VOL. XLI. No. 12 DECEMBER 1956

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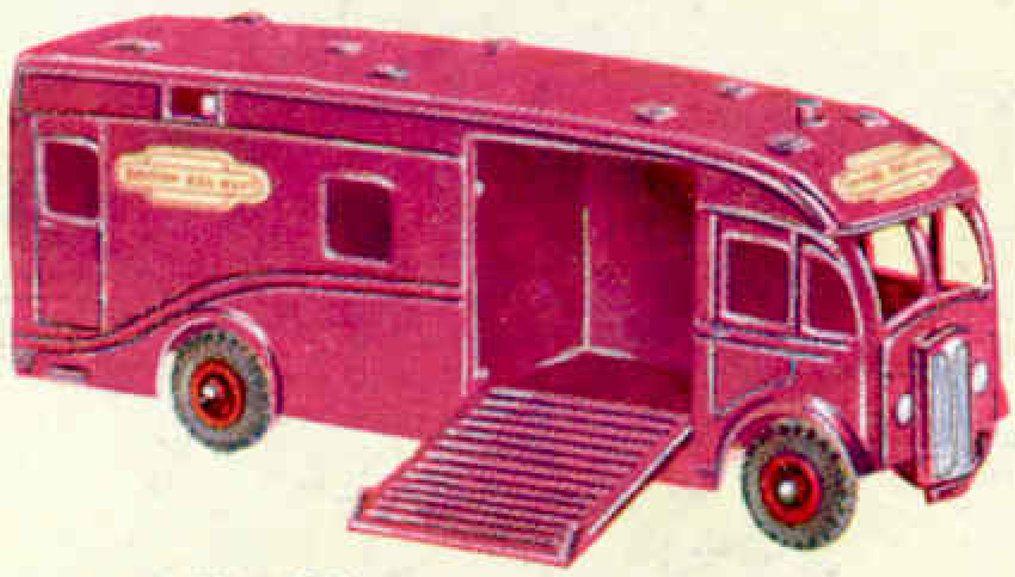

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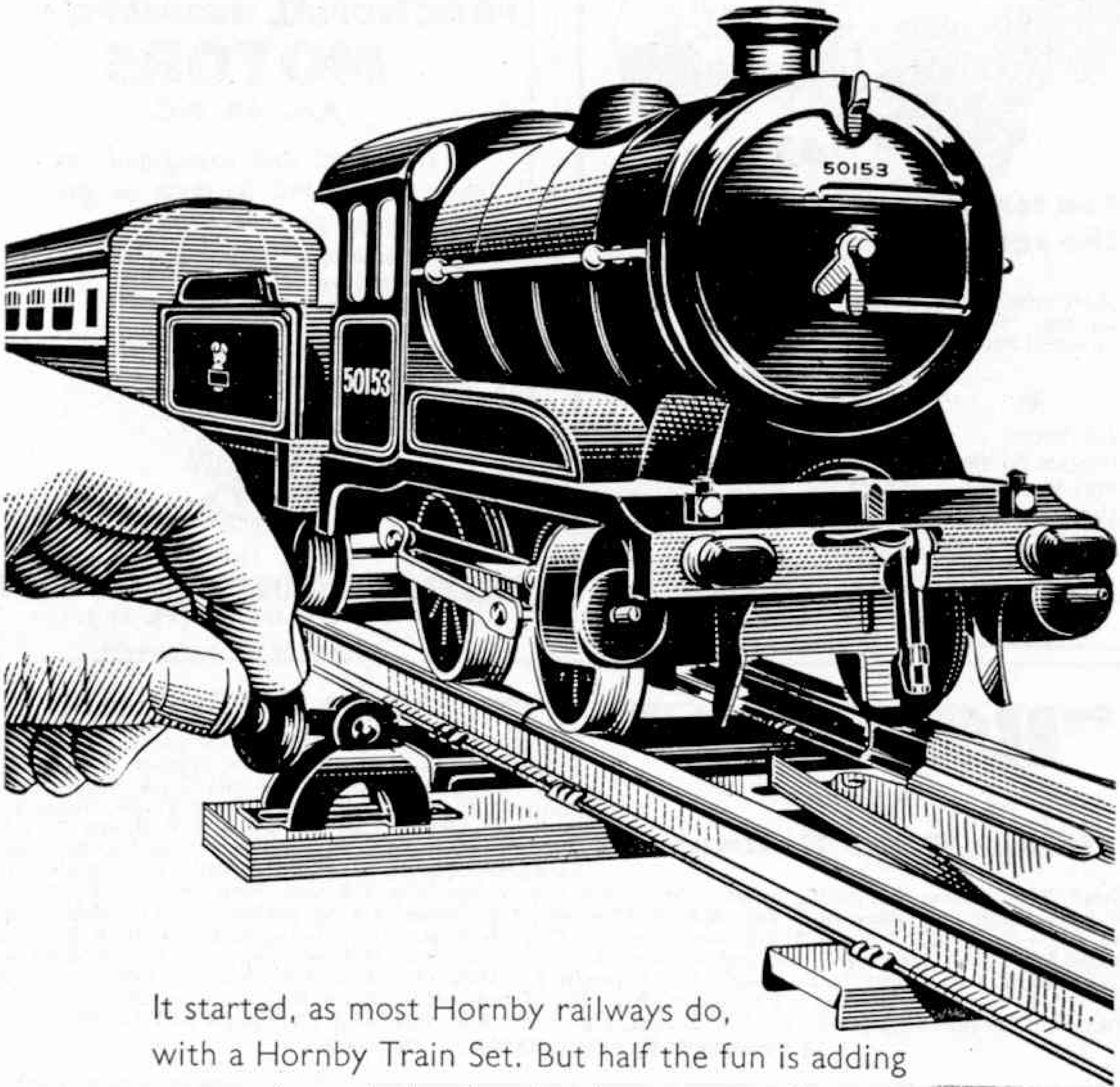

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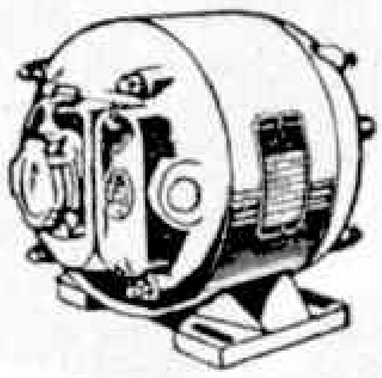

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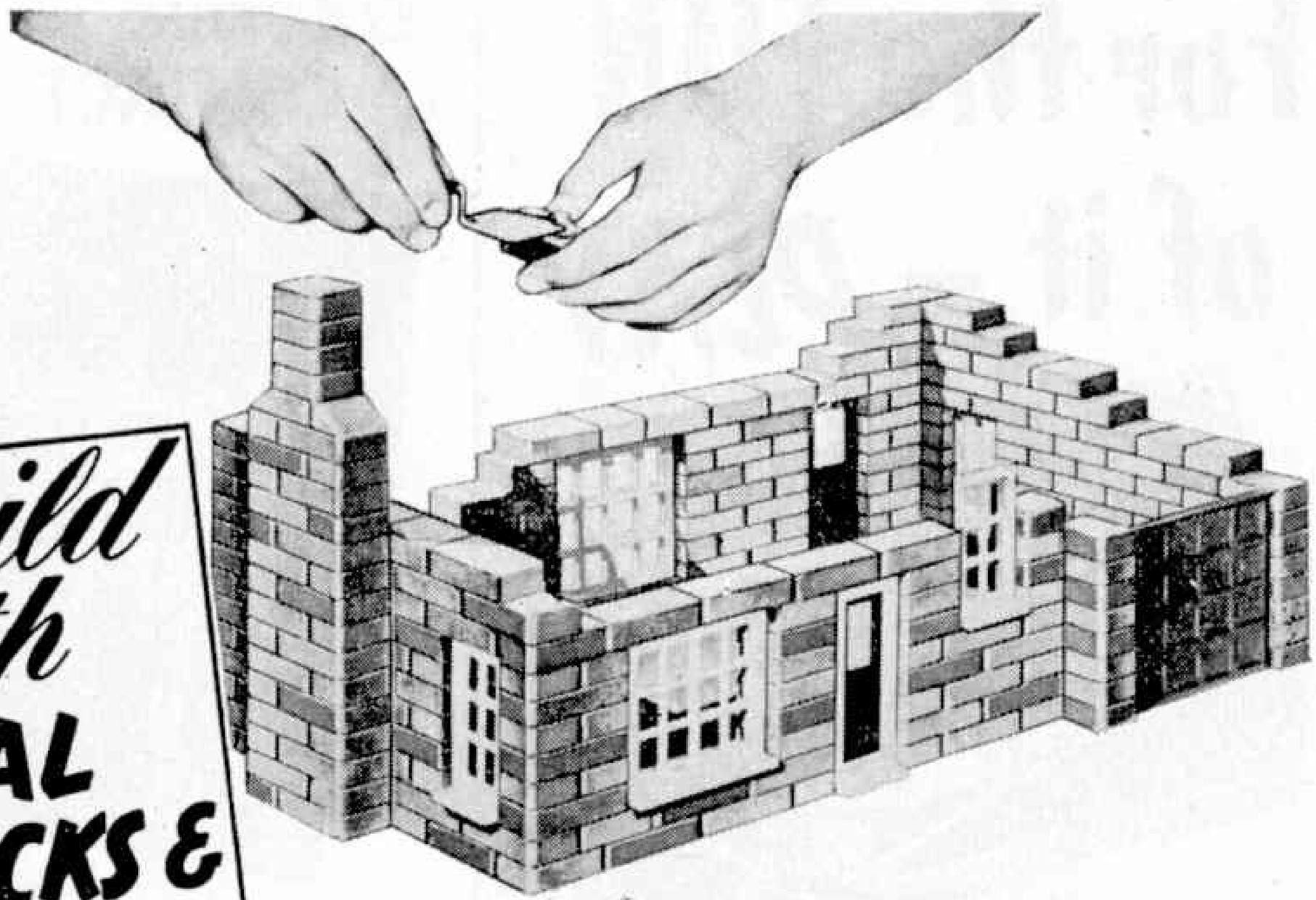

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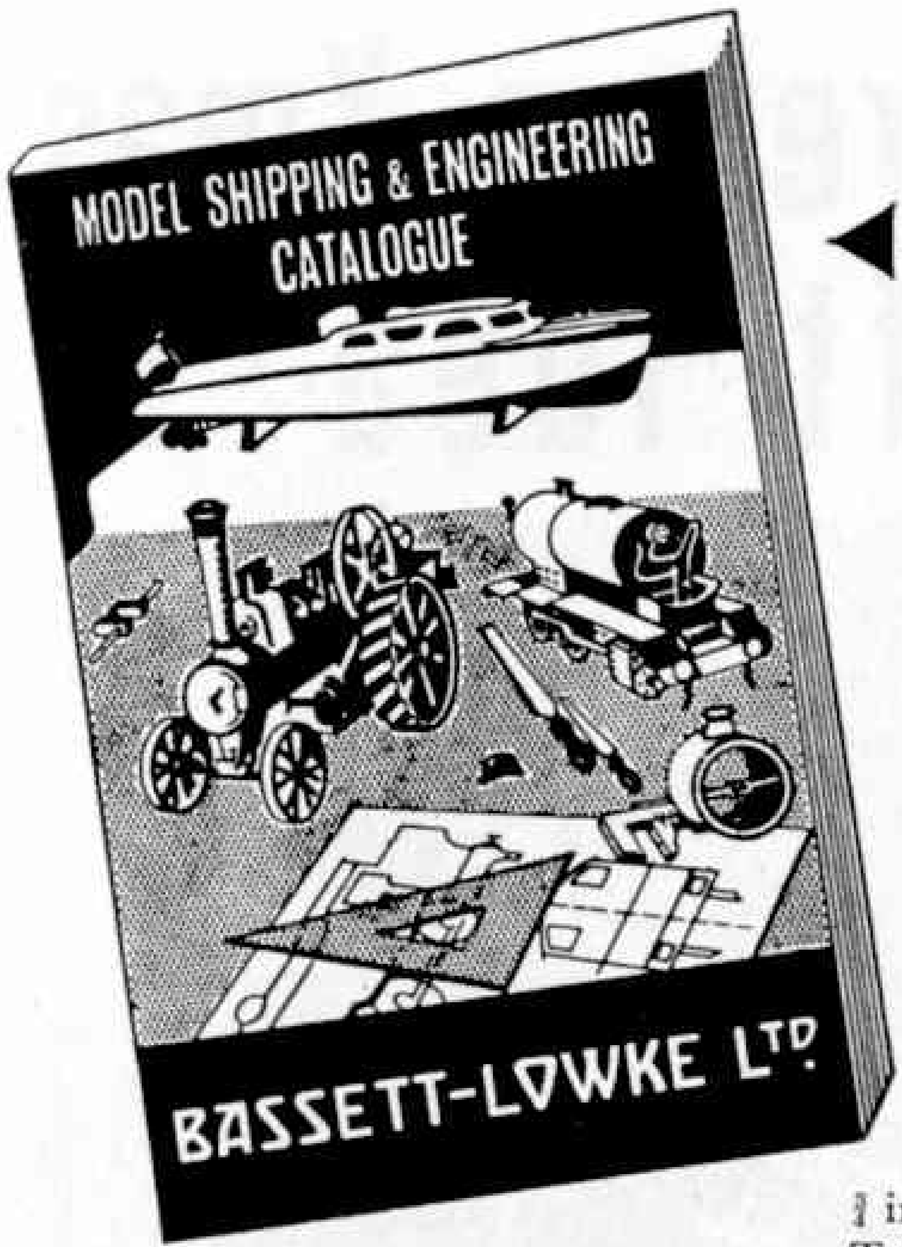

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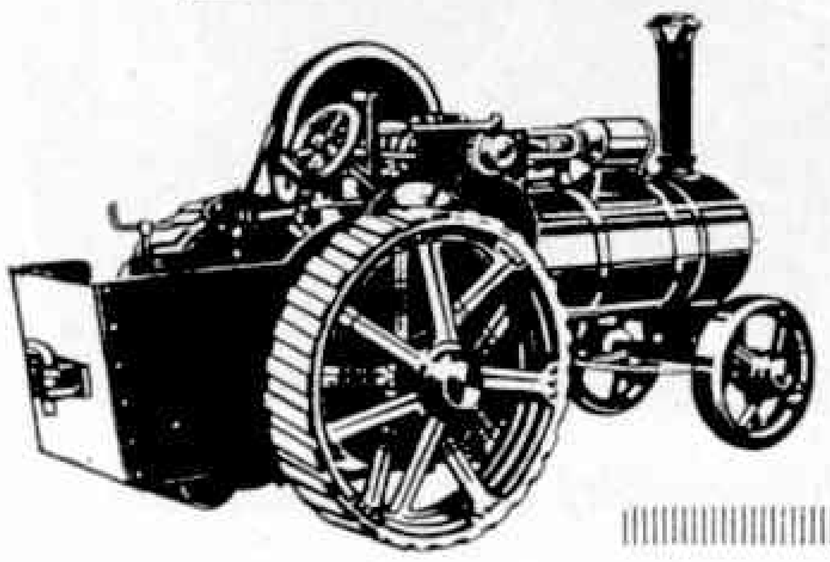

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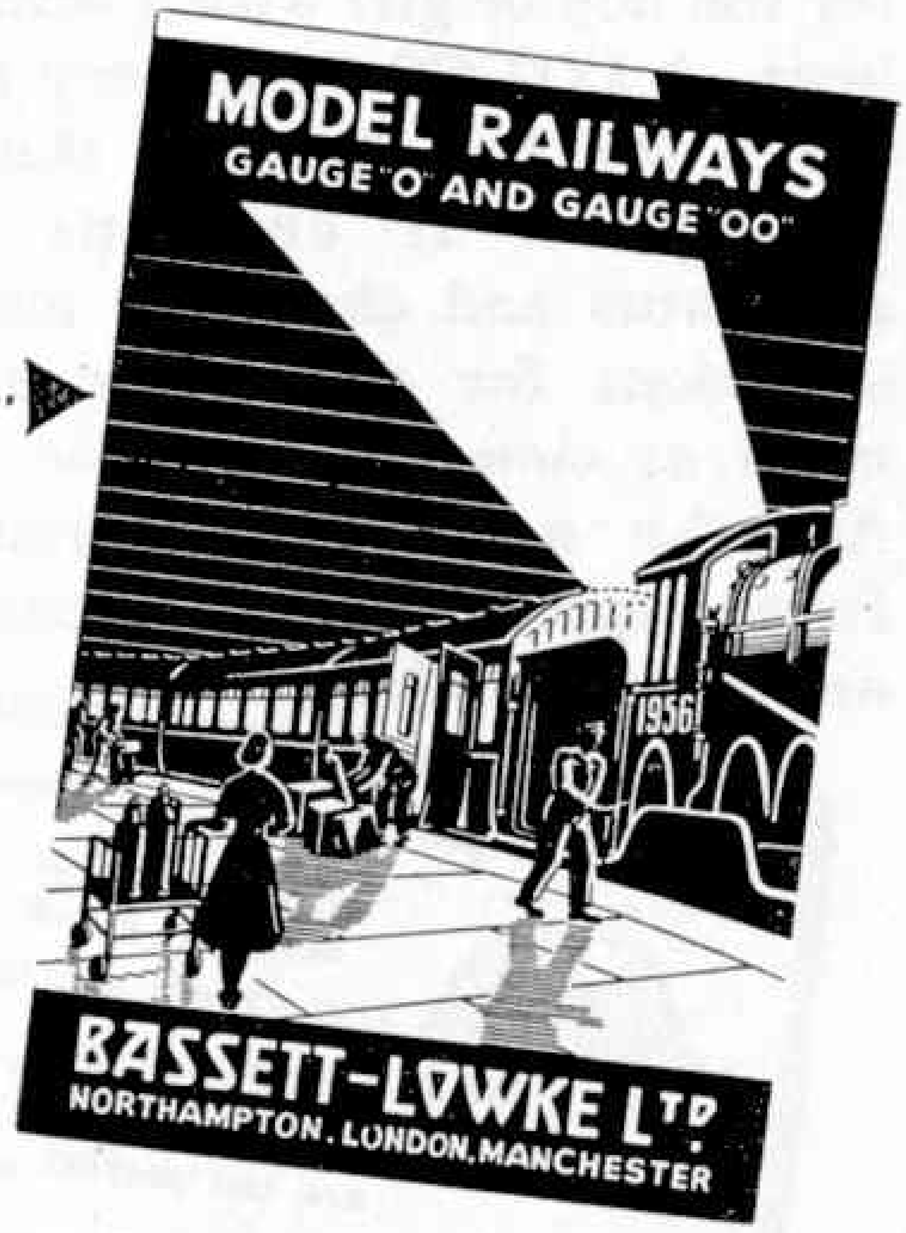

