket Coupling is controlled by selector Rods 19 and 20, each of which carries a Coupling fitted with two $1\frac{1}{2}''$ Rods that engage the groove in one of the Socket Couplings. Rod 19 carries a Collar fitted with a 7/32″ Bolt, and on Rod 20 a Coupling is fixed. A $1\frac{1}{2}''$ Bolt is screwed into this Coupling as shown and is held in place by a nut. The movement of Rods 19 and 20 is restrained by $\frac{3}{8}''$ Bolts 27. These are fixed in the housing by two nuts each and bear lightly against the Rods.

The reverse selector Rod 21 carries two Cranks, arranged one on either side of the Collar 18. A Coupling fixed vertically on this Rod has a $1\frac{1}{8}''$ Bolt held in by a nut, and a Collar 22 is fixed on the Bolt. A $\frac{3}{4}''$ Bolt is held in this Collar by a nut.

The gear lever gate assembly is made by bolting two $1\frac{1}{2}''$ Flat Girders to the lugs of two $1\frac{1}{2}\times\frac{1}{2}''$ Double Angle Strips. One of the latter is bolted to the end of the gear-box housing and is connected to the housing by an Angle Bracket (Fig. 1). A made-up double bracket, consisting of two Angle Brackets, is bolted to each Double Angle Strip.

The gear lever is a Rod held in a Coupling 23 fixed on a Rod 24. Rod 24 is free to slide endways in $1\frac{1}{2}''$ Strips bolted to the $1\frac{1}{2}''$ Flat Girders, and it carries a "spider" 25 from a Swivel Bearing. Two Fishplates are fixed on bolts screwed into the spider, and are bent together slightly so that they fit closely over the heads of the Bolts on the selector shafts. A 1″ Rod fixed in the lower section of Coupling 23 carries a Collar 26. This Collar engages between the forks of the gate as the lever is moved.

The Bolts on the end of the selector shafts should be arranged so that when all the gears are in neutral the Bolts are exactly in line. The Fishplates attached to the spider 25 will then slide freely over the Bolts when the gear lever is moved sideways. To engage a gear the lever is slid sideways until the Fishplates engage the Bolt on the appropriate selector shaft. The gear lever is then moved forward or backward to bring the gear trains into mesh.

The reversing mechanism shown in Fig. 3 is especially interesting due to the fact that a combination of gears and pulleys is used to obtain forward and reverse movements, and it was designed to eliminate the need for contrate or bevel gears.

The housing for the mechanism consists of a $2\frac{1}{2}''\times2\frac{1}{2}''$ Flat Plate bolted to each flange of a $2\frac{1}{2}''\times1\frac{1}{2}''$ Flanged Plate, but this can of course be altered to suit a particular model. The drive from the power unit is taken to a $3\frac{1}{2}''$ Rod 1, which is mounted in the $2\frac{1}{2}''\times2\frac{1}{2}''$ Flat Plates and is fitted with a $\frac{1}{2}''$ Pulley. This Pulley is connected by a $2\frac{1}{2}''$ Driving Band to a similar Pulley fixed on a 2″ Rod 2. The Rod 2 is mounted in a $3\frac{1}{2}''$ and a $2\frac{1}{2}''$ Strip connected together by two $1\frac{1}{2}''\times1\frac{1}{2}''$ Double Angle Strips. The lower ends of these Strips are passed over the Rod 1, and the upper end of the $3\frac{1}{2}''$ Strip forms the reversing lever. The Rod 2 is fitted also with a $\frac{1}{2}''$ Pinion 3.

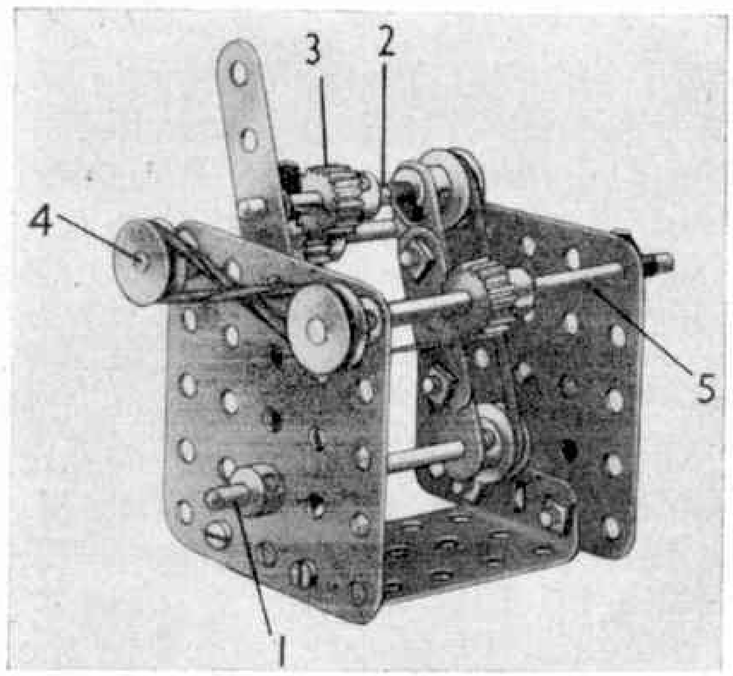


Fig. 3. A novel drive reversing device in which a combination of gears and pulleys is used to obtain forward and reverse movements.

An intermediate Rod 4 is mounted in the $2\frac{1}{2}''\times2\frac{1}{2}''$ Flat Plates, and carries a $\frac{1}{2}''$ Pinion and a $\frac{1}{2}''$ Pulley. The $\frac{1}{2}''$ Pulley is connected by a crossed Driving Band to a similar Pulley on the output shaft 5, which is fitted also with a $\frac{1}{2}''$ Pinion. The Pinion on Rods 4 and 5 are arranged so that they can be meshed with the Pinion 3 on Rod 2 by moving the reversing lever.

Reverse drive is obtained through the crossed Driving Band between the Pulleys on Rods 4 and 5.

A REMINDER

WINTER MODEL-BUILDING CONTEST No. 1

Here is a reminder, all Meccano model-builders, that the closing date for entries in our Winter Model-Building Competition No. 1 is March 30. Any intending competitors who have not yet sent in their entries must hurry and finish them, so that they can submit them in time. Entries received after March 30 will be disqualified.

The rules of the competition are quite simple and straightforward. Contestants are first required to build a model, which must be original in design and not a copy of a model shown in our instructions books or other publications. Provided they are original, models may be of any kind whatever, and competitors may use any size of Outfit or any quantity of parts in building them. When the model has been completed the next step is to obtain a good clear photograph of it or, failing this, a neat sketch will suffice. The photographs or drawings need not be the competitors own work, but the model itself must be the result of his own unaided efforts. The actual model itself must not be sent in under any circumstances.

The competition is open to model-builders of all ages living anywhere in the world. Entries will be divided into two sections A and B. Section A is for competitors under 14 years of age on March 30 and Section B is for those aged 14 or older on that date.

A separate set of prizes will be awarded in each Section as follows: Section A: 1st. Cheque for £5.5.0; 2nd. Cheque for £3.3.0; 3rd. Cheque for £2.2.0. Ten prizes each of 10/6d. Section B: 1st. Cheque for £7.7.0; 2nd. Cheque for £5.5.0; 3rd. Cheque for £3.3.0; (*Cont. on page 129*)

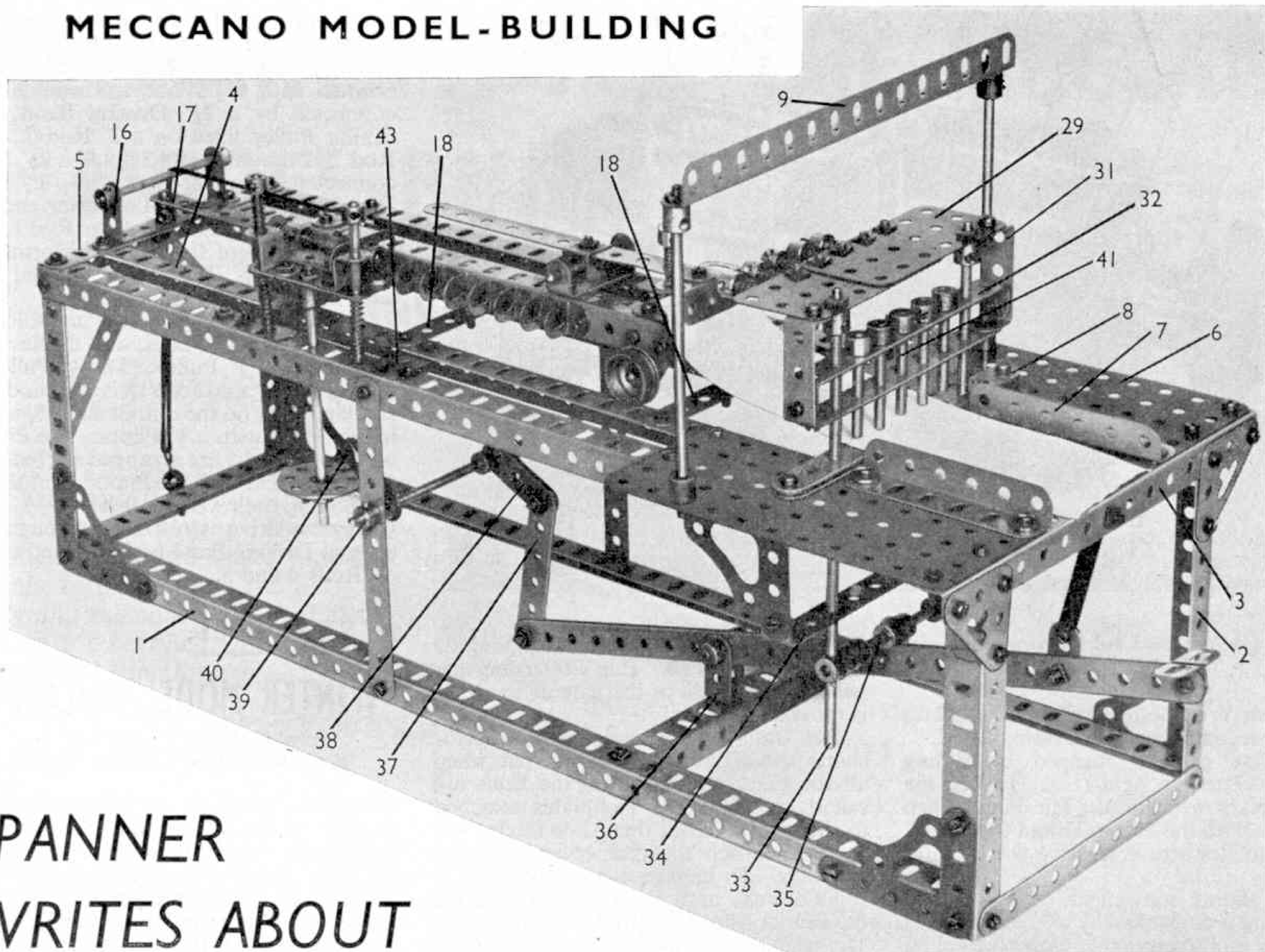


Fig. 1.

SPANNER WRITES ABOUT

A NOVEL PAPER PERFORATING MACHINE

THE rather sketchy-looking model shown in Figs. 1 and 2 is, in fact, a most interesting machine designed for perforating successive rows of holes in paper strips. It is the action of the machine that makes the construction worth while, and as it takes comparatively little time to build it makes a good subject of unusual nature for the more advanced constructor, who has little leisure time at his disposal.

For the framework of the model two rectangles are built with two 18½″ and two 5½″ Angle Girders 1 and 2, supported with Corner Gussets. These are joined together with three 5½″ Angle Girders, one 5½″ Strip and a 7½″ Angle Girder 3. A pair of 18½″ Angle Girders 4, are bolted to the Angle Girders 3 and 5. The 5½″×2½″ Flat Plates 6 are placed in position with a 3½″×2½″ Flexible Plate between them, and two 3″ Angle Girders 7, which form the guide for the paper. Two pairs of 5½″ Strips 8, spaced apart with one Washer are bolted to the 5½″×2½″ Flat Plates 6 as shown. A 7½″ Angle Girder 9 is attached to the Flat Plates by two 4″ Rods and four Rod Sockets. A 1½″ Angle Girder 43 supports the 18½″ Angle Girders on one side only.

Travelling Carriage

Two 7½″ Angle Girders 10 are joined together with a 1½″ Strip 11, a 1½″×½″ Double Angle Strip 12, and a 1½″ Flat Girder 13. Four 1″ Triangular Plates are bolted to the Angle Girders forming the bearings for the 2½″ Rods and ¾″ Flanged Wheels. A 5½″ Strip 14, with a Double Bracket and a 1½″ Angle Girder attached, is pivoted on a 2″ Rod held in the Double Angle Strip 12 by Spring Clips. A 2″ Rod 15 is placed through the 5½″ Strip and the 1½″ Flat Girder, with a Collar underneath and a Collar and Compression Spring on the top, adjusted so as to grip the paper.

Eight Angle Brackets are bolted to one of the 7½″ Angle Girders. Two 6″ Driving Bands are attached to the 1½″ Strip 11 and to a Small Loaded Hook fixed to the bottom of the framework as shown in Fig. 2. A 2½″×1″ Double Angle Strip 16, carrying a 3″ Rod and Collars, is bolted to the 5½″ Angle Girder 5 by a ¾″ Bolt that also holds a 12½″ Strip 17 spaced from the Double Angle Strip by a Collar and three Washers. This Strip passes over the axles of the carriage and is bolted to the framework, but it is spaced from it by a Collar and Washers. The Strip is also bolted to two 3½″ Strips 18.

Release Mechanism

A $2\frac{1}{2}''$ Strip is attached to the underside of a $2\frac{1}{2}''$ Flat Girder 19 by a Rod Socket 20. Two $\frac{1}{2}''$ Reveresd Angle Brackets 21 are bolted to the front of the $2\frac{1}{2}''$ Flat Girders. Two Fishplates 22 are fixed at the rear and also a $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 23, which is spaced from the Flat Girder by one Washer. On a $2\frac{1}{2}''$ Rod 24, spring loaded with two Compression Springs and a Collar, a Double Arm Crank 25 is fixed. The bolt holding one of the $\frac{1}{2}''$ Reversed Angle Brackets has two Washers on its shank to prevent the nut from catching the Double Arm Crank. A $4''$ Rod carrying a Bush Wheel 26 is secured in the Rod Socket 20. Two $3''$ Rods 27 anchored in Cranks attached to the Angle Girders 1 support the release mechanism, which has two Compression Springs on the Rods next to the framework, and on one of these Rods, a Compression Spring above the $\frac{1}{2}''$ Reversed Angle Bracket. Collars are placed on the ends of the Rods. The Bolt 28 holds a $\frac{1}{2}''$ Corner Angle Bracket (Right Hand) that engages the Angle Brackets bolted on the carriage. When the Bush Wheel 26 is depressed by operating the treadle the Corner Angle Bracket moves below the Angle Brackets. The carriage now moves the Double Arm Crank in line with the Corner Angle Bracket so that when the release mechanism reverts to its original position the Corner Angle Bracket is between the next pair of Angle Brackets.

Perforating Mechanism

A compound $4\frac{1}{2}'' \times 1\frac{1}{2}''$ flat plate 29 has five Double Brackets 30 bolted to it. Each of these Brackets supports a $2''$ Rod on which is placed a Collar, a Compression Spring and three Washers. Another Collar (not shown) is fastened $\frac{1}{8}''$ from the other end of each Rod. Two $1\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips 31 are secured to the Flat Plates and they support a $4\frac{1}{2}''$ Strip and a $4\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 32. Five $1\frac{1}{2}''$ Rods, each with a Collar, are placed in position as shown. Two $6\frac{1}{2}''$ Rods 33 are fastened to the Flat Plates by Rod Sockets. These are free to move in the $5\frac{1}{2}''$ Strips 8 and in a $5\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strip 34 that is attached to the framework by Corner Gussets. A Fishplate, placed between two Collars on a $2\frac{1}{2}''$ Rod 35, is lock-nutted between two $12\frac{1}{2}''$ Strips that are pivoted on a Single Bent Strip 36. These form the operating treadle.

The Rod 35 is secured to the $6\frac{1}{2}''$ Rods 33 with Couplings. Two Angle Brackets are bolted to the end of the $12\frac{1}{2}''$ Strips. A Spring attached to the Angle Girder 3 is secured to the $12\frac{1}{2}''$ Strips by a Fishplate. At the other end of the $12\frac{1}{2}''$ Strips two $3''$ Strips 37 are lock-nutted, and these in turn are lock-nutted to two Cranks 38 fixed on a $6\frac{1}{2}''$ Rod 39. A Crank 40 fixed on Rod 39 is adjusted so that it operates the release mechanism when the $12\frac{1}{2}''$ Strip is depressed to cut the holes in the paper with the $1\frac{1}{2}''$ Rods 41. The holes to be punched are selected by pressing one or more of the Rods 42.