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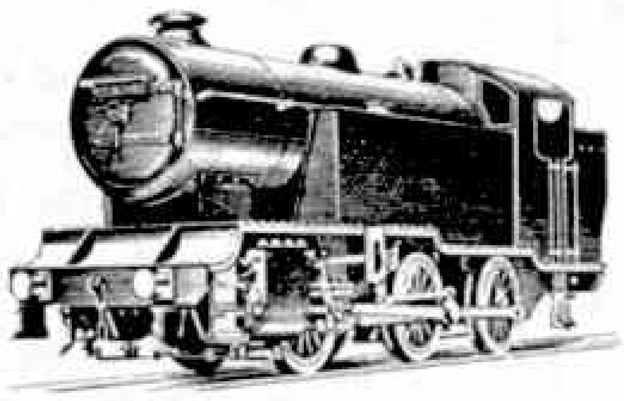

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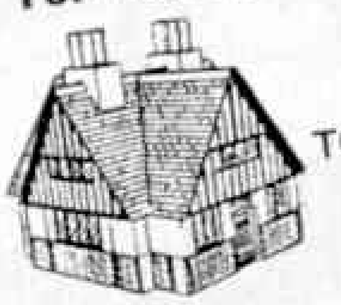

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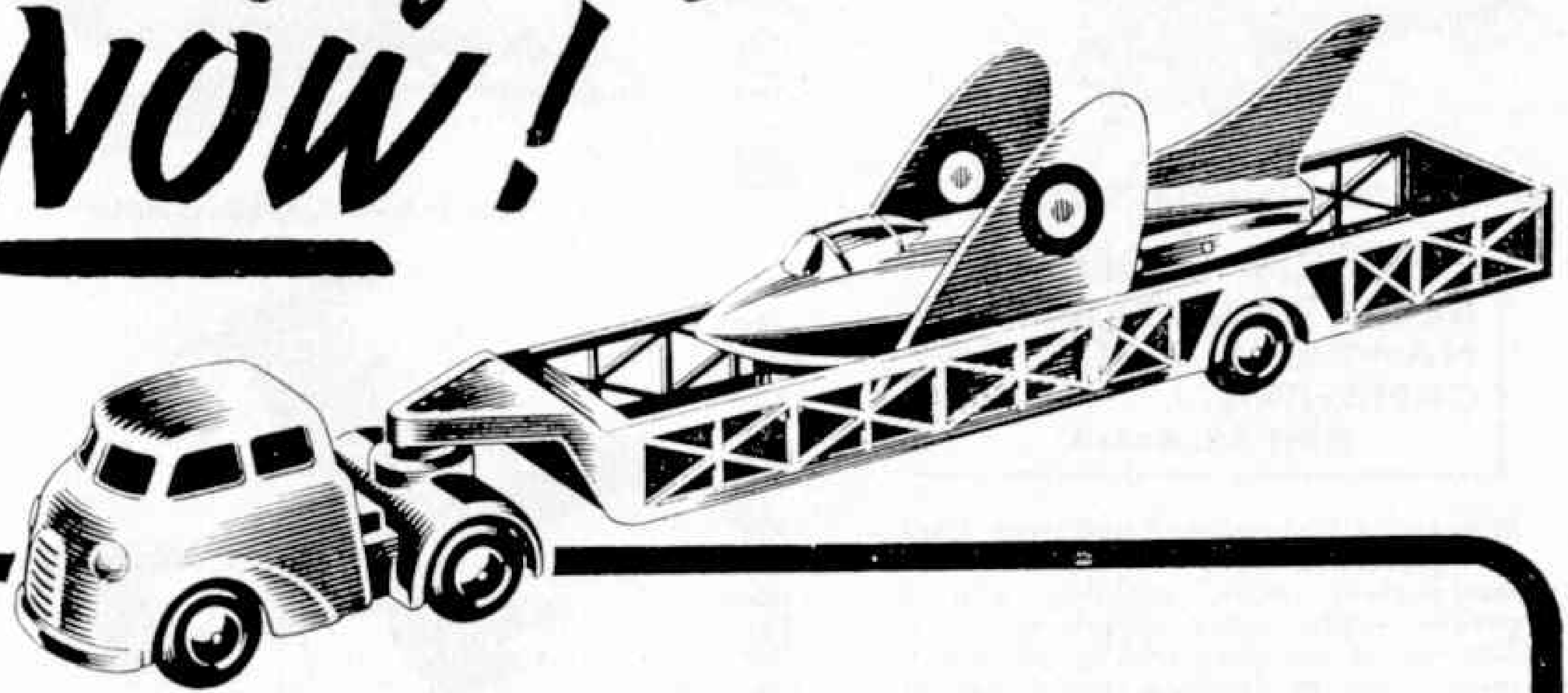

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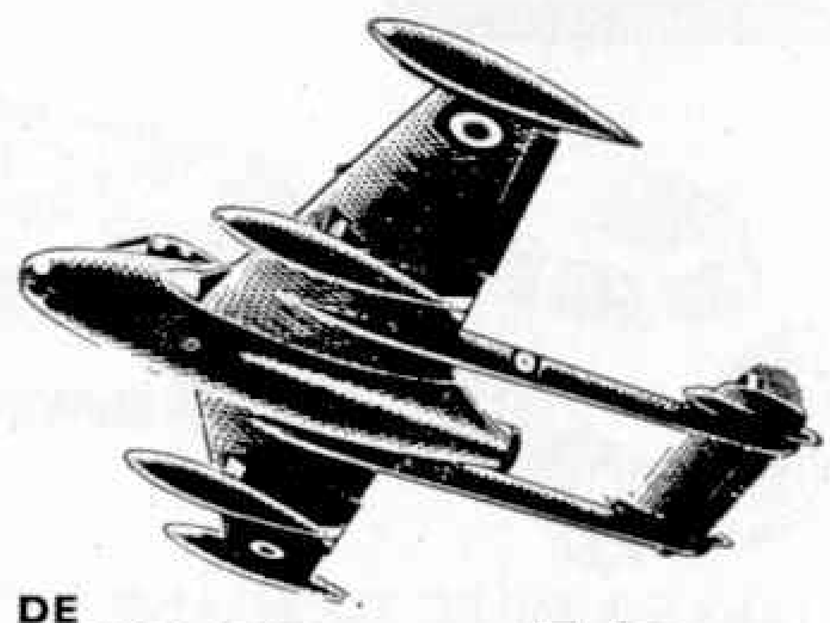

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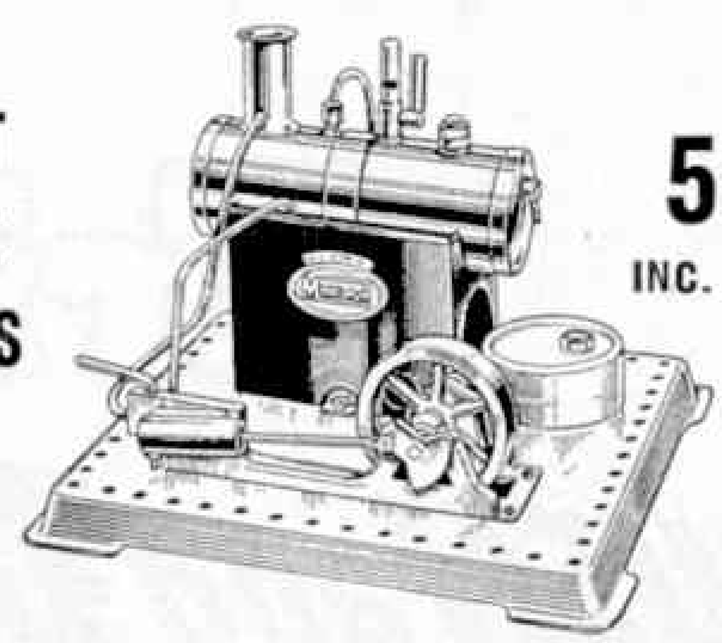

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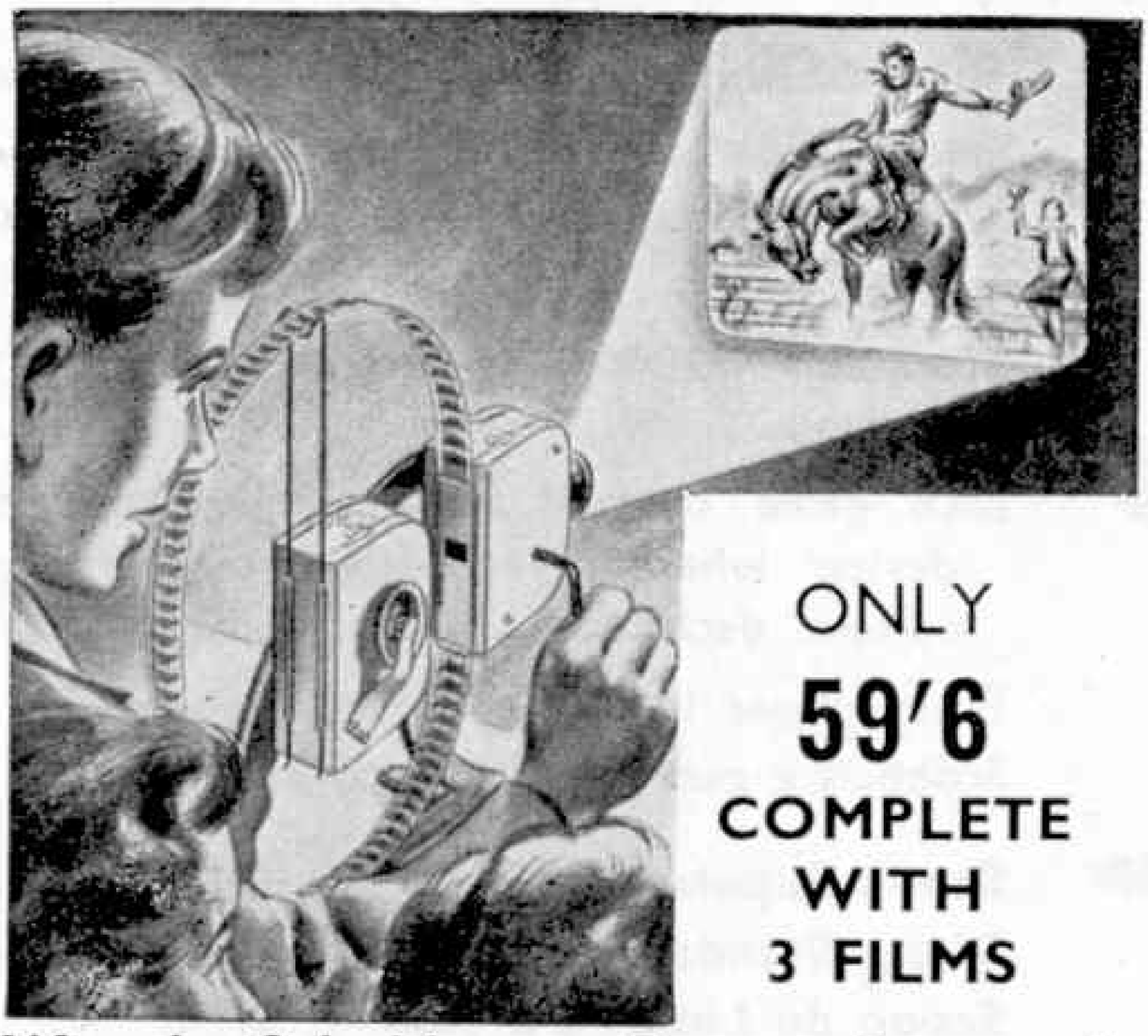

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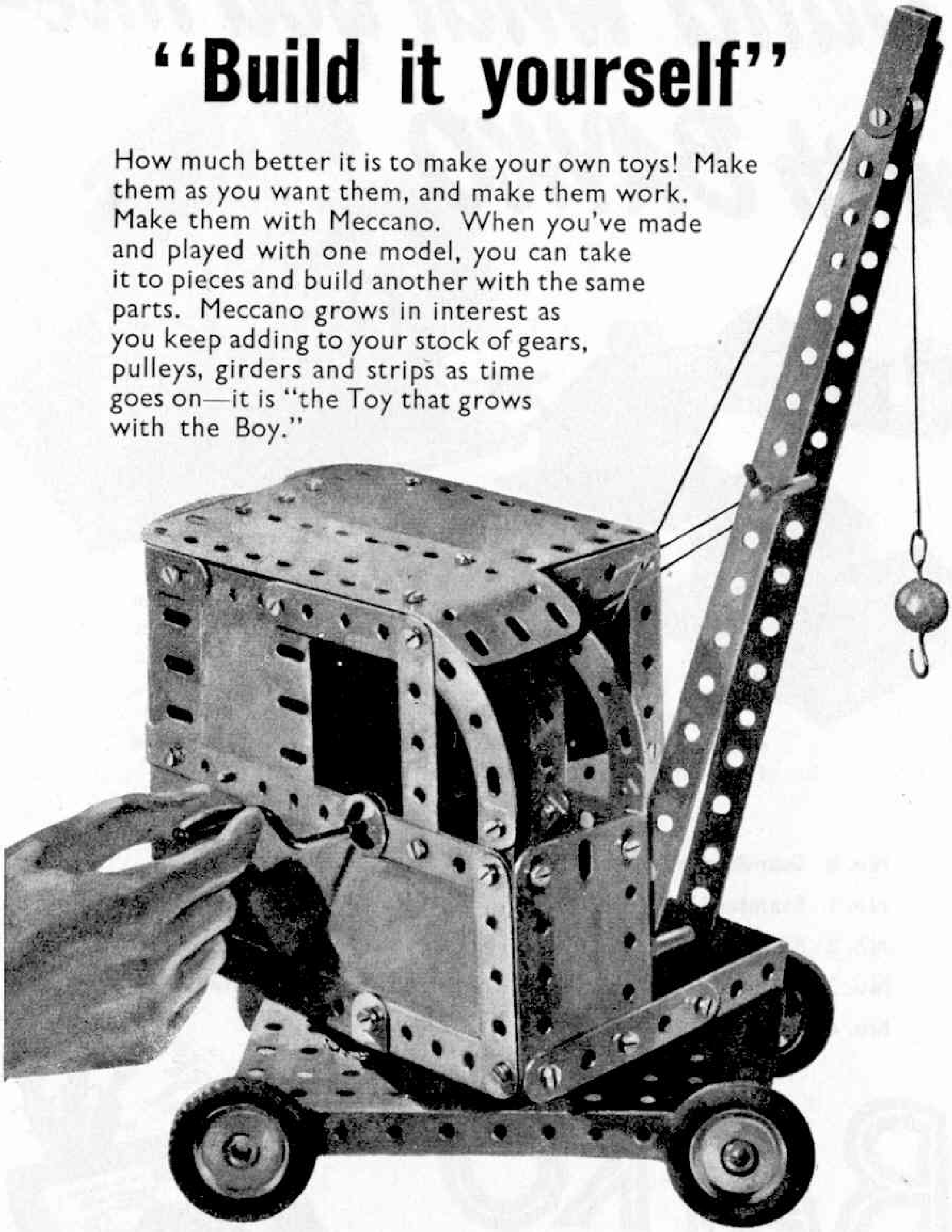

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Next Month: "CAPE TOWN AND TABLE MOUNTAIN"