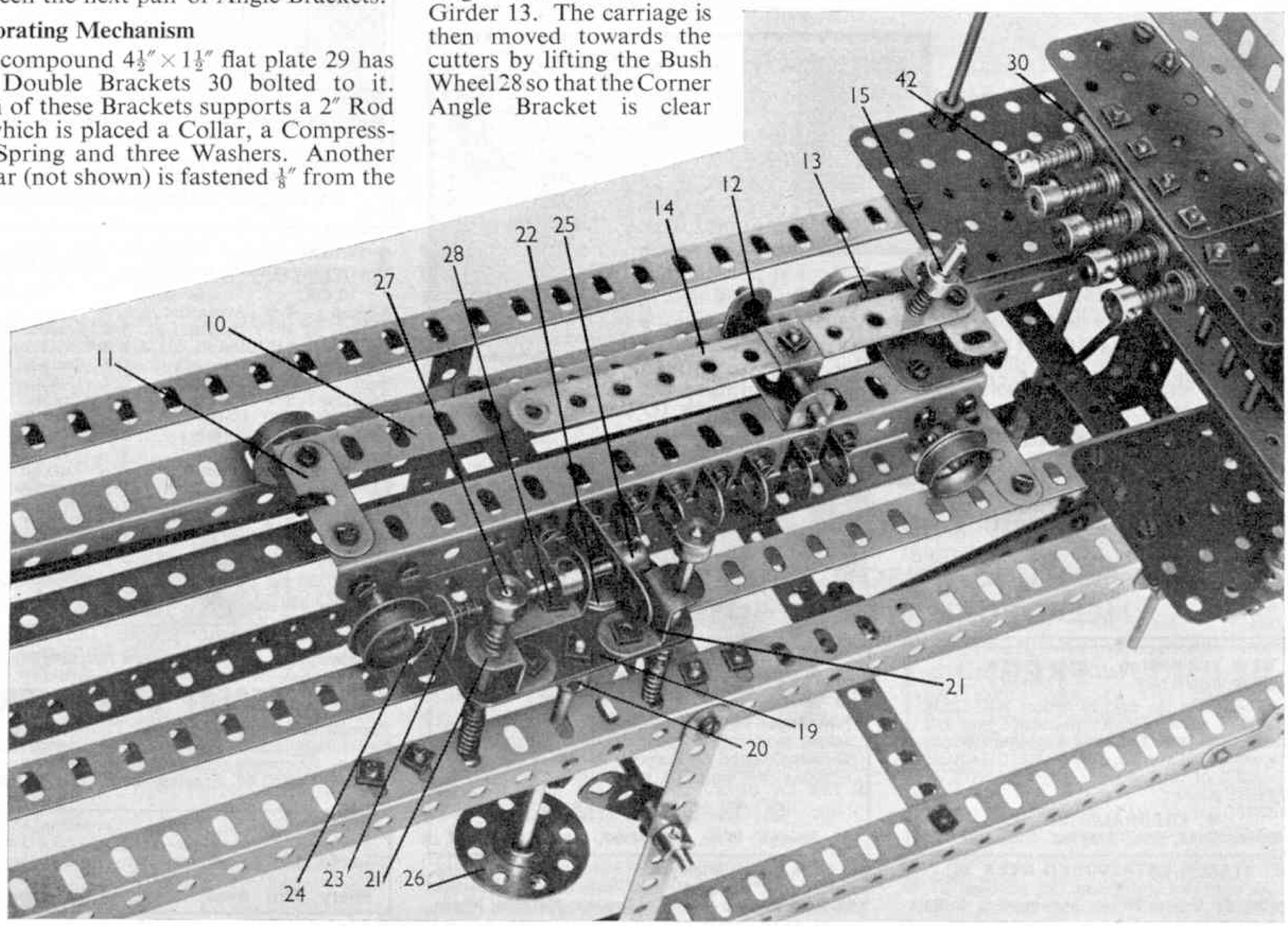
Operating the Model

To operate the mechanism a strip of paper $2\frac{1}{2}''$ wide should be placed between the $5\frac{1}{2}''$ Strips 8 and gripped by the $1\frac{1}{2}''$ Angle Girder and Flat Girder 13. The carriage is then moved towards the cutters by lifting the Bush Wheel 28 so that the Corner Angle Bracket is clear above the Angle Brackets. When the machine is adjusted correctly each depression of the $12\frac{1}{2}''$ Strips forming the treadle will cause the carriage to move half an inch.

Parts List

Parts required to build the Paper Perforating Machine: 3 of No. 1; 8 of No. 2; 3 of No. 2a; 2 of No. 3; 2 of No. 4; 1 of No. 5; 1 of No. 6a; 6 of No. 7a; 4 of No. 8b; 7 of No. 9; 2 of No. 9c; 2 of No. 9f; 5 of No. 10; 6 of No. 11; 10 of No. 12; 3 of No. 14; 3 of No. 15b; 4 of No. 16a; 3 of No. 16b; 7 of No. 17; 5 of No. 18a; 1 of No. 18b; 4 of No. 20b; 1 of No. 24; 2 of No. 35; 118 of No. 37a; 108 of No. 37b; 58 of No. 38; 1 of No. 43; 1 of No. 46; 4 of No. 48; 1 of No. 48c; 1 of No. 48d; 1 of No. 57c; 31 of No. 59; 5 of No. 62; 1 of No. 62b; 2 of No. 63; 2 of No. 70; 2 of No. 73; 4 of No. 77; 1 of No. 101; 1 of No. 103b; 1 of No. 103h; 6 of No. 108; 3 of No. 111; 7 of No. 111c; 13 of No. 120b; 2 of No. 125; 2 of No. 133; 1 of No. 154a; 7 of No. 179; 2 of No. 186b; 1 of No. 190a.

Fig. 2. This close-up view of parts of the Paper Perforating Machine shows the paper feed and spacing mechanism.



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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 136

For Stamp Enthusiasts

The Bermudas

By F. E. Metcalfe

THIS month, I am writing about those sunny "Isles of Rest" the Bermudas, because Somers Islands—which is a not very well-known name for the sub-tropical paradise—have issued a really wonderful set of definitive stamps. I have been wanting to tell you about them ever since I got my set on October 26 last year.

I well remember how bored we used to get in the old days when the designs of the stamps for so many colonies carried only the head of the Sovereign, and how we longed for something more attractive. Well, my word, Bermuda has certainly given us something to think about this time. I know that one or two of the old philatelic diehards are still yearning for those "good old days" (when we were all so bored; but they forget that!) Modern collectors simply would not stand for those head-type issues, and unless the colonies had brought themselves up-to-date by issuing stamps good to look at collectors would have gone off to foreign issues. Let us admit it, the colonies could not afford to lose the revenue which sales to stamp collectors yield.

I mentioned just now that another name for the Bermudas is Somers Islands. The colony is also sometimes called the West Indies. It is about 1,000 miles to the north and 568 miles to the east of the American state of North Carolina. There are around 100 islands in all, the seven most important being strung together by bridges, etc. As there are no rivers or lakes, fresh water is the greatest problem, and rainwater has to be collected as it falls on the roofs, and stored in tanks. I can vouch how difficult that is, as I lived for a time in Patagonia, where we had exactly the same problem.

The Spanish adventurer Juan Bermudez is credited with discovering the islands in 1503, and eventually they were named after him, although Spain never put in a claim. Nothing was done about populating them until 1609, when Admiral Sir George Somers and a party of 500 colonists on the way to Virginia were shipwrecked off the eastern end of the island, and became the first settlers there. How is that for luck? To commemorate

the 350th anniversary of this shipwreck a handsome set of stamps was issued on July 29, 1959. Incidentally, the name of the ship which gave the Bermudas the first batch of settlers was *Sea Venture*.

Now Bermuda is a thriving community, with a well-established Parliament of its own which is one of the oldest in the Commonwealth. Situated as it is, visitors flock to it and catering for tourists, mostly from Canada and the U.S.A., is the main industry.

Although it was not until 1865 that Bermuda got its own stamps, as long ago as 1848 the then postmaster, W. B. Perot, produced postal labels—you could hardly call them stamps. A century afterwards, on April 11 1949 to be exact, a set of three stamps was issued to commemorate them. These Perot originals are very rare, but the 1949 issue illustrates them, and that is about as far as any of us will get to owning one of these rarities.

Without a doubt Bermuda's stamps are particularly popular with Commonwealth and U.S.A. collectors, and a really fine collection can be got together. If one is satisfied with the attractive modern issues such a collection need not prove too costly.

But I must really get on to the new set which is causing so much excitement. Now it is a fact that when these stamps first appeared, last October, so different were the designs compared with any other stamps which had appeared among Commonwealth issues that a few collectors did not like them. But gradually even these critics are coming round. For one thing, the portrait of the Queen is by far the most attractive which has appeared to date on any colonial issue. Then, whatever else may be said, none can deny the originality of the designs, and we cannot deny, either, the brightness of the colours.

But it is the thematic collectors who are getting the most fun, for the main theme on each value has to do with a building, either past or present. I wish that the explanations of the various churches, etc. had been extended a bit, without cluttering up the designs too much For instance, on the 5d. value we get a view of the Dockyard, which has quite a history—the clock in the tower was made in London as long ago as 1856. The House of Assembly appears on the £1 value, and the quaint building on the 1d. stamp is not Mother Hubbard's cottage but the old Rectory of St. George's (the original capital, before the change was made to Hamilton). Another stamp I like very much is the 2d, which shows the palm trees—coconuts I think—in the churchyard of the Church of St. Peter.