MECCANO MAGAZINE

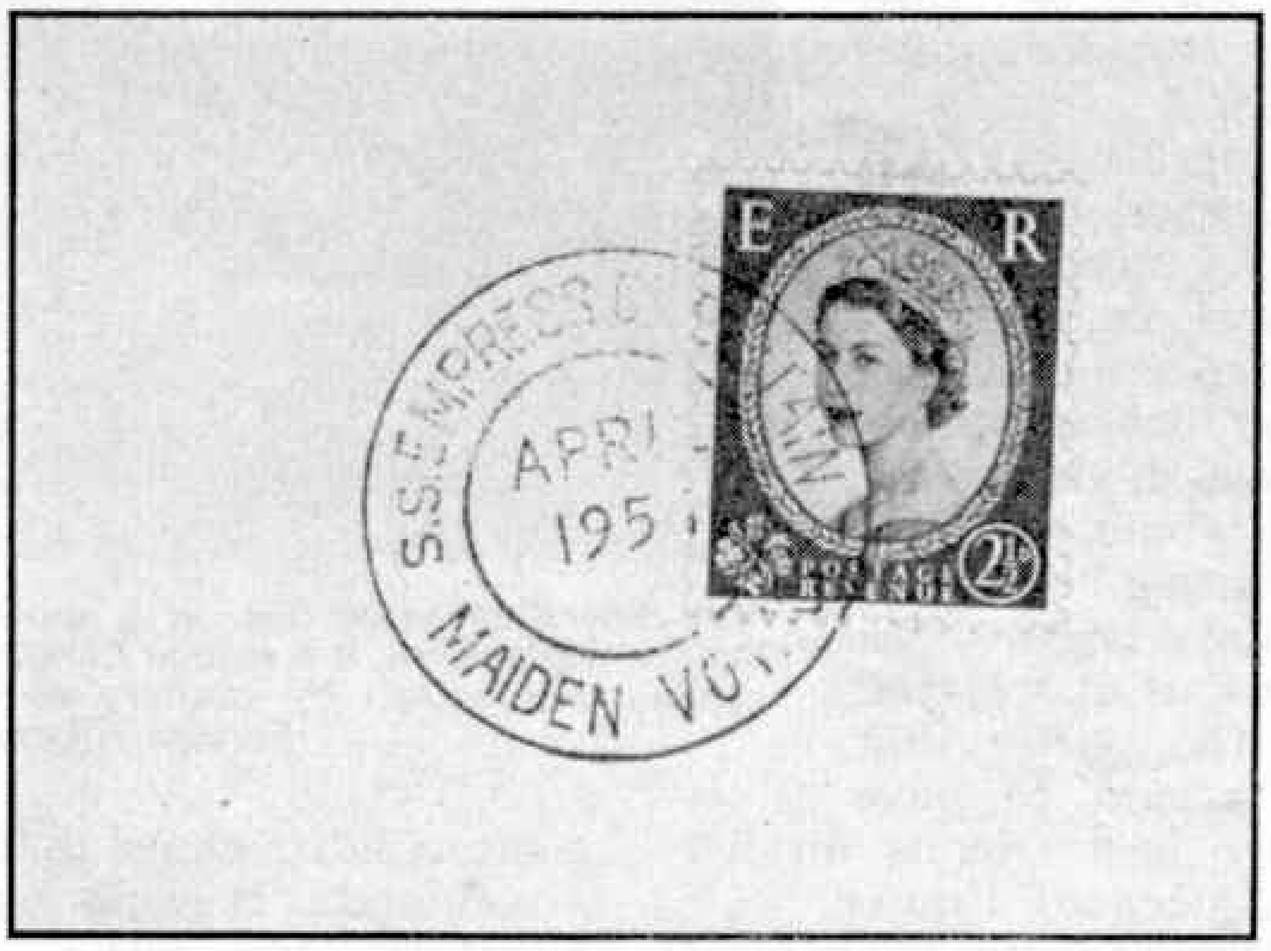
Editorial Office:
Binns Road
Liverpool 13
England

EDITOR : FRANK RILEY, B.Sc.

Vol. XLI
No. 12
December 1956

A Merry Christmas

Every time we reach December I am surprised by the speed with which the year has passed. Time does not hang heavily on the hands of any Meccano or Hornby Train enthusiast, and you and I, with the *M.M.* as our meeting place, lead busy lives. That does us no harm. It certainly does not worry me, and in fact each year it helps to bring more speedily the time when I can again have the pleasure of sending to all of you my very sincere Christmas wishes.



The special postmark for letters posted in the C.P.R. liner "Empress of Britain" on her maiden voyage, reproduced from an envelope sent in by J. Brennan, Liverpool.

In spite of their repetition, these wishes somehow always seem fresh and joyous, whether they come to us on cards or from friends greeting us with the time-honoured *A Merry Christmas*. It never seems to me that these words really measure up to the standard of our thoughts. One can be merry at a circus, but our Christmas merriment is rejoicing with goodwill, and is unique. It would take many phrases or sentences to express fully what is meant by the traditional greeting, so we accept the fact that the words *A Merry Christmas* are meant to cover all our seasonal thoughts.

It is not a very long time since Christmas exchanges were comparatively local, because of lack of the speedy transport that we enjoy today. Less than two hundred years ago, with no cables or radio, and with far fewer and slower ships than now, the postal authorities of the time would have had no small difficulty in fixing "last days for posting Christmas letters" across the Atlantic. Nowadays immense liners cross the oceans to timetable.

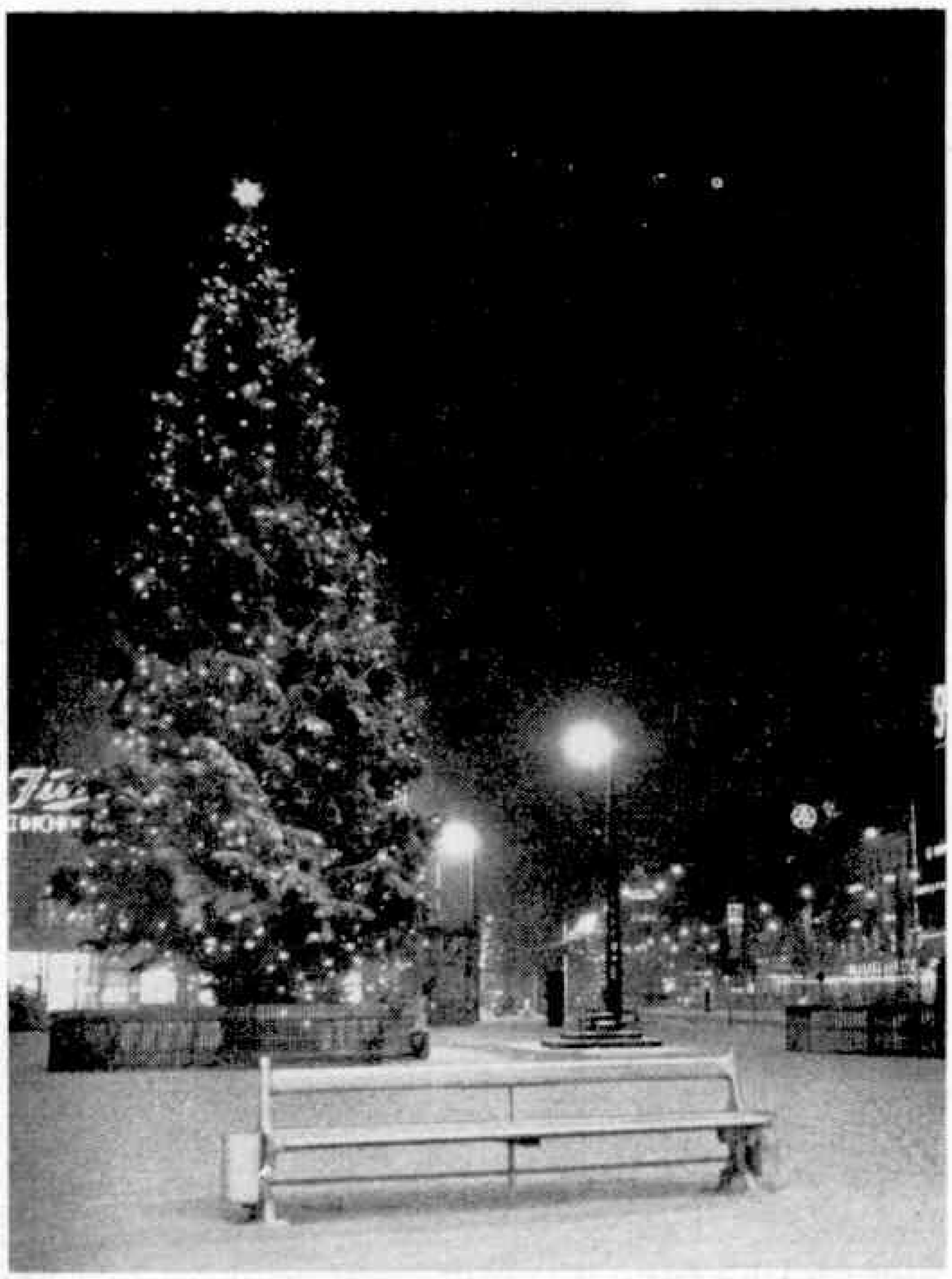
This brings me to my picture this month, one that has no connection with Christmas, but does help to illustrate the point about the ease with which we can exchange Christmas greetings across the sea. It shows a very interesting postmark used in the fine Atlantic liner, the C.P.R. *Empress of Britain*, on her maiden voyage in April last. The British Post Office sanctioned this distinctive cancellation for mail posted during her westward run. It is thought that this was the first of its kind issued since 1905, when the Post Office granted similar privileges to White Star liners of the day. A special cancellation also was allowed by the Canadian Post Office, for letters posted on the liner's first eastward voyage.

The Editor

Not to be Opened Till Christmas!

by

L. Bruce Mayne



This fine illuminated tree, in a snowy setting in Town Hall Square, Copenhagen, is a regular Christmas feature of the Danish capital. Photograph by courtesy of the Danish Ministry of Foreign Affairs.

ALMOST everyone knows well in advance what Christmas presents he would like to receive. Some of the more enterprising boys and girls even send letters to Santa Claus gently reminding him what he should leave in their stockings, on their beds or under their Christmas trees.

Dolls and their accessories—perambulators, houses, clothes, etc.—are undoubtedly most popular with girls, but boys may choose from a far wider range of mechanical toys, model cars, constructional outfits and, of course, model trains. But how surprised would any boy or girl be to find awaiting him or her on Christmas morning a negro slave, a monkey and a box of chocolates! Yet these were the gifts that Marie Antoinette is said to have sent to each of her best friends on her first Christmas as Queen of France.

The Romans in ancient times exchanged gifts at the feast of Saturn, which was held in December. But the practice of giving Christmas presents originated with the offerings the Three Wise Men brought to the baby Jesus in the lowly stable at Bethlehem on the first Christmas.

Saint Nicholas, better known perhaps as Santa Claus, bishop of Asia Minor who died in A.D. 342, enters the Christmas story by his generous acts. One version of Santa's story is that there were three sisters living in great poverty whom he decided to help. Wishing to remain anonymous, he threw his gift, a handful of coins, through a hole in the wall of their home that served as a chimney. But instead of falling on the hearth, as the saintly bishop had intended, the coins fell into the girls' stockings, which were hanging up to dry in front of the fire. The custom of hanging up stockings at Christmas dates from this time.

In 1947 a few children sent letters to Santa Claus, whom they believed to live in Greenland. Because Greenland is Danish territory, the letters, simply addressed "Santa Claus, Greenland," were delivered to Miss Gerda Stauning, a secretary in the Greenland Administration in Copenhagen. Miss Stauning thus became the self-appointed secretary to Father Christmas.

The following year 50 letters were delivered and Miss Stauning again replied to them. But in 1949 between 7,000 and 8,000 letters were received, and Santa's secretary was swamped. The National Travel Association of Denmark helped out and every child who had written received a Hans Anderson fairy story, a picture of Greenland and a letter from Santa.

In 1950, from the end of November letters to Father Christmas began to roll in from all over the world and continued to do so until the total reached 150,000. Voluntary helpers cleared the mail and everyone who had written, including a little girl who had stuck a stamp from a toy post office on her letter, received a reply

and a copy of Hans Anderson's *The Emperor's New Clothes.*

Besides reassuring thousands of children that Santa Claus really does exist, the voluntary workers in his Copenhagen office are helping tubercular children. Each letter addressed to Santa should bear a Christmas seal issued by the Anglo-Danish Fund and the National Association for the Prevention of Tuberculosis, which costs 3d. In this way funds are raised to help children to receive free treatment at Vordingborg hospital in South Zealand. Children are helping others less fortunate than themselves.

St. Nicholas, better known among children as Santa Claus, used to give presents to poor children on Christmas Eve, as shown in this old Dutch print. Picture Post Library.

In Denmark, on Christmas Eve, presents are distributed from the base of the Christmas tree, either by someone dressed up as Santa Claus or by the youngest member of the family present.

Although Christmas trees are now decorated all over the world, it is believed that this custom is of German origin. The first tree is thought to have been set up by Boniface, an English missionary, who decorated a fir tree as a tribute to Christ in answer to the pagan sacrifices to the mistletoe. The first Christmas tree seen in England was the one set up in 1844 by Queen Victoria and Prince Albert for their children, Prince Edward, later Edward VII, and Princess Royal, at Windsor Castle.

A Royal Christmas tree. Picture Post Library.

Giant fir trees are set up in many towns in Britain and the Continent and are symbols of the Christmas spirit. In London's Trafalgar Square a huge fir tree is the annual gift of Norway's capital, Oslo. Each year, too, Copenhagen has its Christmas tree in Town Hall Square, where it makes a splendid picture after a snow fall.

At one time it was the custom to give presents at the New Year, presents which were in many ways little more than bribes. The most usual New Year gift was a pair of gloves, which of course, were far more expensive than they are today.

When pins were invented and brought into common use at the beginning of the 16th century, they made acceptable gifts, particularly for the ladies. Metal pins, as we know

them, were made some time before 1543, when an "act for the true making of pynnes" ruled that the price of them should not exceed 6s. 8d. a thousand. Before this time pins were made of bone and silver, or were merely pieces of wood.

A Victorian scene. Uncle William distributing his Christmas presents. Picture Post Library.

In Elizabeth I's reign the custom of presenting royal gifts at New Year became more and more extravagant. Each year a complete list of the gifts received by the Queen was made, and this included dresses, jewellery and ornaments, all of great value, besides purses filled with gold coins and many smaller gifts. These were given by the officers of state, peers and peeresses, bishops, knights, doctors—and even by the Queen's dustman.

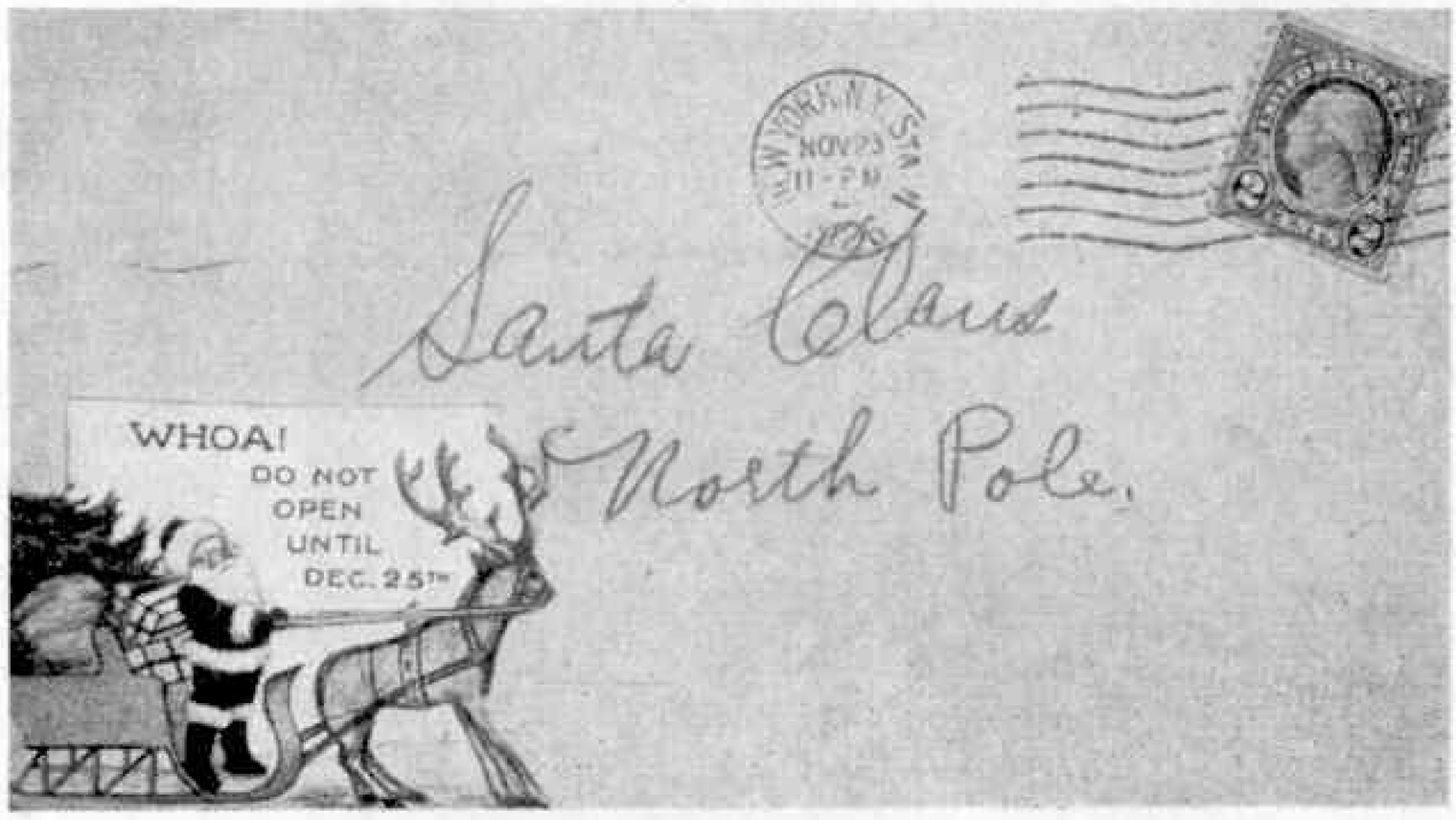
In 1561 a Mrs. Montague presented the Queen with a pair of black silk stockings, after which "she never wore cloth hose any more."

The Earl of Leicester's gift in 1571 was an "armlet of gold, all over fairly garnished with rubies and diamonds, having in the closing thereof a clock and in the fore part of the same a fair lozenge diamond, hanging thereat a round jewel fully garnished with diamonds and a pearl pendant weighing 11 ozs., in a case of purple velvet embroidered with Venice gold."

By these gifts—in one year the Queen received £1,262 11s. 8d. in cash—the royal wardrobe and jewel case were kept full. But in return the Queen had to present a gift, usually gold plate, corresponding in value to the one she had received. In 1579 plate to the value of £500 was distributed.

Unusual gifts Elizabeth received included 36 gold buttons—one broken—presented by Lady Burghley, 18 larks in a cage, which were probably baked in a pie, and "a nightgown of tawny satin" presented by Sir Thomas Walsingham, her Principal Secretary.

For centuries Christmas presents have been part of Christmas festivities. And as long as Santa Claus is remembered, fir trees grow in the forests, and people are young in heart, presents will continue to be given on Christ's birthday. And in centuries to come some of our presents may seem as curious as those of Marie Antoinette or Queen Elizabeth I do to us.



One letter among thousands posted every Christmas in the United States.

Flying in the Land of the Reindeer

By John W. R. Taylor

CARTOONISTS often depict Father Christmas exchanging his sledge for a more up-to-date aeroplane or helicopter to speed him on his tour of the chimney-pots. But, for most of us, this kindly old gentleman, like his less bewhiskered counterpart on the cover of this month's *M.M.*, would not be the same without his reindeer.

One of the Finnair Convair-340 air liners in a typical wintry setting.

The man on the cover is a Lapp from the north of Finland, and for his people the reindeer are not just a means of transport but often their whole livelihood. Apart from dogs, they are the only domestic animals that can survive the extreme cold of the Arctic winter, and have to take the place of the cows, sheep, horses and other animals found on our farms.

Nevertheless, some Lapps—especially the older and less active folk—do occasionally choose the warm comfort of an air liner cabin rather than face a long overland journey on foot or behind a reindeer, and it is by no means unusual to catch a glimpse of their bright red and yellow clothes among the darker suits of fellow-passengers in aircraft of Finnair, the national airline.

Many of you will have seen this company's Convair-liners at London Airport; but you will probably be surprised to learn what a busy airline it is, for at peak periods there is a Finnair 'plane landing or taking off somewhere in Europe every eight minutes of the day and night.

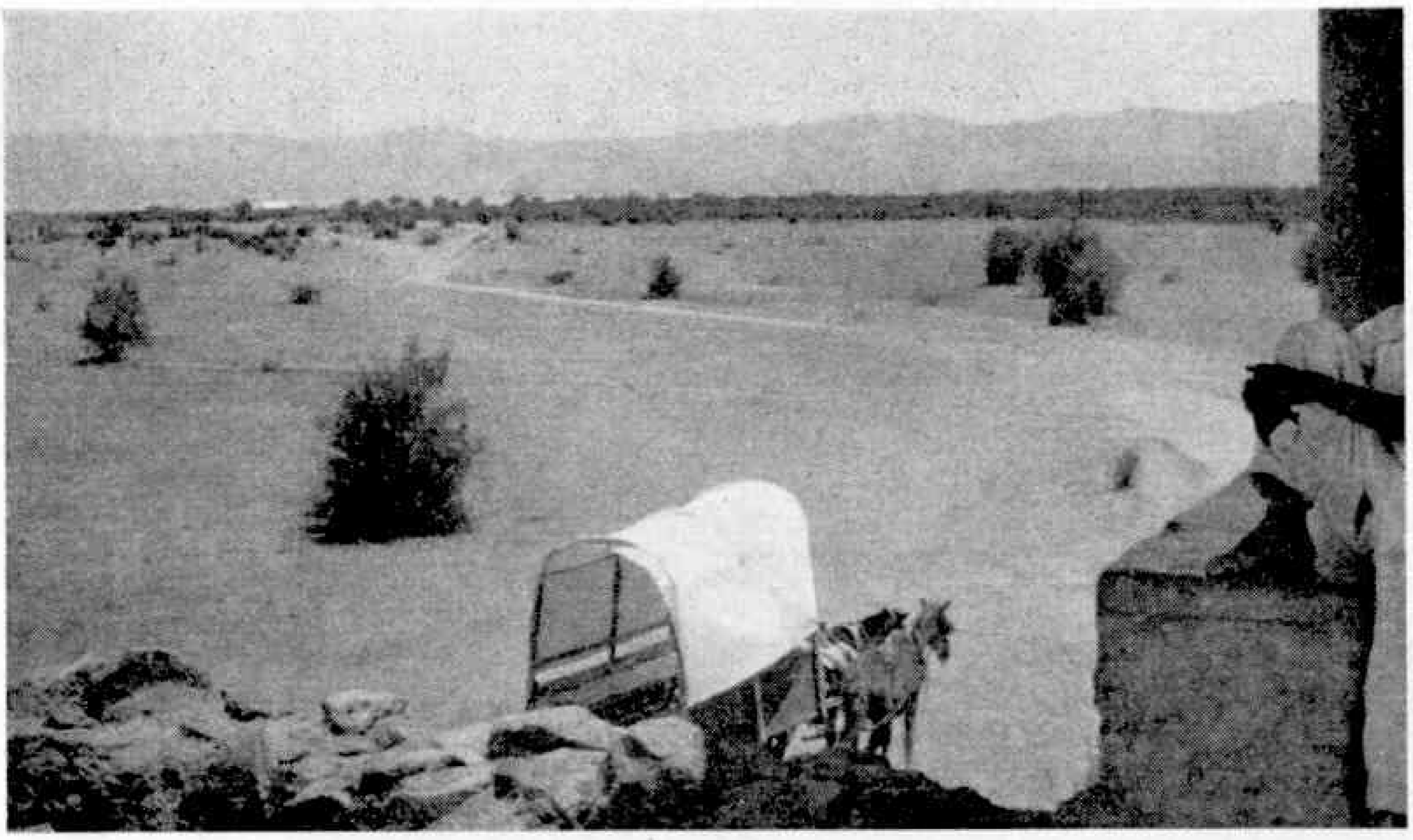
It is 32 years since Finnair, then known as Aero O/Y, began its first service to Tallinn, the capital of Estonia. At that time there was no airport at Helsinki, the chief city of Finland, so its fleet consisted of a Junkers F-13 seaplane, the floats of which were replaced with skis when the lakes and waterways became frozen over in winter.

In 1924 Aero O/Y carried a total of 279 passengers and about three-quarters of a ton of mail. Two years later it got a chance to prove its worth when the weather became so cold that the ship service to Tallinn stopped altogether for nearly six weeks, and it was able to save the situation by making up to 13 flights a day between the two capitals.

Since then the airline has never looked back. Its network of routes inside Finland

(Continued on page 622)

Finnair's latest air liner, the Convair-440 Metropolitan, acquired last March.



A Shrinking Lake

Doom of an Inland Sea in Mexico

By Emil Zubryn

MEXICO'S largest freshwater lake, once over 70 miles long, called "The Sea of Chapala" by the Spanish Conquerors of over 400 years ago, is now drying up at an alarming rate. The inhabitants of Guadalajara, in the state of Jalisco, where the lake is situated, have been urgently pleading with the authorities to do something to arrest the shrinking of this favourite resort of Mexicans and foreigners alike.

The Government has immediately halted all new irrigation projects in the area which, directly or indirectly, may have had something to do with the steady retreat of lake waters from the shore. But the major reasons for the drying up of Lake Chapala, and for constant erosion of Mexican soil, are grave errors in past decades.

In most of the other central and northern positions of the republic of Mexico, rich forest lands once formed a barrier against the weather and assured a plentiful supply of rich, agricultural soil. Today many towns and rural areas in these regions are being abandoned because an arid, parched desert encircles them. The "sins of the fathers" are truly visiting the sons of Mexico as erosion gains momentum, despite herculean labours by the current administration to bring irrigation waters to exhausted lands, and to educate farmers in the modern methods of fertilization of the soil and crop rotation.

But forest lands cannot be replaced, and the intense pumping of wells is reducing the levels of subterranean waters to an alarming degree. And despite campaigns to eradicate the wholesale cutting of standing timber and plantings of new trees, the damage has already been done. Whether it is repairable or not remains to be seen.

The gentle swells of Lake Chapala once reached the wall and rocks seen here. Now only the lake bottom is visible as far as the eye can see, and this is steadily getting drier and dustier.

What is going on now in the Lake Chapala region is typical of many parts of the republic. From time immemorial, Lake Chapala was the largest in Mexico, and was one of the great inland lakes of Latin America. But for eight years now, the lake level has been falling and falling, until now the beaches are two to three miles distant from the old lake shore line.

The lakeside towns of Chapala, Jacotepec, Ajijic—a favourite retreat for artists and writers from the United States—San Pedrito, Ocotlan, Jamay,

San Luis Soyatlan and others, are now far removed from lake waters. The former lake bed now serves for agricultural purposes. But even this land, exposed to the scorching sun, is losing its humidity far too rapidly.

Guadalajara is concerned about the receding lake waters, for with heavy dust clouds instead of cool lake breezes, the area is losing its appeal as a tourist haven.

Formerly the heavy-flowing Lerma River fed the lake so well that excess waters were carried to the sea by the Santiago River. But the Lerma, harnessed for production of electric power, is not as voluminous as it once was, and the Santiago has ceased to exist because there is a lack of water to be carried off seaward. Further, the Lerma River is also portioning out its declining waters in part to feed the water supply system of Mexico City itself, where water shortages are becoming more acute each year. The rest goes into a series of small dams and reservoirs. And until just a few months ago, irrigation pumps were still working in the Lerma-Chapala-Santiago basin, draining off more and more of the precious fluid.

Federal officials, faced with the problem of a disappearing lake, have opened the floodgates of the Maltarana Dam, so that the rain-aided waters of the Lerma and Duera Rivers can flow into Lake Chapala. This, however, is a stop-gap measure and is effective only during the rainy season.

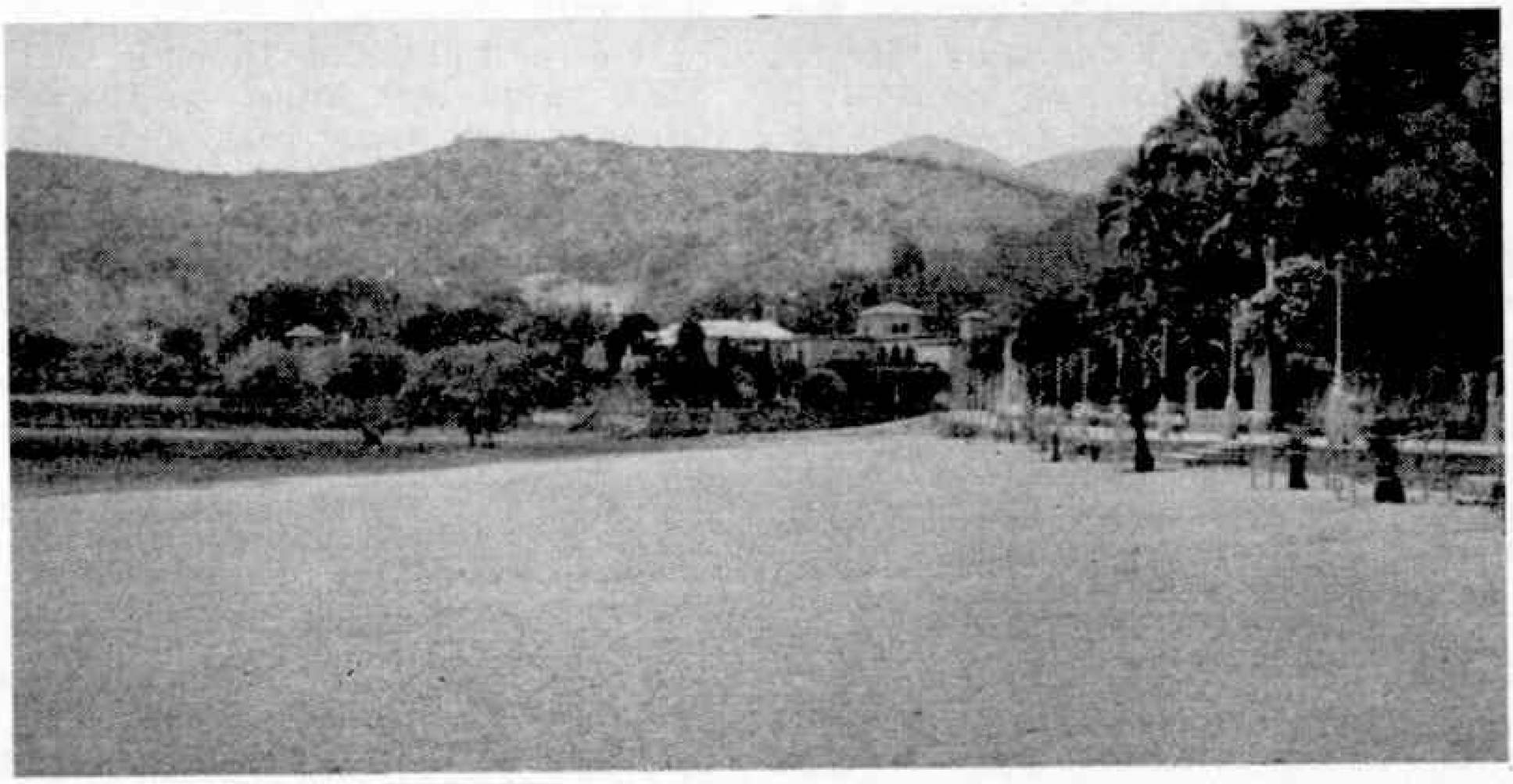
The Department of Hydraulic Resources is engaged in a series of studies intended to arrest the drying out of the lake, if not to restore it to its former grandeur. Irrigation waters from the lake are no longer being drained off, and another hydro-electric plant is now functioning and providing electrical energy for Guadalajara, replacing the Chapala hydro-electric plant, a step that has brought about a further reduction in the loss of lake water.

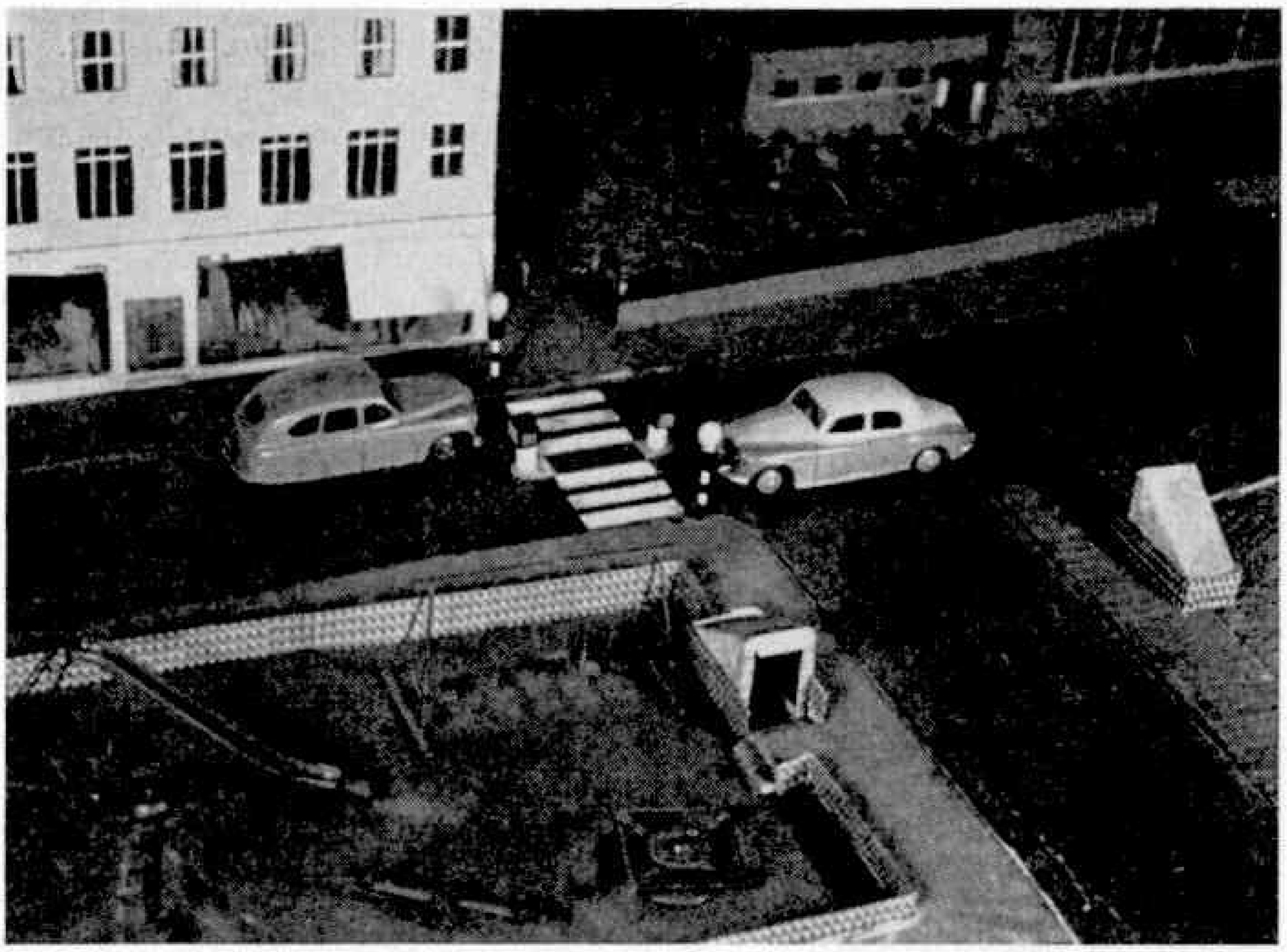
But in spite of these measures, the water of Lake Chapala continues to recede. The wanton destruction of forests, the thoughtless pumping of subsoil waters, and a helpless official attitude are giving the death blow to Lake Chapala, and it appears that Mexico's mightiest inland sea is doomed to be but a memory. It had once regulated climate and rains over an extensive region inhabited by five million persons. The lands were fertile, but now the invasion of erosive forces has begun on a major scale.