Yes, it is really a wonderful set, and how the thematists will enjoy mounting it and writing in details regarding the various buildings depicted. And not only the thematists are concerned, for all collectors of British Commonwealth stamps are getting a thrill out of this issue. Do not be put off by the fact that it is a big set of seventeen values, which go right up to £1, for there are actually nine stamps none of which exceed a shilling face value, and we can all afford that, at least. Later we can add the higher values one at a time. A final word of congratulation to the printers—well done, Messrs. Harrison.

Stamp Gossip

Special Issues

THE news given out at the beginning of this year that during 1963 we are to have five special issue of postage stamps has set off the critics, but as these people, in the main, do not collect modern stamps their strictures are not important. Five seems a lot of new issues because our Post Office has hitherto pursued such a conservative policy in such matters compared with the rest of the world. But there will be only eleven stamps in all. Here are the details: "Freedom from Hunger", March 21 (2½d., 1/3); "Centenary 1st. International Conference of Postal Administrations", May 7 (6d.); "National Nature Week", May 16 (3d., 4½d.); "International Life-Boat Conference", May 31 (2½d., 4d., 1/6); and "Centenary Red Cross", August 15 (3d., 1/3, 1/6). Total face value of the eleven stamps 7/7½d. For those who go in for varieties there will be the phosphor-lined stamps, of course, and I hope to have more to say about these shortly, as they are becoming immensely popular. In each instance important events are being commemorated, and used copies at least will provide a lot of fun, even for junior collectors.

(*Continued on page 137*)

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 134

ANIMAL PROTECTION

We British often give ourselves a pat on the back for the love we lavish in animals, but we are not unique in this respect, as the former Dutch colony of Surinam made clear by the issue, in January, of a set of four stamps to provide funds for building animal homes there. These homes, I understand, are intended mainly for dogs. Each stamp (one of which is illustrated on this page) has a small surcharge which goes to the fund just mentioned. I wonder what they would do without stamp collectors? Incidentally, Great Britain once owned Surinam but under the peace treaty of Breda in 1667, at the end of the second Anglo–Dutch war, it passed into the hands of the Netherlands in exchange for New Amsterdam, which Britain re-named New York.

RED SEA FISHES

They tell us there are better fish in the sea than ever came out of it. May be that is true, but it must also be a fact that there are some pretty queer fish, too, waiting to be caught. I imagine that the Red Sea must contain some odd creatures, quite apart from the specimens which Israel has illustrated on four stamps issued recently, one of which is reproduced here. How would you like to come across a nice big specimen in your bath, like the one shown on this stamp? Its name is *Holacanthus Imperator*, and seems to fit it, don't you think?

FLOWERS

Some time when I have enough space to spare I will go into Sierra Leone stamps in detail, as although this Commonwealth country is now a republic the stamps maintain quite a lot of interest for British collectors at least. One set, which appeared in January last, is particularly full of appeal for collectors all over the world. It is a big set of thirteen values up to £1, each one depicting one of the wonderful flowers which grow in Sierra Leone. Five of the stamps are within the ½d. to 3d. range, so even if we have used up most of our pocket money there should still be enough left for a short set at least, and what a fine show they make nicely mounted.

THAT ALBUM

A stamp dealer tells me he has never sold so many loose-leaf albums as he did just before and after last Christmas. He added that being interested in the hobby quite apart from the money-making angle he was pleased to see that most collectors, even the young ones, wanted spring-back albums, with plain pages—which meant that they were going to make up their own collections, and not be content with simply sticking in copies where spaces were ruled for them.

This is good news, for such keen youngsters will make real philatelists in time, and this they would never do if they were content only with printed albums. But the dealer also had something to say about the many purchasers who first of all wanted to know how many more pages the albums which they were buying would hold, and it is on this point I would like to put in a word of warning.

With care, and avoiding excessive strain, a spring-back album cover should last for years. When you first begin to mount your stamps, the album looks—as you turn back the pages—as though it could hold quite a few more sheets. And so it could, if pages are all that it is going to be expected to hold; but what about all the stamps you are going to mount? A spring-back cover can be quite expensive, and naturally when you buy one you want it to do as long a job as possible, so—as this dealer said—you buy an extra dozen leaves or so and in they go. All looks well, but bit by bit one page after another becomes filled up, or at least has some stamps mounted on it, and in next to no time the springs give way. I have seen this happen often enough.

There is another point—if, as is often the case, mint stamps have been mounted, that extra pressure results in them becoming stuck down. A really bad job, that. So let us not indulge in that false economy. As a matter of fact, I take a few pages out of any new album I buy, and in the past I have made up more than one additional album from pages abstracted in

(*Continued on page 141*)

By E. W. Argyle

The Royal Navy On Stamps

H.M.S. SWALLOW

THIS sloop was built by Henry Bird, at Rotherhithe, from Sir James Ackworth's plans, and was launched on December 14, 1745. H.M.S. Swallow *was 92 ft. long, of 278 tons, and carried 14 guns; her crew totalled 110. She was on the East India station in 1747–48, and in 1762 she was an impress vessel at Liverpool. In 1767 the vessel was under the command of Capt. Carteret at the time he rediscovered the Solomon Islands, after they had been "off the map" for 200 years. At the end of this voyage she was sold out of the Service.*

H.M. ENDEAVOUR BARK

Captain Cook's famous ship was built in 1764 as a Whitby collier, and was launched as Earl of Pembroke, *under the ownership of Mr. Thomas Milner. A bluff-bowed vessel of 368 tons and 97 ft. 7 in. long, she had a great cabin 23 ft. in length. After her purchase by the Admiralty, at Cook's request, the collier was converted to make her suitable for a voyage of exploration. The ship carried Cook on his voyage of discovery to New Zealand, etc.*

TAPE RECORDERS HELP THE WRITER

The writer of this article at work, typing from dictation. The speaker is switched off and the cable points are fixed to the earphone wires so that only the wearer of the earphones can hear.

IN my second article I dealt with the tape recorder as you, yourself, might use it, presuming (as I suppose I safely can) that you have no professional purpose for which to use it. But, of course, it will help you to realise the importance of this hobby if you also appreciate that the tape recorder is now an important factor in industrial, commercial and professional life. I wish particularly, in this article, to deal with it as an aid to the freelance journalist. Who knows how many of my readers may one day want to take up such work themselves?

The uses to which I, in my writing, put the tape recorder are many. The most obvious use is for dictation purposes, recording articles which I either type myself or which someone else types for me. There are quite a number of typing agencies who will get typing done from tape

Third Article In The Series By Gordon E. Gompers

recordings. Of course, there is risk of useless expenditure, since not *every* typist who works for an agency has a correct idea of punctuation.

I have found, however, that there are great advantages to be had by using tape for rough drafts, because the writing out of ideas, even in the form of a scribbled draft, may take time and an idea might slip in and out of one's head in a split second. But by speaking one's thoughts as they come the idea is recorded the moment it arrives. Here, what is true of professional writing is also true of school work.

For research itself, the tape recorder is very useful indeed. Apart from using it to store data from authoritative lectures one hears on the radio, the freelance can also gather useful information by tapesponding with authorities, interested in his particular subject, who happen to be more comprehensible when talking than they are on paper.

The battery portable is very useful for interviewing people. It has eliminated, completely, the risk that the writer has misquoted because he could not read his own shorthand.

My own particular use for the tape recorder comes in my capacity of discographer, or, to use the more popular term, record reviewer. The use of the tape machine enables me to take a recording of any records I am required to return after reviewing. These tapes are thus available for comparison when next I have to review a new recording of the same work.

Use of the tape recorder for discography is, of course, a rather specialised one from a freelance writer's view. Most writers prefer creative work in which the use of the tape recorder is rather limited. You could, of course, make it a means of discovering the space and flow of real conversation. You will find this is not so easy simply by observation and memory because you yourself can so effortlessly become part of the conversation. Only the tape recorder is impartial!

Again, for the writer who wants to write for broadcasting this machine is invaluable. The writer will certainly want to know how his work will sound, especially if he is invited by the B.B.C. to read it.

The playwright who wants to get his dialogue right can easily organise a reading of his work among his friends which will enable him to be sure that he has mastered the sound and pace of social intercourse, with its various dialects.

Let me have a final word on the subject of harnessing the tape recorder to the service of the freelance journalist. To those writers who recognise the wisdom of specialising, but who use tape recorders in their work with as little thought as they would use a camera or typewriter, the idea might occur to them—as it did to me long ago—that this machine itself represents a subject well worth writing about, presenting as it does not only a large field of known knowledge but a vast territory that still remains to be explored.