As further measures Federal agencies are planning reforestation and the conservation of the few forest areas left along the banks of Lake Chapala. But if the "Save Chapala" campaign fails, then the lake will turn into a dry basin that in the long, dry season would send a choking cloud of dust to blanket the city of Guadalajara and surrounding regions.

The doom awaiting the Chapala region may also come to other lakes—Patzcuaro, Cuitzeo, Zirahuen, the huge Zacupu lagoon and four minor ones in the Tacatzcuaro region to the south of Jiquilpan. All these are in the lake regions of Mexico on the Pacific coast of the country.

Where the water of the lake came right up to the improvised boardwalk seen on the right in the picture below, now there is a walk of hundreds of yards to reach it.





One of the models in RoSPA House that are designed to show how road safety can be maintained. The movements of the Dinky Toys seen here are controlled magnetically.

RoSPA House

A Road Safety Training Centre in London

By the Editor

A SOUND that immediately alarms us when we hear it in our streets is the bell note of an ambulance speeding on its errand of mercy. It is part of the elaborate organisation that deals with accidents that occur on our roads, in our works, and indeed in our homes.

But there is another side to the accident question, the obvious one of preventing them. Much thought and money have been given to devising schemes for keeping the number of accidents to a minimum. Every works of any size, for instance, has its own safety officers, machines are provided with guards to protect those who work on them, and every operation is carefully considered from the safety point of view before it is put into operation. In our homes too careful design, particularly of the implements, electrical and mechanical, that are the tools of the housewife, helps to reduce the risk of accident.

The increase in the number of vehicles on our highways has made the fight against road accidents an outstanding problem. There are several thousand fatal road accidents every year in Great Britain alone, with corresponding numbers in overseas countries. We are often told that we must re-make our roads, widen them, straighten out severe bends, abolish corners and so on; but even if that were done, as it has on a large scale in the United States, there could still be accidents unless the lesson were brought home to everybody that the only sure way of reducing the number of deaths on the road is to instil the need for care into the minds of all road users, whether they drive cars or lorries, ride bicycles or just walk.

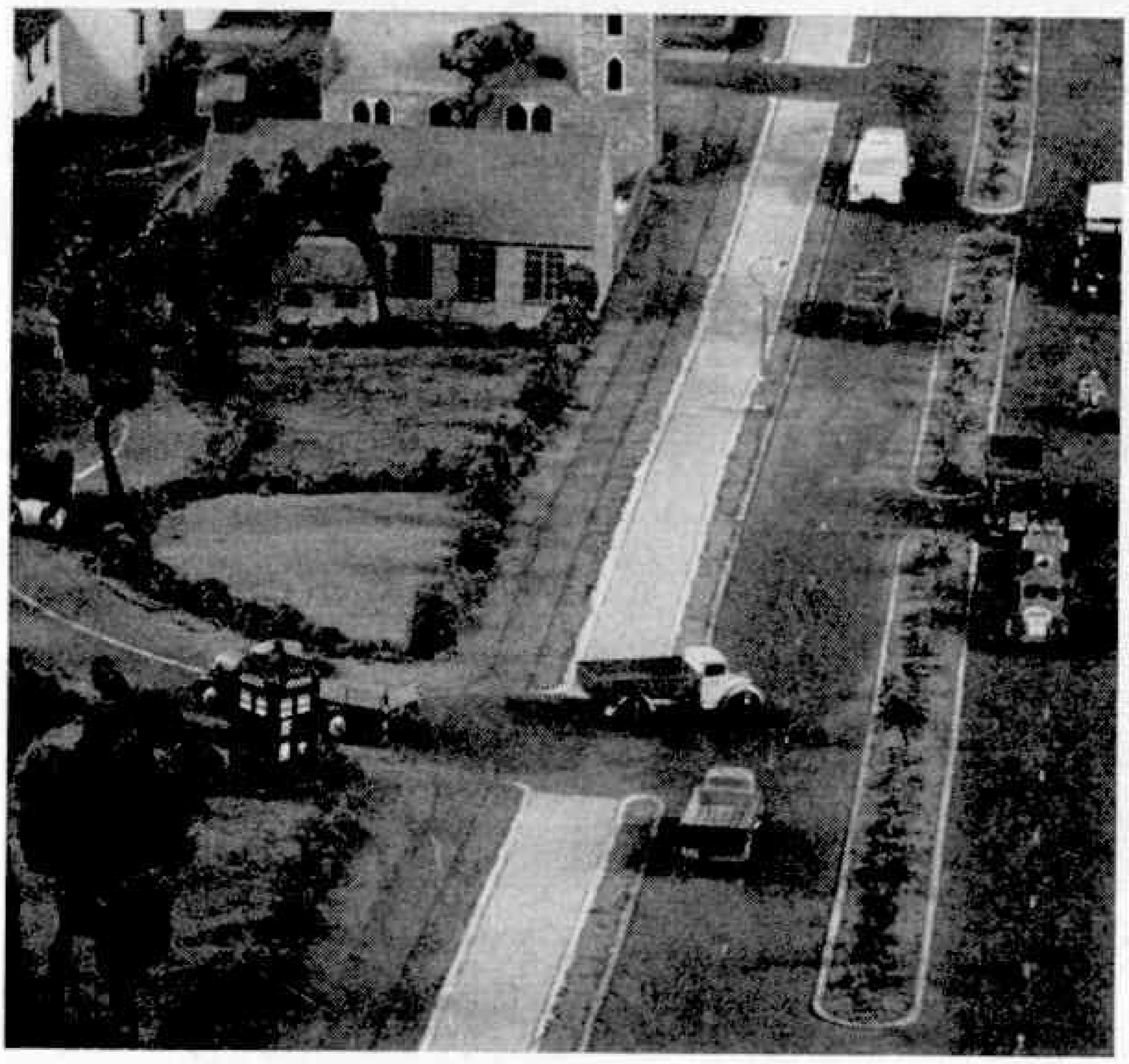
It is a frightening thought that about 5,000 people are killed on the roads in Great Britain every year, and that about as many people as live in English towns with populations ranging from 148,000 to 165,000, such as Bolton, Brighton, Hendon, Middlesbrough, Southend, West Ham and Wolverhampton, are injured.

One feature that is particularly disturbing is that so many of those who suffer from road accidents are children. About 1,000 are killed and as many as 40,000 are injured every year in this way. Who else is killed on the roads besides the toddler under five years of age who escapes from parental care, and is not yet fully trained to take care of itself? The teen-age cyclist, the motor cyclist in his early twenties, the motorist

who is a little older and the elderly pedestrian—these have been found to be most liable to be affected by fatal accidents. But we are all concerned, whatever use we make of the roads and it is up to us to see what we can do to contribute ourselves to greater safety.

There may be readers of the *M.M.* who either do not know a society exists for the prevention of accidents, or who know little about it. Its full name is The Royal Society for the Prevention of Accidents, and it naturally has given careful attention to improving our road safety record. With this in mind the Society has established a road safety training centre, known as RoSPA House, in Knightsbridge, London, very near Hyde Park Corner.

RoSPA House is the only building in the world that is solely devoted to training in road safety for all classes and all ages of road users. Its rooms provide information on every aspect of road safety, from the behaviour of pedestrians on the road to the rules that have been devised to regulate the flow of traffic safely and easily, and ways of ensuring that road vehicles are in good condition, and therefore unlikely to be involved in accidents. This is done by means of displays of photographs, drawings and models, the general idea being to show how the most common errors are made and to correct these by demonstrations of the right way to do everything, from driving a motor cycle or motor car through a narrow street or around a roundabout to crossing the road. And these demonstrations are concerned with cars and lorries, motor cycles and ordinary bicycles alike, and with their users of all ages.



Many of the animated scenes in RoSPA House show both wrong and right ways of driving.

The two pictures on these pages show the kind of models, in this case working models, that are used in the demonstrations provided in RoSPA House. You will see that these are in accordance with the main purpose of the Society, which is to provide a centre of *visual* instruction adapted to all ages and all types of road users. Visitors to it actually *see* the right course to take in any road circumstance.

The building is extensively equipped with every possible type of material that can be applied in the reconstruction of situations and incidents on the road. Great use is made of Dinky Toys in these exciting reproductions of typical road scenes, each emphasising some particular point. Many of the models actually move, and by merely pressing a button may be made to negotiate road hazards first in the wrong way, and then in the right.

The manner in which Dinky Toys have been adapted to this purpose is ingenious. A glance at the pictures show that on the roadways on which the miniatures run there are no slots allowing them to be connected to moving bands under the roadways. Instead their movements are controlled by means of moving magnets, so that they look extremely realistic, giving the impression that they are moving under their own power.

My two illustrations show respectively traffic on an ordinary road in a section where there is a Zebra Crossing and on a section of a double-track main road. I am sure that you will all have noticed that in the second of these two pictures a lorry is seen incorrectly turning out from a side road into the main road when another one travelling on the main road itself was too near to allow this movement with safety.

(*Continued on page 652*)

Air News

By John W. R. Taylor

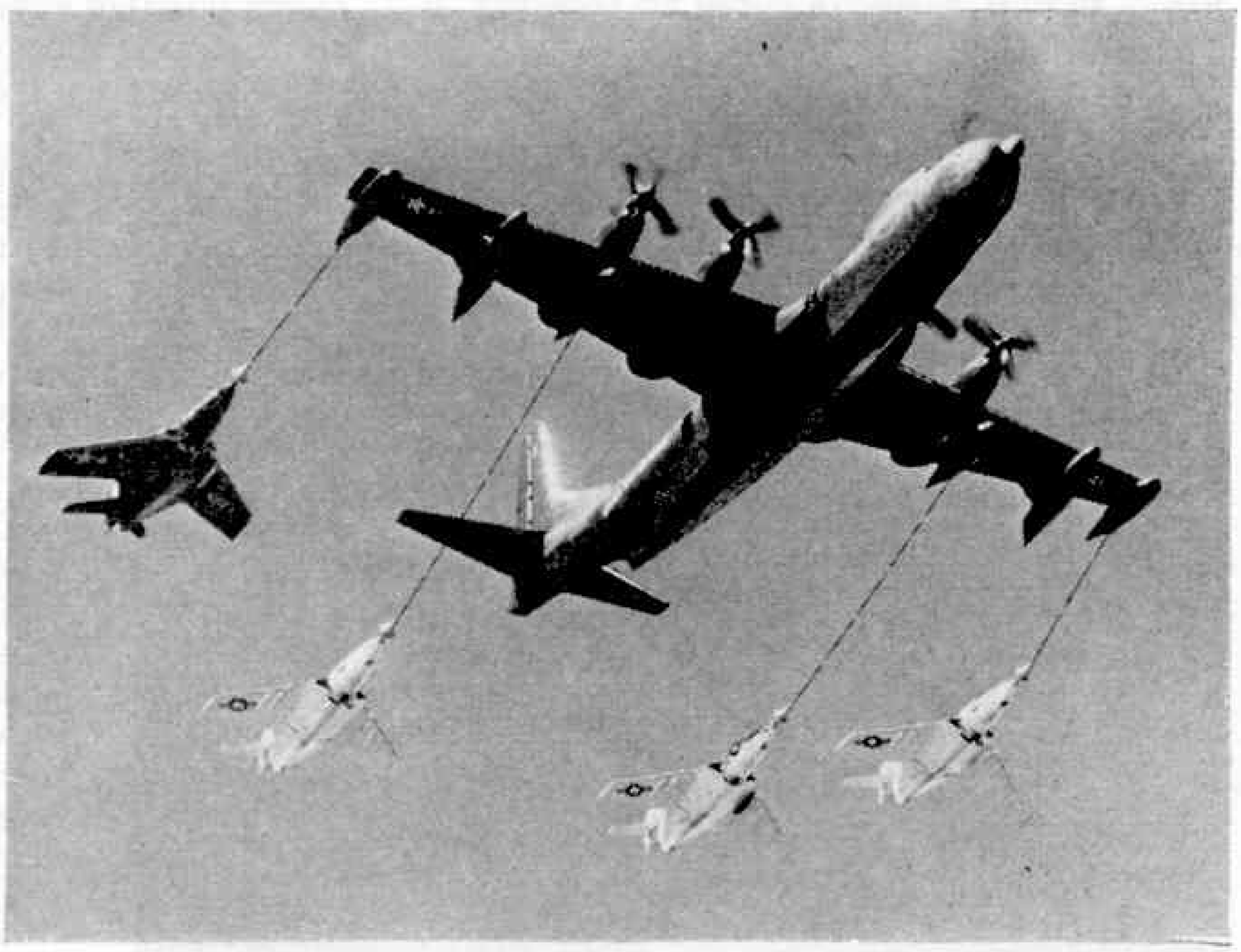
Four-at-a-Time Refuelling

The U.S. Navy is equipping its fleet of giant Convair R3Y Tradewind flying boats as flight refuelling tankers and, as shown in the remarkable picture on this page, each will be able to top up the tanks of four fighters at a time, using the British-designed probe and drogue system.

The Tradewind carries four funnel-shape drogues in reinforced plastic pods below its wing-tips and outer engine nacelles. Each pod is 18 ft. 7 in. long and of 4 ft. 3 in. diam. and is fitted with hydraulically-operated doors that open to let the drogue trail out at the end of the fuel hose.

All the fighter pilots have to do is to ram a probe on the wing or nose of their aircraft into the drogue, which opens a valve automatically so that fuel flows from the R3Y's tanks to the fighter at a rate of 250 gall. a minute. When the fighter pilot has a full load, he simply slows his aircraft to disconnect it from the drogue; the fuel flow is immediately stopped and the hose and drogue are wound back automatically into the pod.

Four fighters can be refuelled in less than five minutes and, by using two of its tanks tor the job, an R3Y can supply a total of eight aircraft on each flight. Alternatively, as a transport, the 71-ton turboprop R3Y can carry 103 passengers or 24 tons of cargo up to 4,000 miles at 300 m.p.h.



Four U.S. Navy fighters taking on fuel from a Convair R3Y-2 Tradewind flying boat. The 71-ton Tradewind transport carries enough fuel in its wing tanks for eight fighters.

Luftwaffe Markings

Model-makers will be interested to learn that the new German Air Force has chosen for its national insignia the black "Iron Cross" that distinguished German warplanes in the 1914-18 war.

The Communist East German air force has not followed suit, but will identify its aircraft with the territory's national colours—black, red and gold—in a square.

New Freighter Planned

The Hawker Siddeley Group announced recently that they will spend several million pounds designing and building a new type of medium-range freighter-air-coach civil aircraft suitable for cheap-fare services in every part of the world. Few details have been given, but the new machine will be built by Armstrong Whitworth at Coventry, and the emphasis will be on low initial and operating costs.

As a freighter, the aircraft will have doors large enough for simultaneous loading and unloading direct from lorries, and 66 persons will be carried in the passenger version. The first machines will be powered by four Rolls-Royce Dart turboprops; but an alternative version will be offered with two of the more powerful Rolls-Royce Tynes. Range of the aircraft will be about 2,300 miles and special care is being taken to ensure short take-off and landing runs for operation in places without large airfields.

No Runway Problems for Britannia

While aircraft builders and airport authorities worry and argue over the immense and costly runways that will be needed by the transatlantic versions of new U.S. jet-liners, the Bristol Britannia has demonstrated its versatility by operating from 53 different existing airfields in all parts of the world from Vancouver on the west coast of Canada to Sydney, Australia.

Although it is the largest and fastest air liner yet delivered to an airline, the Britannia has regularly taken off and landed with a full load on runways only 5,000 ft. long. Its reverse-pitch propellers enabled it to use less than half of the 5,600 ft. runway when it landed at Renfrew, Scotland, and measurements of noise at Bromma Airport in Sweden showed that it is quieter than a twin-engined Dakota at take-off.