Yes, the scope for exploration is a great attraction, not only for the freelance journalist, but also for all amateur tape recording enthusiasts. Even with the single speed 3¾ i.p.s. machine there is such scope, especially with sound effects, and this will be the subject of my next article.

TETRAPODS COME TO DAS

An ingenious type of concrete block is being used to help protect the harbour at Das Island off the Arabian coast against storms. Known as Tetrapods, these blocks are of a French patented design, and may be visualised as a central sphere around which are equally spaced four truncated cone-shaped legs. When a number of Tetrapods are placed in position these legs interlock giving a number of advantages over ordinary rectangular blocks.

Das Island is the operational headquarters for the Umm Shaif underwater oilfield of Abu Dhabi Marine Areas Limited in which BP has a two-thirds interest, and Compagnie Francaise des Petroles one-third.

When the harbour was built at Das in 1957 it was planned as a temporary facility since it was not known then that oil would be found. Now that oil production is under way it is necessary to make the harbour breakwater permanent. Model tests carried out at an hydraulics laboratory showed that storm waves of up to 17 feet in height should be allowed for. Supplies of natural rock on the island were limited and it was decided to use Tetrapod artificial blocks.

For the 1,500 feet length of breakwater to be protected a total of 2,345 Tetrapods will be required in 4, 10 and 15-ton sizes. The 15-ton size is more than nine feet high. The blocks will be made at a special yard set up on the island where casting is about to start. The Tetrapods will be made with sulphate resisting cement and be required to cure for a month before being placed in position. All the casting should be completed in about seven months.

CALLING ALL BUS SPOTTERS

SMALL, BUT MODERN

This picture, by courtesy of Safeguard Coaches Ltd., shows the bus that is their own special favourite, with its sturdy Burlingham body. On this occasion, it had wandered further than the Westborough suburb of Guildford and was photographed high up on the surrounding heathlands of the North Downs.

David Kaye Looks At One Of Britain's Independent Fleets

I SLITHERED over the icy pavements of Guildford, Surrey during that freeze-up at the end of 1962 to visit one of the most progressive of the smaller independent stage carriage operators in South-East England—Safeguard Coaches Ltd. This firm, which now employs a staff of 25 to run its fleet of a dozen vehicles, began operations in Guildford in the mid-twenties, when the quiet little town began to develop fast as a commuter dormitory for London.

The rapidly-expanding housing estates were divided up between Safeguard, Yellow Bus Services and the much larger Aldershot & District Traction. Safeguard ran joint routes with the last-named to Dennisville, Onslow Village and Westborough, but under a re-arrangement Safeguard have a monopoly of the Westborough service, and the buses on Aldershot & District routes 30/30A are the only ones serving Onslow Village. The Dennisville route is still jointly run on a combined headway of fifteen minutes, necessitating considerable lay-over times at the termini. Safeguard's only double-decker (ex-Sheffield Corporation Guy "Arab" II HWA 786) ran on this route for about three years in the 'fifties, but was then replaced by a pair of new petrol-engined Bedfords which, in their turn, have recently given place to a pair of Leyland-engined Bedfords with smart Duple 41-seat bodies. On the day of my visit 699 VPL was on duty along with an equally new Aldershot & District "Loline" III, No. 438 (130 DOR) with an Alexander 68-seat body on route 27.

The Westborough route is the heaviest for traffic and is at present operated by a trio of A.E.C. "Reliance" buses which require duplicates during the morning and evening rush hours, when there is heavy demand on the frequent service of electric trains to and from Waterloo. A twelve-minute headway is operated on this service, but this is reduced to one of twenty minutes (thus saving one vehicle and crew) during winter Sundays. Safeguard are contemplating the purchase of 54-seat single-deckers in the future to cope with this growing rush hour traffic.

After the last war the firm's third route, which ran out to Westway, was lengthened to run into the new Northway Estate. This has always been a one-man crew route and has a light Bedford 35-seater running on it at present, its predecessor being one of those ubiquitous Bedford OBs with a 29-seat body by Duple.

To give some idea of the comparative mileage (*Cont. on page 141*)

Safeguard Coaches Fleet List

Here is the list of vehicles operated by Safeguard Coaches, Ltd.

Vintage	*Registration Mark*	*Chassis*	*Bodywork*
1956	200 BPG	A.E.C. Reliance	Burlingham B44F
1957	197 DPK	A.E.C. Reliance	Burlingham B45F
1959	VCE 520	Bedford SB 1	Duple Super Vega C41F
1959	XCG 712	Bedford SB 1	Duple Super Vega C41F
1959	250 LPB	Bedford SB 1	Duple B35F
1961	630 SPH	Bedford SB 8	Duple B41F
1961	310 TPK	Bedford SB 1	Plaxton C41F
1961	739 UPF	Bedford SB 1	Plaxton C41F
1961	699 VPL	Bedford SB 8	Duple B41F
1962	729 XPF	Bedford SB 1	Duple Super Vega C41F
1962	5389 PL	A.E.C. Reliance	Duple B45F
1963	—	Bedford SB 5	Duple Bella Vega C41F

A Century of Railway Rope Haulage—

(*Continued from page 101*)

Railway some fifteen feet below the canal level. The brake van and load of limestone which formed the train finished up in a field on the other side of the main Midland line and were completely smashed.

Of course, recurrence had to be prevented and so towards the foot of the incline a catch pit was dug and the line taken round it on either side, as you can clearly see from the top illustration on page 100. Normally, the points are left set for this catch pit so that any descending wagon that might have broken away will run straight into the pit. There is only one instance on record of this happening since the idea of a catch pit was instituted. When trucks are descending under control, a pointsman stationed above the catch pit sets the points for the main line and the pit is by-passed.

That is the story of what is probably the only British railway that has used rope haulage for part of its working for just over 100 years. For a brief part of its career, during the 'forties and 'fifties of last century, certain trains were allowed to carry passengers, but a fatal accident induced the company to discontinue the little-used service.

Now, the railway carries its limestone for the quarries in the district, brings water to its engine houses and sometimes coal as well to the nearby villages. It performs an intensely useful service in the quiet life of the High Peak district.

If you are ever that way, you may like to go and have a look at it. You will find that the country on either side presents you with real beauty and many pleasant walks.

Road and Track—(*Cont. from page 109*)

Cortina. The rear suspension also incorporates twin radius arms and an "A" bracket to minimise rear axle bounce. I can foresee almost a stampede for this car by keen motorists.

Another very good Ford I have been driving recently is the Anglia Super, powered by an 1,198 cc. Cortina engine. With a top speed of 84 m.p.h., this is quicker than a Cortina with the same power unit. It completely transforms Anglia acceleration, adding almost another 10 h.p. for a weight penalty of only 10 lb. Fuel consumption, 29 to 36 m.p.g., is very satisfactory. A price, including tax, of £598 13s. 6d. makes it a tempting proposition.

Rootes have introduced a sporting new Humber, the Sceptre, with 1,600 cc. engine in Alpine tune to give 85.5 b.h.p. and a top speed of 92 m.p.h. This is a luxury sporting vehicle with four headlamps, plenty of interior space and a performance way ahead of any previous, small Humber. It has good handling, is exceptionally well equipped, including overdrive on top and third as standard, and will certainly meet with approval at £997 8s. 9d., tax paid.

"Scram—this is a man-hole".

Railway Notes—(*Continued from page 111*)

business. Four of the large 9F 2–10–0 locomotives, capable of hauling heavy loads, took a valuable part in handling the holiday traffic. The last to be constructed, No. 92220, *Evening Star*—polished for the occasion—made the final summer journeys to and from Bournemouth, hauling *The Pines Express* south of Bath. This well known service with through carriages from Liverpool–Manchester–Crewe, etc., has since been diverted by way of Birmingham (Snow Hill)–Oxford–Reading–Basingstoke–Southampton, as reported in a separate article in the *M.M.* in December last year.

Other engines noted on passenger duty during busy days in 1962 included the rather unique 7F 2–8–0s built by the former Midland Railway for Somerset and Dorset Joint Line mixed traffic, and now in process of withdrawal; S.R. light Pacifics; Midland type 4F 0–6–0s; B.R. class 5 and class 4 4–6–0s.

After many years' duty on lighter trains and assisting with double-headed heavy ones, the last 2P 4–4–0 engines, numbered 40537, 40700, left the section at the end of August last and were listed for scrapping.

DIESEL DEVELOPMENTS

Construction of the ICo:CoI express locomotives of the D1 (Peak) and D200 series having been completed, or nearly so, a new lighter and more powerful Type 4 diesel-electric class, built initially at the Brush Electrical Engineering Works, is now entering service. The locomotives, numbered D1500 upwards, are expected to operate in due course over several Regions, including the Western. The last-named Region will not employ hydraulic transmission for future high-powered locomotives after completion of present orders. The D1500 Hawker-Siddeley 2,750 h,p. units are carried on two six-wheel bogies, with twelve-cylinder Sulzer engines, designed for speeds up to 95 m.p.h.