Helicopter to Spray Banana Trees

One of Fison-Airwork's Hiller 360 helicopters has been sent to Jamaica to see if banana trees can be sprayed safely to prevent leaf spot. This is the first time such work has been attempted, because banana leaves are delicate and it has always been feared that the down-draught from the helicopter's rotor might damage them.

If the trials prove successful, the Banana Board will go in for aerial spraying on a large scale. Between times, the helicopters could be kept busy on anti-malaria and sandfly control, power-line maintenance and rice and sugar spraying.

The Gnat's Instruments

News that 25 Gnat light fighters have been ordered for the Indian Air Force, and that more will be built in India at the Bangalore works of Hindustan Aircraft Ltd., will be welcomed by all who admire Folland's enterprise in trying to reduce the size, complexity and price of military aircraft at no cost in performance.

It is easy to forget that many other firms share

The Scottish Aviation Twin Pioneer in the colours of de Kroonduif, K.L.M.'s associate company in Dutch New Guinea, referred to on this page.

in the achievement. Bristol's, for example, have packed 4,850 lb. thrust into the tiny Orpheus turbojet that powers the Gnat, and equipment makers have worked miracles. Waymouth Gauges and Instruments Ltd. managed to reduce the weight of their fuel measuring equipment by one-fifth by using new materials and new techniques. Kelvin and Hughes produced a tiny type E2A compass weighing only 3¼ oz., and Smiths a jet temperature indicator in a 2 in. case.

Across Scotland by Scottish

It is rare that the value of air travel becomes so apparent as during a visit I made recently to Scotland. Knowing that I had to get quickly from Prestwick Airport to Turnhouse, Edinburgh, Scottish Aviation's chief test pilot, Wing Cdr. Noel Capper, kindly flew me over in a Twin Pioneer in 36 minutes. The return trip over the same route by train, a week later, took over three hours.

Scottish Aviation had at that time completed over 500 hrs.' flying with the first three "Twins", and hope soon to get a Certificate of Airworthiness for the type. After that the orders will almost certainly begin to roll in, because this unique 16-passenger light air liner, powered by two 540 h.p. Alvis Leonides engines, can take off from grass in only 110 yds. and will bring the benefits of air travel to many places that have no landing fields big enough for other aircraft.

The R.A.F. have already ordered Twin Pioneers to transport troops of the Army Strategic Reserve, and it is significant that the two "Twins" shown at Farnborough this year were painted in the colours of Swissair and de Kroonduif—K.L.M.'s associate company in Dutch New Guinea. In fact, orders are already so promising that Scottish Aviation have laid down a production line of 200 aircraft

The Milkman Did Not Believe It

How many gallons of fuel go into a wing-tip fuel tank? A hundred? Three hundred? Ever since K.L.M. Super Constellations equipped with wing-tip tanks made their first appearance at Schiphol Airport, Amsterdam, people have been trying to guess the capacity of these tanks, one of which is illustrated below.

All of the estimates were too low, including that of the man who delivers milk to the airport. He could hardly believe that each tank, which weighs only 200 lb., holds no less than 463 gallons. This happens to be exactly the number of gallons of milk drunk each day by the 13,000 people at Schiphol, and a large truck is needed to carry it all.

Ten of K.L.M.'s Super Connies now have tip-tanks, giving them sufficient fuel to fly the Atlantic non-stop. Known as type L-1049G's, they are named *Isotoop*, *Positon*, *Negaton*, *Ion*, *Griffioen*, *Pegasus*, *Roc*, *Phœnix*, *Centaurus* and *Wyvern*, the last two being aircraft taken over from the Greek airline T.A.E.

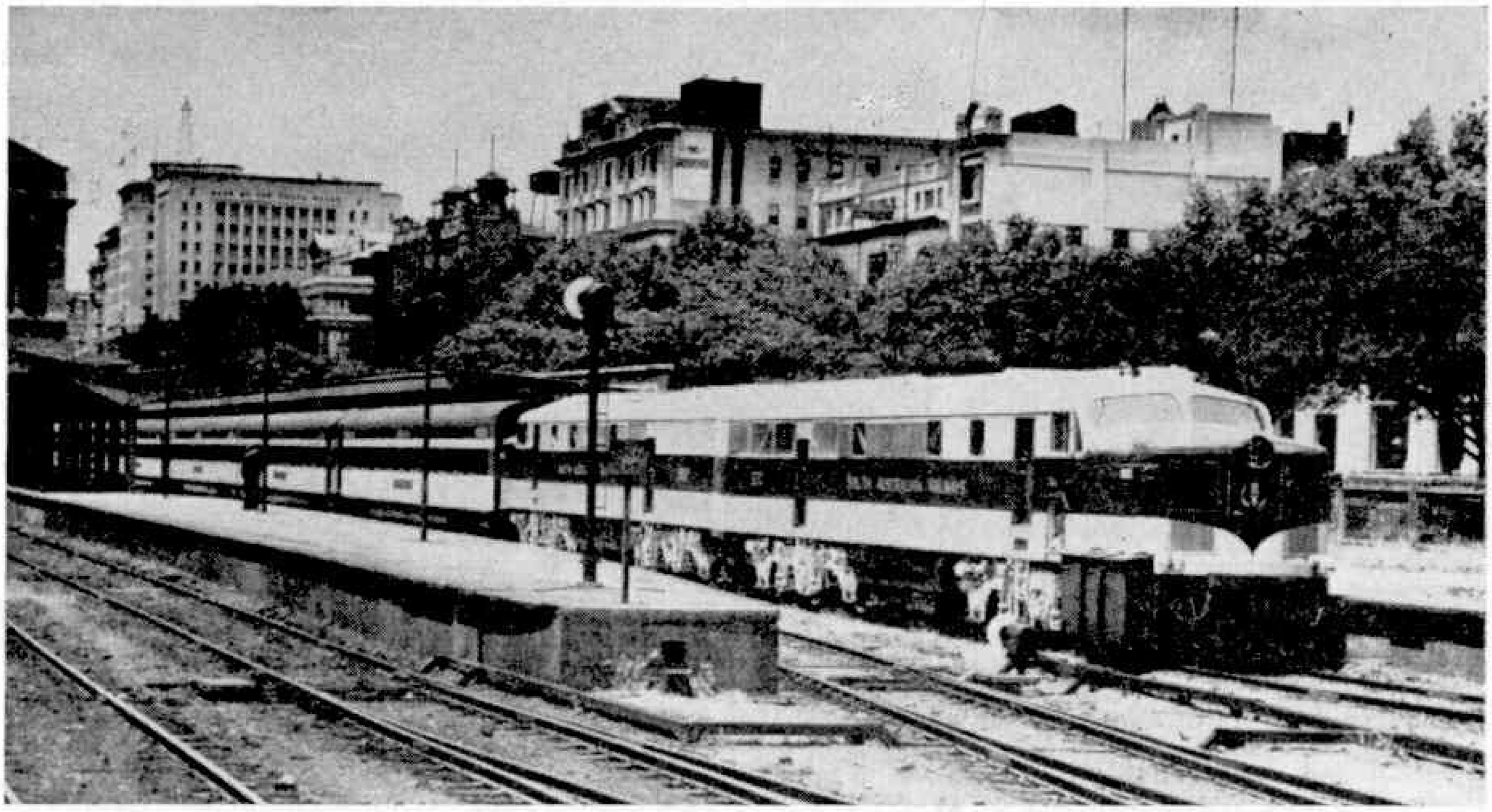
New Records

A Chance Vought Crusader fighter of the U.S. Navy has set up a U.S. national speed record of 1,015.428 m.p.h. in two runs over a measured 15-km. course. The official world speed record of 1,132 m.p.h. is, of course, held by the Fairey Delta 2.

Another interesting record has been claimed by a U.S. Army Bell H-13H helicopter which remained in the air for 57 hrs. 50 min. during the period of the National Aircraft Show at Oklahoma City.

Six pilots took turns in flying the H-13H, all pilot changes and refuelling operations being made while the helicopter hovered a few inches above the grass.

Ten K.L.M. Lockheed Super Constellation air liners now have wing-tip fuel tanks, which enable the aircraft to carry enough fuel to fly the Atlantic non-stop. One of these tanks is seen in the foreground.



"The Overland"

A Trip on a Famous Australian Train

By H. G. Forsythe

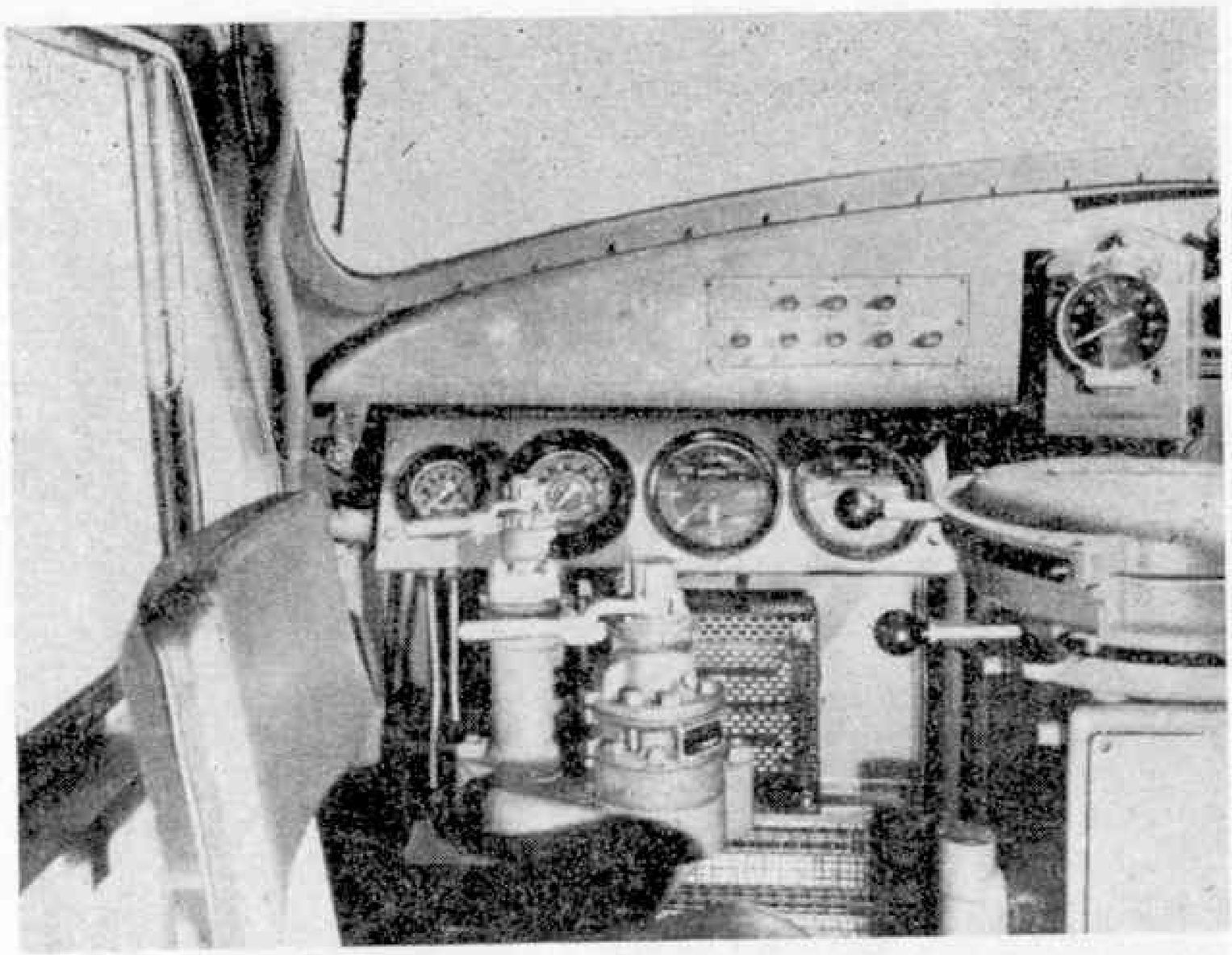
LUXURY, speed and efficiency are the highlights of *The Overland*, one of Australia's finest trains, which runs daily in both directions between Melbourne and Adelaide. Its coaches of gleaming stainless steel and maroon are hauled by diesel-electric locomotives, and it represents the last word in modern rail travel.

The picture on this page shows *The Overland* at Adelaide Station a few minutes before setting out on its 483-mile overnight journey to Melbourne. Two of the South Australian Railways new "900" Class diesel-electric locomotives head the train. These locomotives are immensely powerful. Each has a maximum tractive effort of 54,000 lb., weighs 120 tons, is 66 ft. long and can travel at speeds up to 74 m.p.h. *The Overland* weighs anything up to 600 tons and in the first sixty miles of its journey it has to pass over the Mount Lofty Ranges, where a ruling grade of 1 in 45 is encountered.

The illustration at the head of the page shows "The Overland" in Adelaide Station, South Australia, ready to begin its 483-mile run to Melbourne, Victoria. Photograph by courtesy of South Australian Railways.

A journey in *The Overland* is an experience not easily forgotten. The coaches, built in South Australian Railways workshops at Islington, have been designed to provide the maximum possible comforts for the traveller. The average accommodation on the train is for 350 passengers. There are "Roomette," "Twinette" and ordinary types of sleeping compartments for 120; First and Second Class sitting up coaches for 174; and a special "Roadside" coach providing accommodation for 56 passengers desiring to travel between any of the intermediate stations. The whole train is air-conditioned, being beautifully cool in summer and pleasantly warm in winter. Above all, the air-conditioning keeps out every trace of dust, and the passenger arrives at his destination, after the overnight journey, feeling as fresh and clean as when he left home.

The "Roomette" and "Twinette" cars are especially luxurious. The "Roomette" compartments can be made up for day or night use. Each individual compartment has its own temperature control, washing facilities and ample wardrobe space, and iced water is provided in Thermos flasks. There is a small cupboard in which you can



Driving controls of a South Australian Railways 1,760 h.p. Class "900" diesel-electric locomotive. Locomotives of this type haul "The Overland" over the South Australian section of its journey. Illustration by courtesy of the English Electric Co. Ltd.

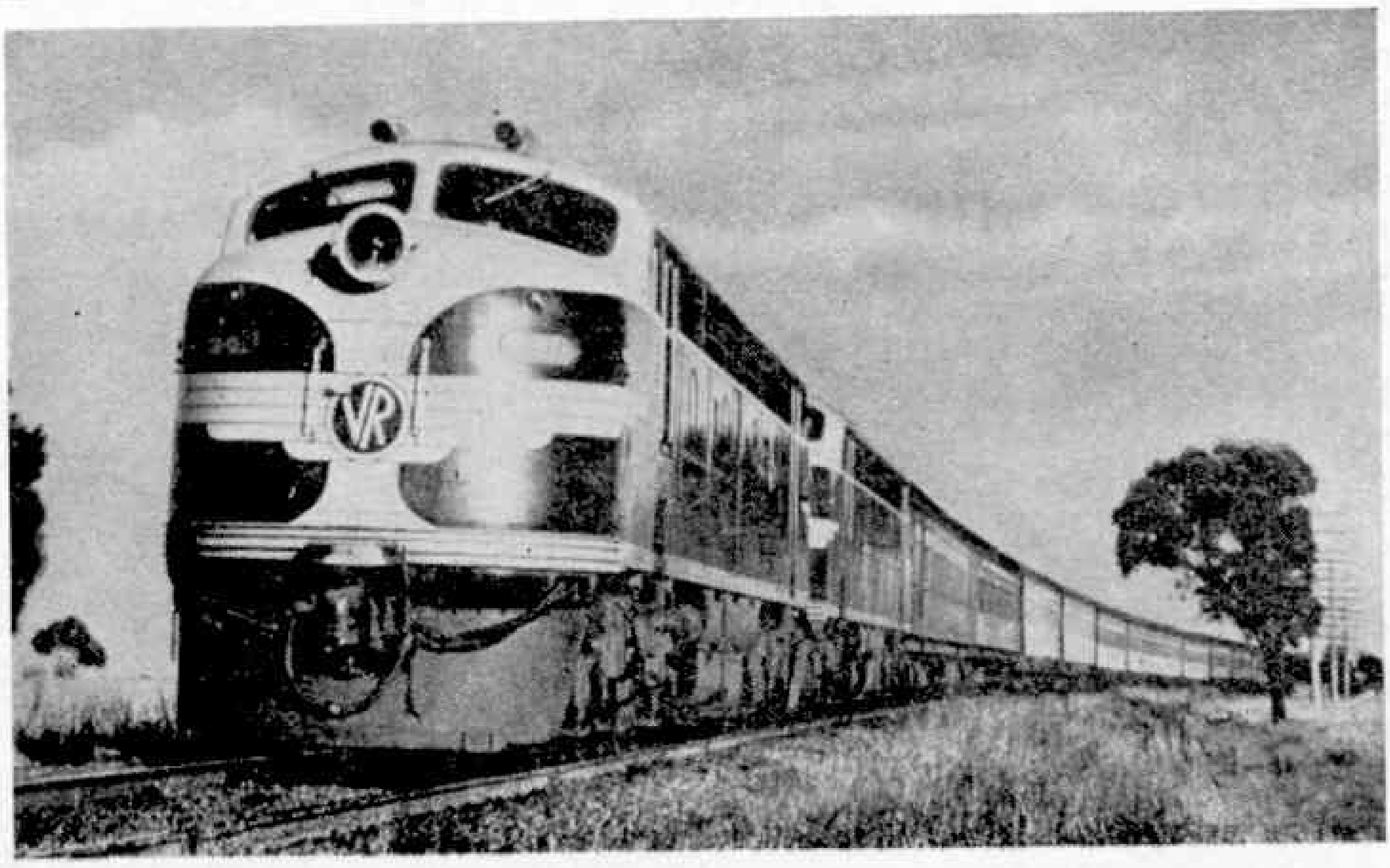
put your shoes for cleaning by the Conductor, and you can even have a shower bath on this train. Each of the "Twinette" compartments has its own private shower and toilet. In all compartments a large landscape type window gives a wonderful view of the countryside in daylight hours.