For W.R. duty 100 Type 3, 1,750 h.p. diesel-electric locomotives are to be put in hand. Others to be built for various areas include more 1,250 h.p. Type 2; also 900 h.p., D8500-style, for shunting or local freight duties.

Hornby-Dublo Schemes—

(*Continued from page 123*)

behind a Hornby-Dublo 4–6–0 Castle.

Finally, full-size and miniature situations are depicted in our last two illustrations. I have included these because they show how strikingly effective miniature reproduction can be if care is taken.

The prototype scene is on a branch line now actually closed to passenger traffic, but used by a daily freight which is frequently in charge of a diesel shunting locomotive. This, then, is the train represented in miniature with Hornby-Dublo equipment in the lower picture, taken on the layout of our well-known contributor S. F. Page, of St. Albans. The overbridge is modelled on the style of the real one, while the station buildings are clearly based on the design of the real thing. The style of roof, the chimney stacks and so on help to make the whole scene in miniature most attractive.

Meccano—and Me (*Cont. from page 128*)

which is now out of production.

As soon as the war was over and magazines found their way here again I scrutinised the sales column. From an advertiser in the United Kingdom I managed to buy all the numbers I had not been able to secure due to their unavailability.

I was always interested in anything that had wheels going round, but I am sure my early contact with Meccano enhanced my keen engineering sense and helped me a great deal to decide the profession I should follow and to acquire the position I now hold as an Assistant Director of the Public Works Department. I am still as keen as ever, and I have a model ready for the next competition.

"Almost human the way they growl at one another".

Stamp Gossip—(*Continued from page 137*)

this way. Believe me, it is much better to do it that way, as I know from long experience.

TIP OF THE MONTH

I have already referred to the special issues to be released this year by our Post Office. Now our own stamps are growing fast in popularity, so make sure that you get these new stamps while they are current, particularly nicely-cancelled copies. It looks as if they will be well worth having.

Calling All Bus Spotters—

(*Continued from page 139*)

on these three town routes, a Westborough vehicle can expect to cover approximately 50,000 miles each year, while a Dennisville bus clocks up nearly half this amount, and the Northway vehicle manages 40,000 miles per annum.

Stage carriage services are only one side of Safeguard's work; they also have half a dozen modern coaches for express duties, excursions and private hire work. From mid-June until the end of September two express routes to the South Coast are operated on most days. One route is from Guildford through Godalming and Witley to Worthing and Brighton, while the other is to Littlehampton and Bognor Regis.

I was told that 1962 had been a rather poor season for coastal express traffic, but that this had been compensated for by a rise in receipts from private hire orders.

Safeguard coaches are loaned to other Surrey operators from time to time, when these find their commitments more than their own fleet can cope with.

Since the operator reckons to average 16 m.p.g. with diesel-engined vehicles compared with only 9 m.p.g. with petrol-engined vehicles of the same size, Safeguard were on the point, when I visited them, of selling their last petrol-engined coach, Bedford 144 PPH of 1960 vintage with a Plaxton C41F body.

People may sometimes get the impression that the small "independent" is struggling with a handful of decrepit third-hand stock, but with Safeguard this is certainly not the case. Indeed, they possess a modern fleet which is one of which to be proud. In a future issue I hope to look at a modern country operator with a similar-sized fleet. In the meantime, I shall be pleased to hear of any modern small fleets in your particular area, so start making your survey and fleet list.

* * * *

I concluded my article in the *Meccano Magazine* of January last, with a review of the **Crosville Handbook for 1962** and gave the price correctly as 3/–. I should have mentioned, however, that if ordered by post 6d. must be added to this price to cover postage.

Fireside Fun

Teacher: Where is the Dead Sea?

Jimmy: Gosh, I didn't know any of them were sick.

* * * *

"Lend me five pounds old man, and I'll be everlastingly indebted to you."

"Yes, that's what I am afraid of."

"What did the Editor think of your railway story, Harry?"

A sergeant in charge of the new recruits ordered, "Men, when I blow the whistle, I want you to shoot at will."

At that moment one very frightened young man ran across the grounds out of sight.

"Who was that? Where's he going?" bellowed the sergeant.

"That was Will," replied one of the recruits.

* * * *

"I want," said the house-hunter, "a house completely isolated and about half a mile from any other house."

"I see," said the estate agent. "You want to live a simple and quiet life."

"No," answered the house-hunter, "I want to practise the bugle."

* * * *

A haughty lady had just purchased some postage stamps for a parcel.

"Must I put them on myself?" she asked the official.

"No," replied the official. "You must put them on the parcel."

"Not to worry, madam. One of the waiters looks after the engine whilst the driver and his mate have their dinner!"

The woman lion tamer had her beasts under perfect control. At her summons the fiercest lion came meekly to her and took a piece of sugar out of her mouth. The circus crowd marvelled—all except one man.

"Anybody could do that," he yelled from the audience.

"Would you dare to do it?" the ringmaster retorted scornfully.

"Certainly," replied the man in the audience. "I can do it just as well as the lion can."

* * * *

"What is the secret of success?" asked the Sphinx.

"Push," said the button.

"Take pains," said the window.

"Always keep cool," said the ice.

"Do a driving business," said the hammer.

"Aspire to greater things," said the nutmeg.

"Stick to a good thing," said the glue.

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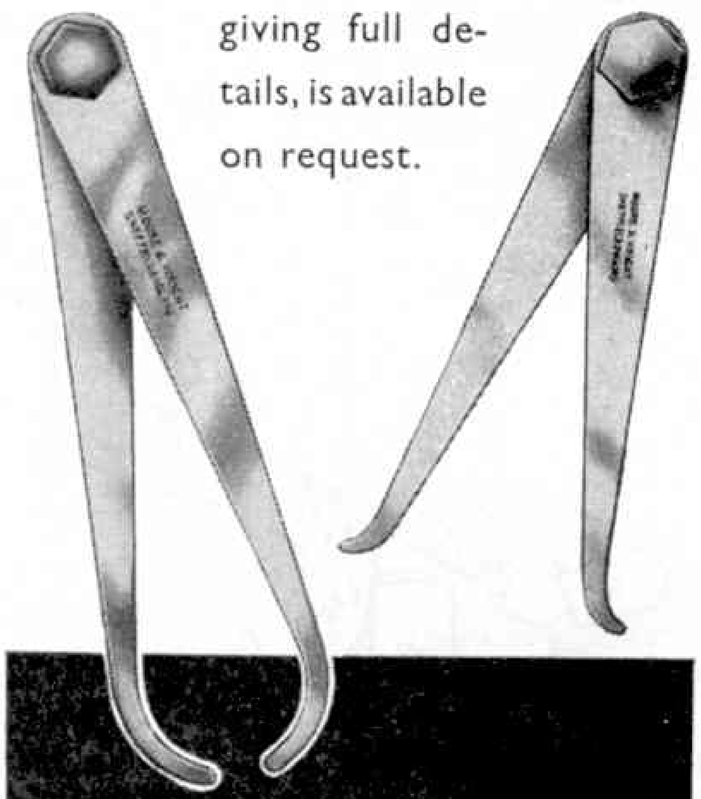

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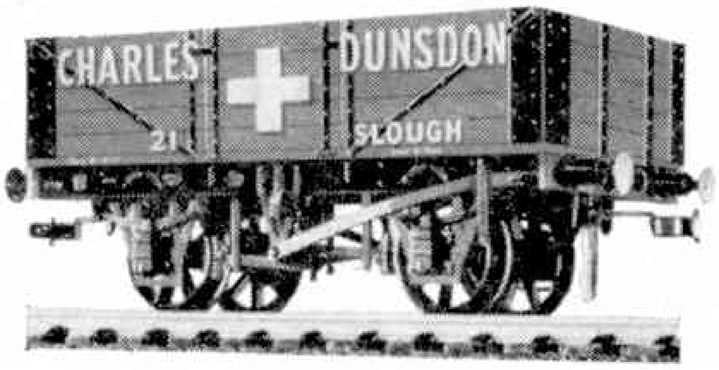

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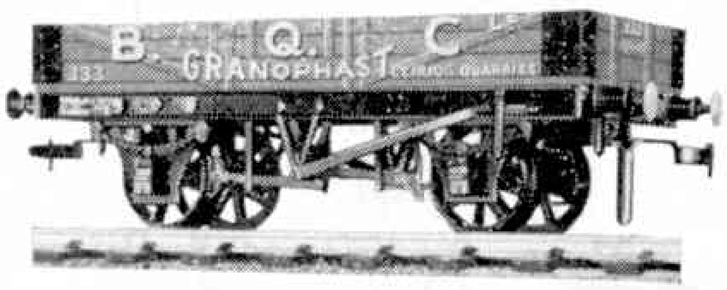

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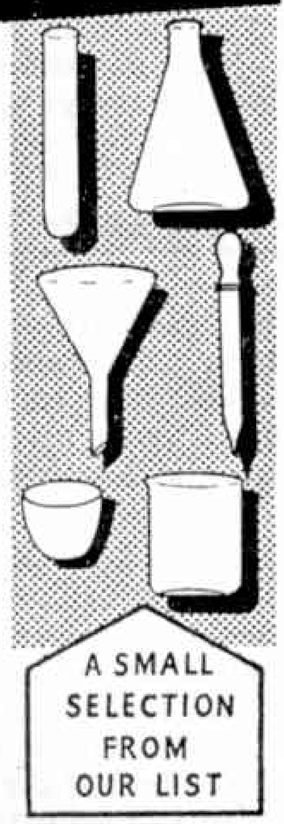

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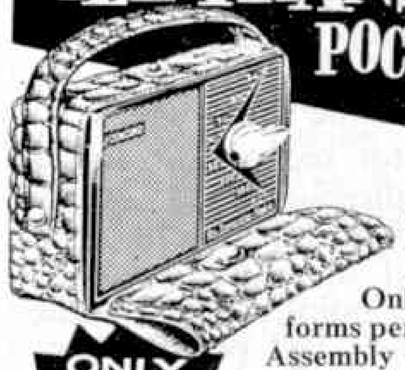

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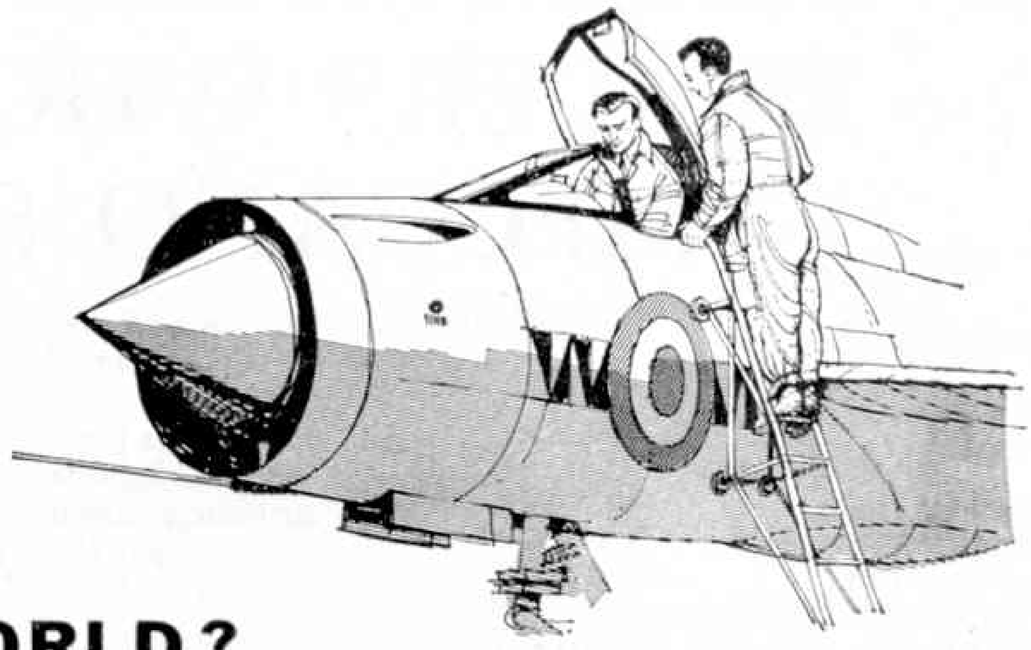

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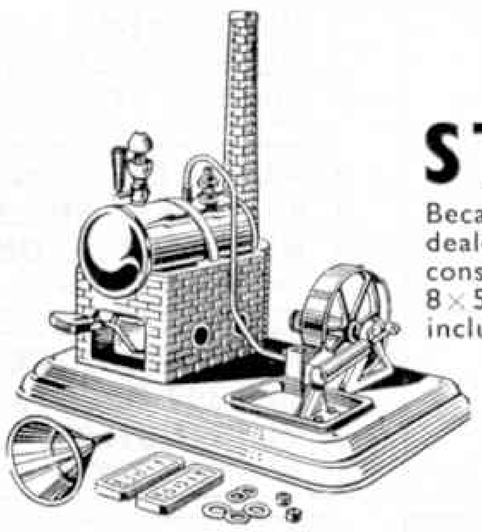

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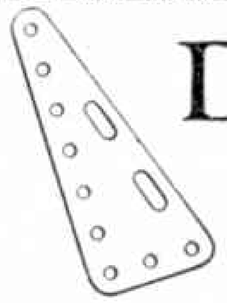

DEALERS WHO SPECIALISE IN MECCANO SPARE PARTS

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can of course order Meccano spare parts for their customers, but those listed below are among our spare part specialists.

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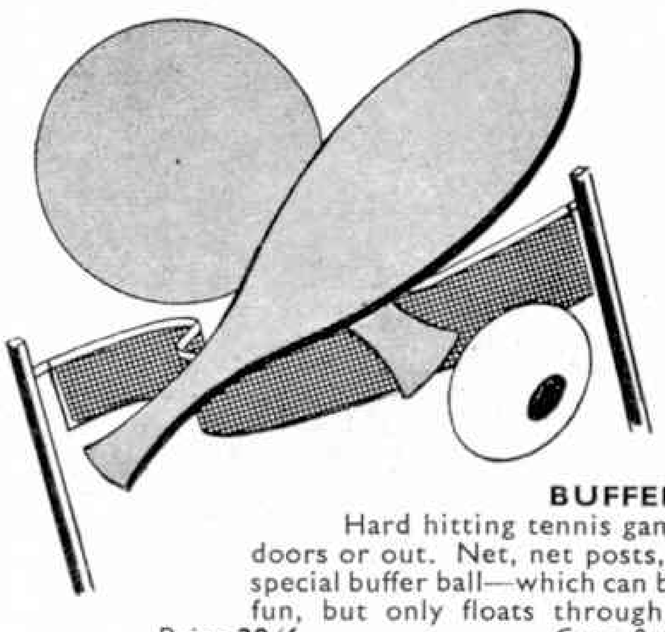

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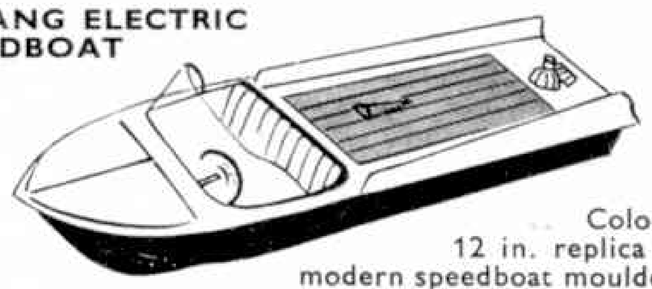

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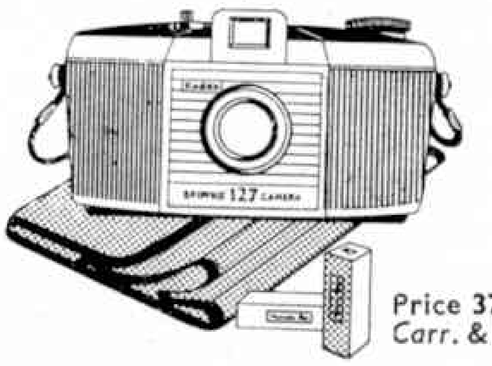

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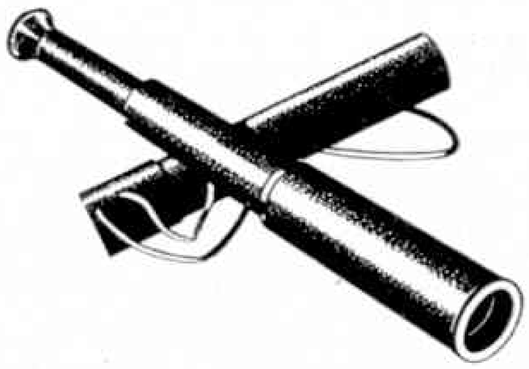