The sitting up cars too are extremely comfortable. The First Class cars have a centre aisle and seat 48 passengers. They have aircraft type adjustable seats, that can be moved to any position at the push of a button. Adjustable footrests also add to the comfort of passengers. The Second Class cars, while seating more passengers, also have adjustable reclining seats.

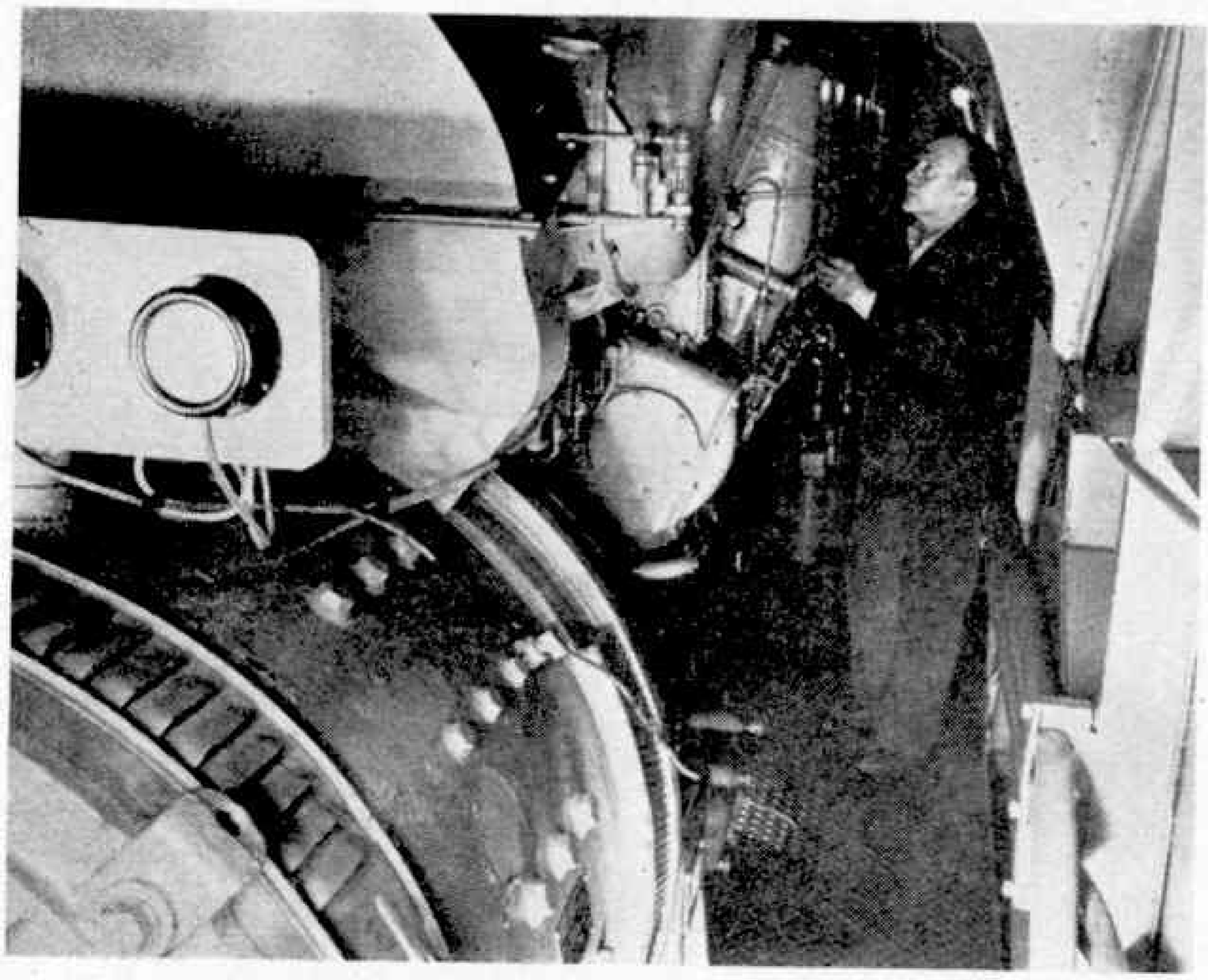
Let us imagine we are taking a trip on *The Overland*. At 7 p.m. exactly we pull smoothly out of Adelaide Station. Accelerating rapidly as we pass through the suburbs, we are in the foothills of the Mount Lofty Ranges almost before we have had time to settle down in our comfortable lounge seat. Now we are climbing in earnest. Such is the smooth hauling power of the diesel-electric locomotives that it is hard to realise that in the first twenty miles we have already climbed over 1,000 ft. At Mount Barker Junction, 31 miles from Adelaide, the elevation is 1,320 ft. above sea-level. Now it is getting quite dark and we shall not be able to see much more of the magnificent mountain scenery. Another 30 miles and we are out of the mountains and are crossing the Murray River at Murray Bridge. The railway bridge spanning the river here is 1,880 ft. long.

The time is now almost 10 o'clock and nearly time for bed. If we have a sleeper all we have to do is to lower the bunk, which is balanced, almost finger-light, and we have a comfortable ready-made bed awaiting us.

After Murray Bridge long stretches of flat barren country lie before us.



"The Overland" is seen in this picture running through the Victorian countryside, hauled by two Victorian Railways "B" Class diesel-electric locomotives. These locomotives are in charge of the train for the 287-mile journey between Serviceton and Melbourne. Photograph by courtesy of Victorian Railways.



Inside a South Australian Railways Class "900" diesel-electric locomotive, showing the English Electric 16-cylinder V type diesel engine. The generator in the foreground supplies current to the four traction motors. Photograph by courtesy of the English Electric Co. Ltd.

Here *The Overland* picks up speed, rolling on through the night, with its powerful headlight blazing, until at 2 a.m. we reach Serviceton, on the Victoria–South Australia Border, 196 miles from Adelaide. Here engines and crew are changed.

Two Victorian Railway "B" Class diesel-electrics are now in charge for the remaining 287 miles to Melbourne. These engines are not quite as powerful as their South Australian counterparts. They have a tractive effort of 40,000 lb., weigh a few tons less and are slightly shorter. But the big reserves of power available in the "900" Class locomotives are not needed for the run through Victoria, although the line still passes through stretches of difficult country. For instance there is the 1 in 48 Ingliston Bank past Ballarat, but nothing as severe as the sustained gradients and sharp curves of the Mount Lofty Ranges is encountered.

The "B" Class locomotives are capable of high speeds, their maximum being 83 m.p.h. In practice, however, *The Overland* is rarely allowed to exceed 60 m.p.h. because of the nature of the track and the country through which it passes.

Soon after leaving Ballarat, at 7.15 in the morning, the conductor brings in a breakfast tray. He reminds us too, in case we have forgotten, to change our watches, for Victorian time is half an hour ahead of that of South Australia.

Now we can settle down to enjoy the scenery provided by the fertile Victorian countryside, but all too soon we are approaching the outskirts of Melbourne and at 9 a.m., just thirteen and a half hours after setting out from Adelaide, we arrive at Spencer Street Station, Melbourne's main line terminus.

The average speed for the whole journey of nearly 36 m.p.h. may seem slow to those who are used to high speeds over relatively short distances in Great Britain. But in difficult country, and with 15 scheduled stops, it is quite an achievement.

"The Overland" near Mount Lofty Station, hauled by one of the 222-ton "500" Class 4-8-4s used in the Mount Lofty Ranges before the diesel-electrics were placed in service.

A Modern Gold Rush

By K. Stephen

THE gold prospector has become almost an anachronism with the advent of huge dredges, which today "pan" the known gold-bearing regions of the world on a vastly larger scale than man's own puny efforts. But a modern enterprise now almost complete at Roxburgh, in the South Island of New Zealand, seemed likely to give the prospector a new, but somewhat brief, lease of life, for the surrounding district was once famous as a gold-mining region. This is the Roxburgh hydro-electric project, which was started by the New Zealand Ministry of Works in 1949 to provide a power potential of 320,000 kW. to feed into the South Island grid system.

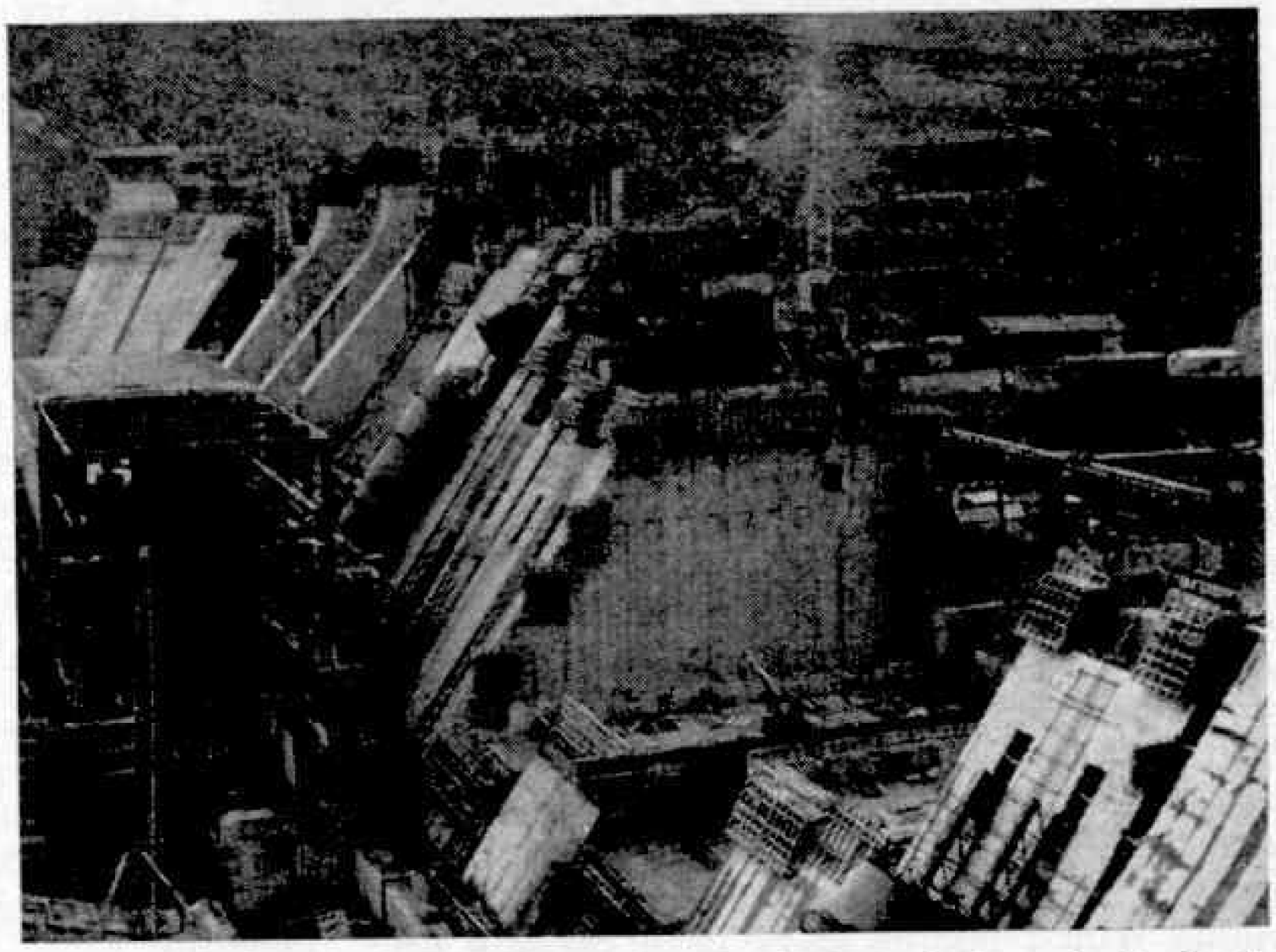
The scheme has involved the construction of a huge dam, 1,200 ft. long and 200 ft. high, completely blocking one end of the gorge through which the Clutha river flows on its way to the sea. Even during the constructional phase the gold-bearing reputation of the Clutha river was not forgotten, and a clause in the contract between the New Zealand Government and the Civil engineering contractors stipulated that any gold struck during the excavations for the dam belonged to the former. The washing and screening plant for the shingle used in making concrete had special provision made for the recovery of gold mixed with it, and about £300 a month has gone into the coffers of the New Zealand Treasury as a result.

When the dam was complete the engineers prepared to close the sluice gates, which was to have the effect of creating a lake extending upstream for about 18 miles. The depth of this is about 150 ft. at the upstream face of the dam.

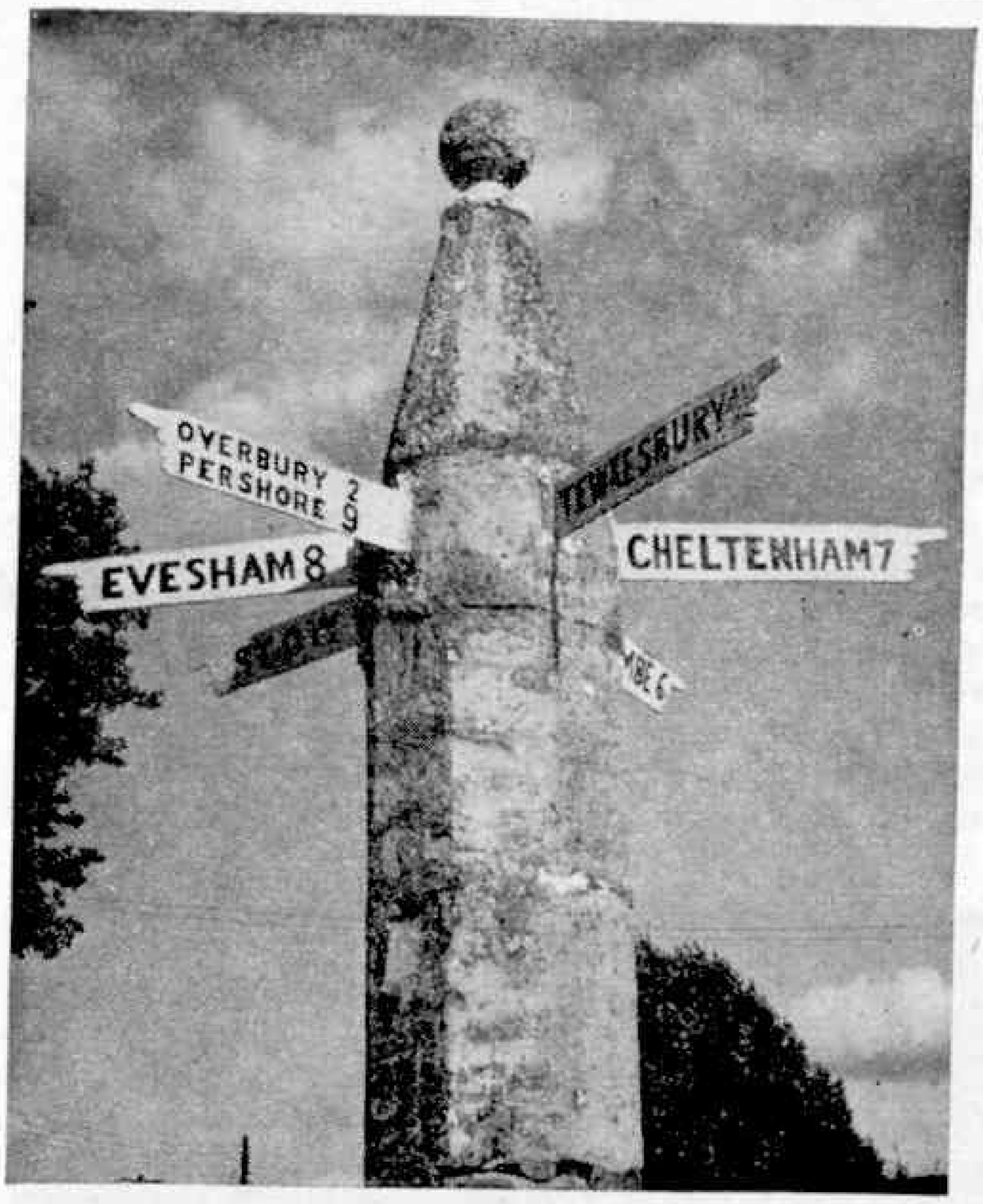
The signal for the closing of the sluice gates was eagerly awaited by hundreds of prospectors who had taken out their miners' licences—many of the registrars' offices had not issued a licence for mining for years—and had pegged out their claims on the river bank somewhere below the dam. Meanwhile minor leakages through the rock at the foundations of the dam led to the necessity of grouting, that is, for drilling holes in the rock and pumping in cement under pressure to fill up the cracks, with the result that the prospectors were left to curb their impatience for some time.