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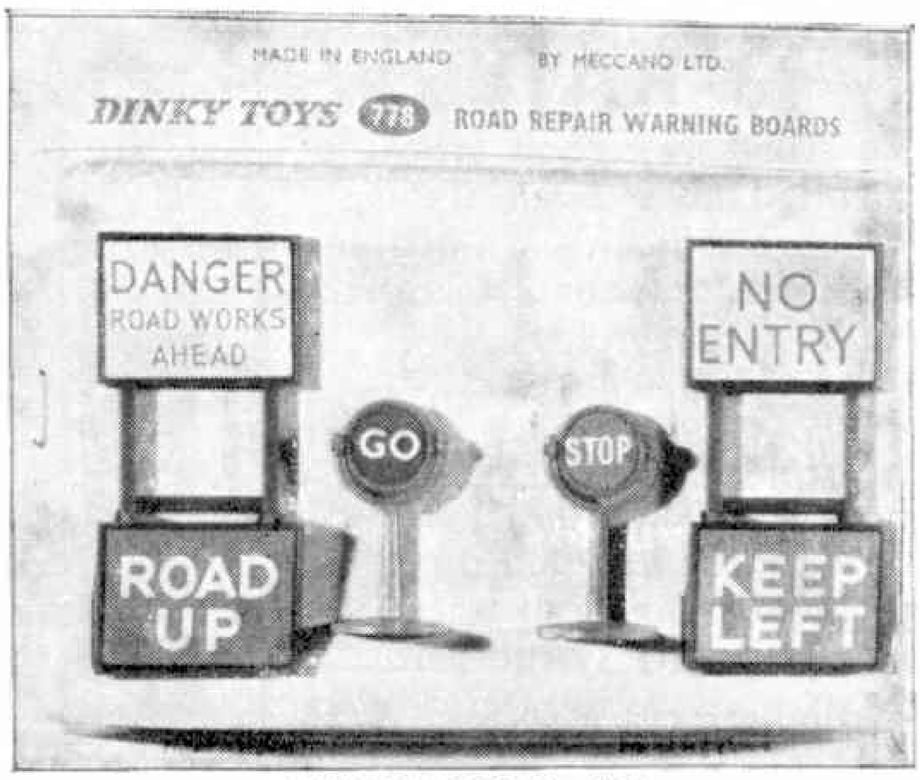

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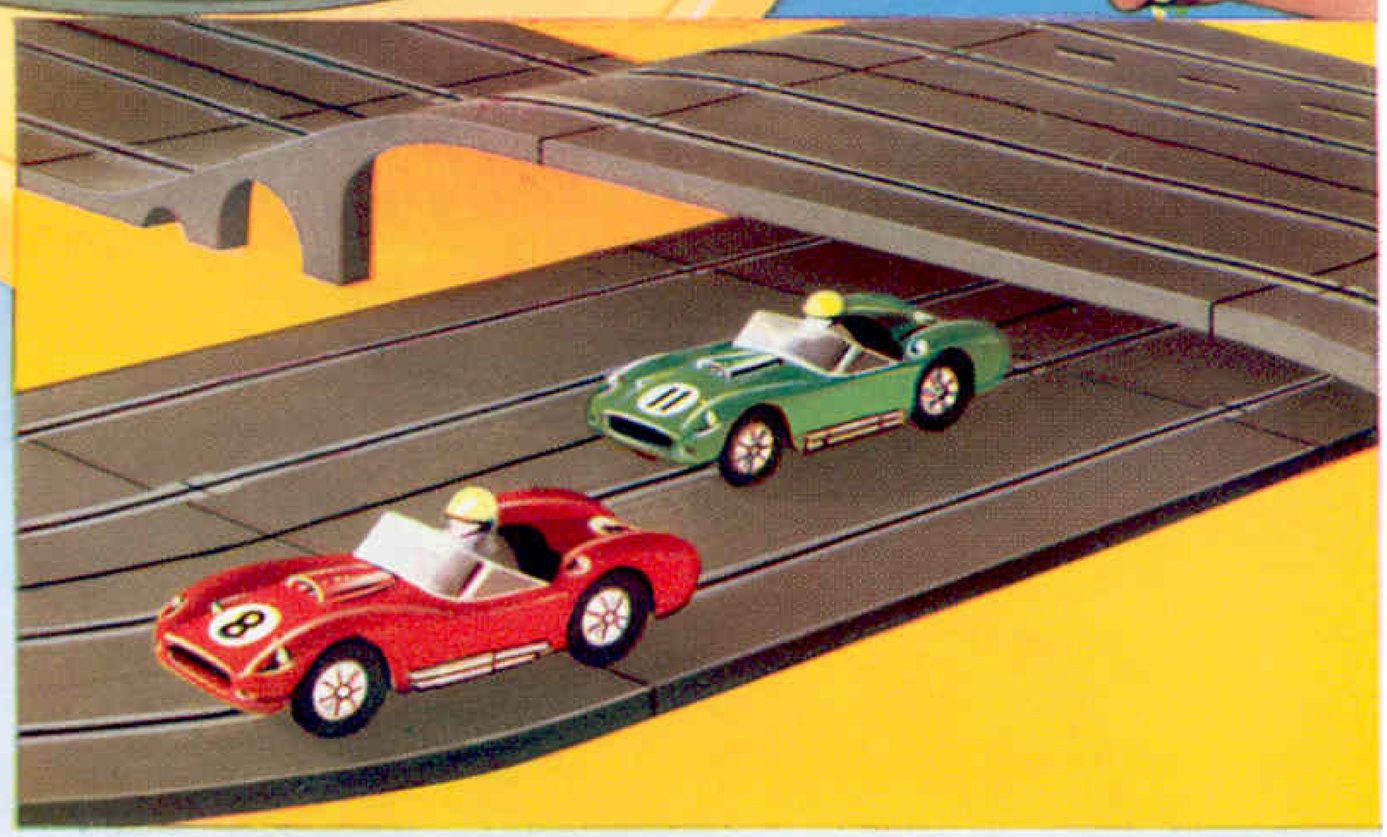

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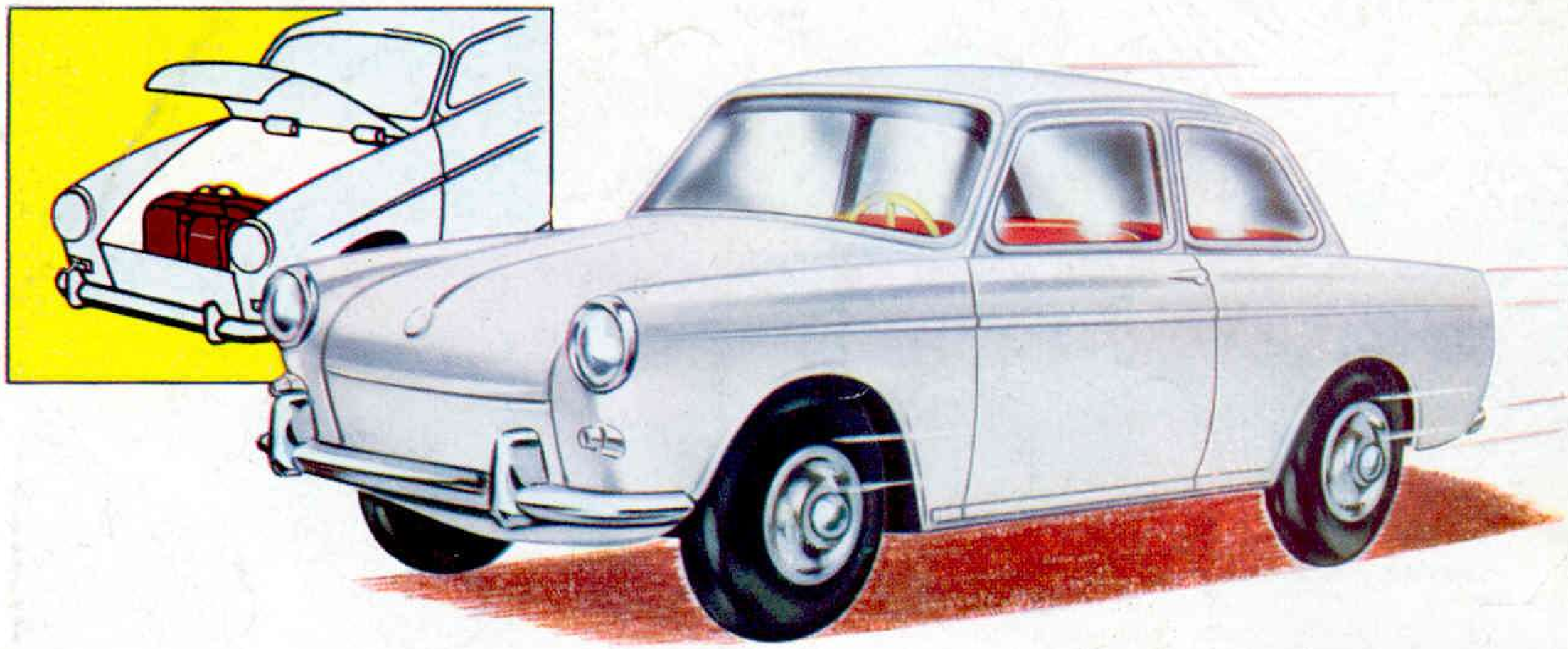

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