The sluice gates were closed on Saturday, 21st July, and as the level of the River Clutha fell, hundreds of prospectors started work below the dam site on a 15-mile stretch which was thought to be gold-bearing. Throughout Sunday they worked, some "panning" in the traditional manner while others had brought bulldozers to achieve the maximum yield in the short time available. But when on Monday morning the Roxburgh dam had filled, and water again flowed down, the only "fortunes" won were those made in milk bars, petrol stations and the like, which had stayed open to cater for the thousands of visitors, prospectors or sightseers, who had crowded in for this historic occasion.

Thus ended what will probably be New Zealand's last gold rush.



The Roxburgh dam seen during construction in Central Otago, in the South Island of New Zealand. The bed of the river to be dammed was for two days the scene of what will probably be New Zealand's last gold rush.



One of Britain's oldest guide posts is this pillar at Teddington, Gloucestershire. It was erected in the days when such guides were provided by private enterprise.

Roadside History

By

M. U. Jones

THERE is no need to visit castles, cathedrals, ancient monuments or the homes of famous families to look for history. The curious countrygoer can find it everywhere. It is not of course the history of kings and queens, of battles and heroes that he finds, but the slow steady change of everyday things. Nowhere is this more easily seen than by the roadside, along which people have been passing for centuries, leaving behind a trail of clues to times past.

Both the Roman occupation and the first civil engineers left us planned roads. For example, beside a lane in the Forest of Dean is an exposed length of Roman metalling showing wheel ruts; along the Holyhead road, surveyed by Thomas Telford over a century ago following complaints by Irish M.P.s of their uncomfortable, even dangerous journeys to Westminster, are the neat milestones he designed. These are made of Anglesey stone, and cost £2 each, without their iron plates, delivered to the Menai Bridge.

Guide posts, too, reflect past travel. Before they became compulsory, with milestones, in 1773, private enterprise often supplied the need for direction. One of the oldest of these is Teddington Hands, Gloucestershire, illustrated on this page. Whether of wood or of stone these old posts are much higher than present day ones, and reflect the eye level of coach and horseback travellers.

Mounting blocks are another clue to horse travel, and one at the churchyard gates of Broadway, Worcestershire, seems to be both stile and block. In most old towns are to be found pavement bollards at street corners. Sometimes they are of stone, sometimes of iron and often they resemble cannon with a ball in the muzzle. Bollards prevented horse-drawn vehicles from cutting their corners, with disastrous consequences to pedestrians, and many are scraped by wheel marks.

The growth of public services has left traces of its history along the roadside. Some of the first public letter boxes to be erected just over a century ago are still in use. Cottage pumps may still be seen in use, though often they stand merely as a reminder of the blessings of piped water, sometimes being turned into a garden feature.

Gas lighting, first used on a large scale in Boulton and Watt's historic Soho Manufactory in Birmingham in 1798, did not appear in our public streets until several decades later, and many old houses still have holders for the whale oil lamps with which private householders tried to light their surroundings. Sometimes they are seen on garden railings, sometimes over gateways. Older public lamp posts are worth looking at, either as examples of early cast iron, or to discover such surprises as the relief profile of the Duke of Wellington on a lamp post dated 1866 on Lincoln Cathedral Green.

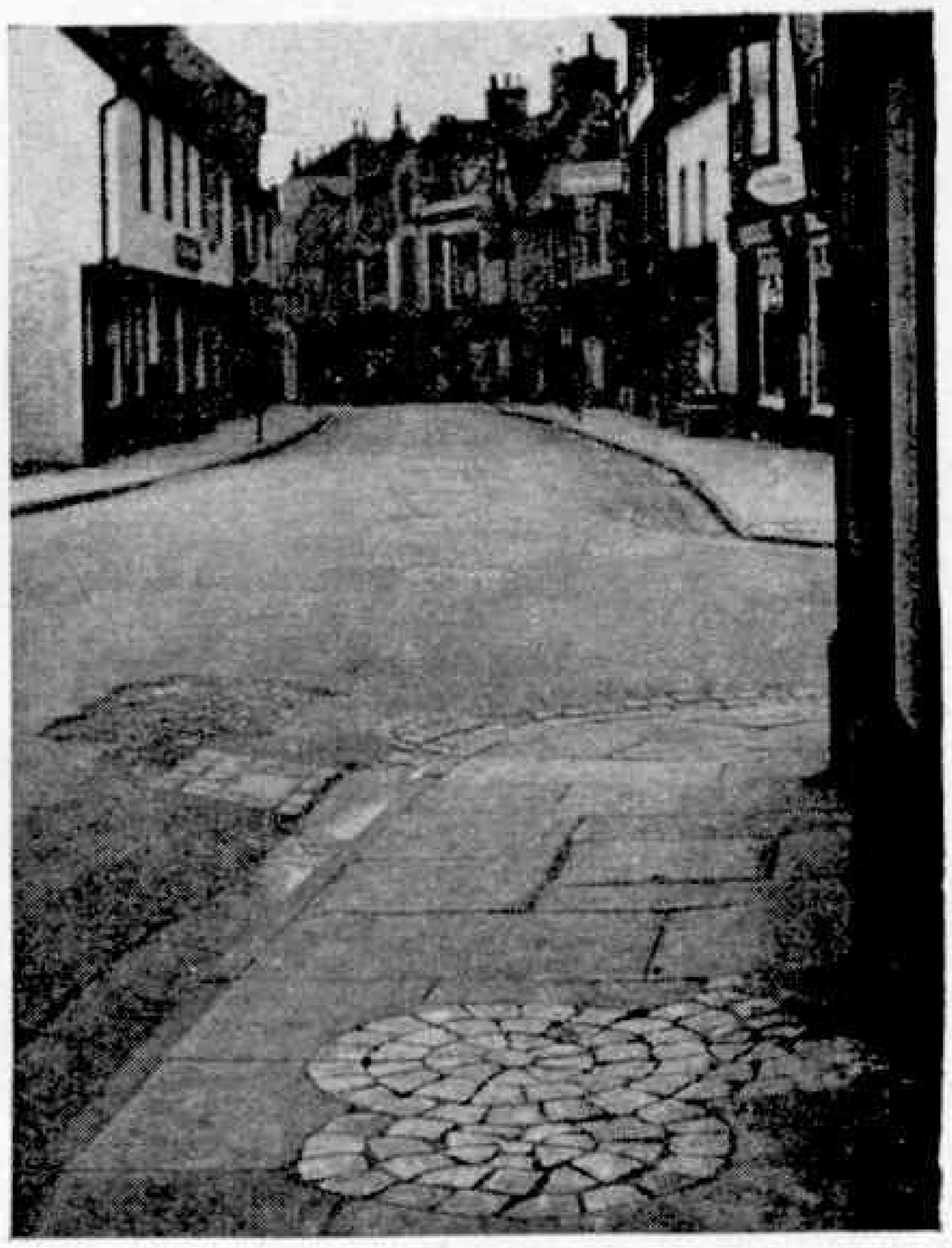
Afoot, too, the times have left behind footscrapers, symbolic of the muddy days before roads were metalled and their sidewalks paved.

The roadside seems a curious museum

for objects of punishment, yet one of the most frequently remarked bygones of the days before the village constable handed over his duties to the county police forces in 1856 is the stocks. As well as these, he had the charge of pillory and whipping post, lock up, ducking stool, and pound for straying animals, examples of which can be traced in many small towns and villages.

Shop signs have been used since Roman days, though the growing literacy of the population and the numbering of houses have long made them redundant. Whether ironmongers' padlocks, hosiers' legs or hatters' hats, they are usually fixed above the shop window, but I have seen two examples on the pavement. One is a Highlander taking snuff, really a rare tobacconists' trade sign, though now used as an eye catcher, outside a furnishing store, and the other a chemists' pestle and mortar on a private lamp post.

Many places have besides original contributions to the display of history on its pavements. Here are just a few examples —your own town probably has others.



These circles of stone setts in Lincoln mark the positions of the columns of a colonnaded main street of Roman times.

One of two torchéres from the Great Exhibition of 1851 that are now to be seen in Worcester.

In the Roman town at Lincoln, which replaced the legionary fortress, was a colonnaded main street, and the sites of its columns can be recognised by the circles of stone setts seen in the upper illustration on this page. Further down the same street, here well named Steep Hill, is a boundary stone set in front of an antique shop, which marks the limit of the Cathedral close. In Much Wenlock, Shropshire, in front of a timber-framed building, is an old wooden post, part of a porter's rest, which provided a ledge on which he could rest heavy sacks.

Beside a Handsworth, Birmingham, pavement is a curious garden wall, topped by a privet hedge. It seems to be made of plant pots laid on their sides. In fact they are crucibles for smelting brass, a metal that has helped to make that city known throughout the world. Walking through Old Milverton, Warwickshire, one can see an old notice, happily no longer of any significance, warning passers-by against "Man Traps and Spring Guns on These Premises." A hotel in Malvern still advertises posthorses and livery and bait stables.

Look at my final picture. This last scrap of history by the roadside commemorates the Great Exhibition of 1851. It is one of two torchéres from that famous occasion, which now decorate the façade of a Worcester building.

No. 70014 "Iron Duke" passing Beckenham Junction at the head of the down Golden Arrow bound for Folkestone. Photograph by B. C. Bending.

Railway Notes

By R. A. H. Weight

Aboard the Golden Arrow

The *Golden Arrow*, in France *Fleche d'Or*, London-Paris service is deservedly famous. By courtesy of British Railways, Southern Region, and the Pullman Car Company, I was privileged to make the round trip by the train on the English side before last summer's schedules ended.

The train consisted of five modern and luxurious 1st class cars, named and specially painted. There are variations in their styles of seating, panelling, decoration and armchair upholstery. One of these cars contains the Trianon Bar, reminiscent of a high-class Hotel or Liner's Lounge! Then there were two 2nd class Pullmans for passengers booked in other types of accommodation on the Continent, with three baggage and mail vehicles. One of these was a flat truck carrying containers of luggage (registered through between London and Paris) that go through intact by trains and ship. The load of about 330 tons had no terrors for No. 70014, *Iron Duke*, one of the two smart Britannia 4-6-2s in S.R. service, being stationed, like the able driver and fireman, at Stewarts Lane, Battersea.

We were away punctually at 2.0. There is heavy climbing in the first 18 miles from Victoria to Knockholt, Kent, past suburbs and into picturesque North Downs country. Cautious running is necessary over the connecting spurs between Bickley and Petts Wood Junctions leading on to the Charing Cross main line. Time was in hand, however, to allow for two later engineering slowings.

With chime whistle sounding we sped punctually through that important Kentish railway centre, Ashford, at 65 m.p.h., soon increasing to 70, and pulled up for a short signal stop outside Folkestone, Central, about 1 min. early, at 3.23. The maximum speed was 82 m.p.h. With a view from the elevated main line of the Harbour and ship awaiting us far below, we ran on into Folkestone Junction sidings where the Pacific was detached and an ancient R1 0-6-0T, No. 31340, attached at the other end. This took the *Golden Arrow* down the steep descent to the Harbour station (restricted to very light locomotives only) where the advance ordinary train had unloaded and its passengers been embarked, having passed through Passport, then Customs, controls on the rather limited quayside.

The steamers to and from Calais were the French *Cote d'Azur* outward; British Railways *Invicta* inward; both fine modern vessels of more than 4,000 tons. As the inward vessel comes to Dover, empty train working is necessary between the two ports and I was permitted to see the whole procedure. Up the severe 1 in 30 gradient, over a swing bridge and level crossing to the main line, we had one R1 tank at the front, and two pushing vigorously in rear! *Iron Duke* meanwhile had been turned and took us tender first along the coast, through the cliff tunnels, past the seaside engine shed into the impressive Dover Marine Station which has spacious covered accommodation for passengers and the various official bodies. Women carriage cleaners polished the almost spotless Pullmans.

As such, the *Golden Arrow* provides a 1st class only, Pullman de-luxe service, though the trains between Calais and Paris have ordinary carriages as well while the Paris-bound express also conveys sleeping cars destined to Switzerland and Milan. In one direction or the other there are through carriage connections with Munich, Vienna, Rome, Strasbourg, Nice, Interlaken and elsewhere.

With ships, weather, international connections, Customs and Immigration requirements to contend with, inward boat train departures are uncertain. Though keeping exact time from Calais, s.s. *Invicta* was running late with a large complement of passengers. Handling was expeditious however. The *Golden Arrow* gradually filled; coloured lamp shades, illustrated publications and teacups on the tables looked inviting. *Iron Duke* came on with the baggage wagons and all was ready just after 6.30 p.m., but we were to run in an alternative path allowing more time than the normal 5.58. We were checked after Folkestone by a slower train that was passed at Ashford, thereafter the *Arrow's* fastest time was kept to Victoria despite three severe and two slight extra slowings, with sustained speeds well up in the 80s through the Weald to Paddock Wood, and some vigorous hill climbing. I was back in London soon after 8 p.m., being the only passenger without passport or luggage!

The excellent service on the train and the kindness of the Pullman, Railway and other officials who accorded facilities and information, are all readily acknowledged.

Additions to Locomotive Stocks

New engines to be chronicled this month include class 4 2-6-0s Nos. 76050-2, the first being allocated to 51A, Darlington, the following two to 50A, York. More class 2 2-6-0s stationed at 6D, Chester, Northgate, are Nos. 78057-9. Continuing class 5 4-6-0 construction at Derby for the Western Region, Nos. 73130-3 have been completed; the previous two numbered 73128-9

went to 84G, Shrewsbury shed. Some of this series are fitted with Caprotti instead of the usual Walschaerts valve gear. In the 350 h.p. diesel-electric 0-6-0 range, also from Derby for W.R. service, Nos. 13268-9 have been added to stock. No. 13268 went to 81D, Reading depot; allocation of the previous four, Nos. 13264-7, was 87B, Duffryn Yard, S. Wales.

The stock of big class 9 2-10-0s on the Midland Division, L.M.R., has been expanded by the arrival of Nos. 92101-4, stationed at 18A, Toton; 92105-7 at 15A, Wellingborough. No. 92089 for the Eastern Region was the latest of this type to be entering service from Swindon Works at the time of writing.

Steam and Diesel Engines' Fine Runs

None of the locomotives figuring in the following time-gaining express runs was of London Midland design, though working regularly on the Euston main line at the time, and each one was quite different!

The only B.R. class 8P 4-6-2, No. 71000, *Duke of Gloucester*, on the 14-coach *Emerald Isle* Holyhead express from Euston as far as Crewe, had matters well in hand, so that with good climbing of the modest grades and maximum speeds not much over 70 m.p.h., but including a long repair slowing in Watford tunnel, the first stop at Stafford, 133½ miles, was reached 2¼ min. early.

A class 7 M.T. Britannia Pacific, No. 70044, working home to Manchester with the 2.45 p.m. from Euston, more than regained a 5-min. late start from Rugby with a heavily loaded 15-coach train, passing Colwich, 44½ miles in 46 min. and there diverging cautiously for Stoke-on-Trent, which city is approached therefrom over some 12 miles of gradually rising gradients that were compassed at an average of 53 m.p.h.

S.R.-built 14-wheeled diesel-electric locomotive, No. 10201, with a 10-coach Wolverhampton-Euston express having the fastest timing on the route, averaged 71½ m.p.h. for 70 miles from Welton to Willesden Junction. It reached Euston 3½ min. early in 75½ min. for 82½ miles from leaving Rugby, including a severe slack over Castlethorpe troughs and a maximum of 85 m.p.h.

For running details reported on this page, I am indebted to Messrs. D. S. M. Barrie, M.B.E., L. J. Burley and N. Harvey.

The "Tees-Tyne" and Streamlined Power

Ex-L.N.E.R. A4 streamlined Pacifics manned and provided by King's Cross shed regularly haul the *Tees-Tyne Pullman* express which travels between Newcastle and London from Mondays to Fridays and provides the fastest service of the day 'twixt Darlington and King's Cross, and northbound from London to York.

The "Tees-Tyne" Pullman headed by A4 No. 60015 "Quicksilver" on the fast running stretch north of York. Photograph by C. Ord.

With an exceptional load, as two vans were added to the usual eight Pullmans, totalling quite 400 tons full, No. 60034, *Lord Faringdon*, averaged 93 m.p.h. for 15 miles north of Hitchin, passed Peterborough 8 min. early, observed a couple of extra slowings and stopped at York, well before time in 187 min. for 188¼ miles! A very fast run on the nearly level stretch forward to Darlington was cut short by signal delays from a special train ahead.

An extra car, making nine in all, made the southbound load 370 tons full behind No. 60014, *Silver Link*, which left Darlington 1½ min. late on an occasion last summer for a 232-mile non-stop run to King's Cross at an average of over 60 m.p.h. As usual along there, high speed was quickly reached and sustained (as I experienced and reported some time ago). York, 44 miles, was passed in 37½ min. and the fast timing improved upon despite a number of checks. Down the famous Stoke bank after Grantham, 87 m.p.h. was averaged for 12 miles. Again the running was so fine that arrival in King's Cross was well ahead of schedule, the overall time from Darlington being little over 222 min. or in 3 hr. 42 min. from the famous town in County Durham to Central London!

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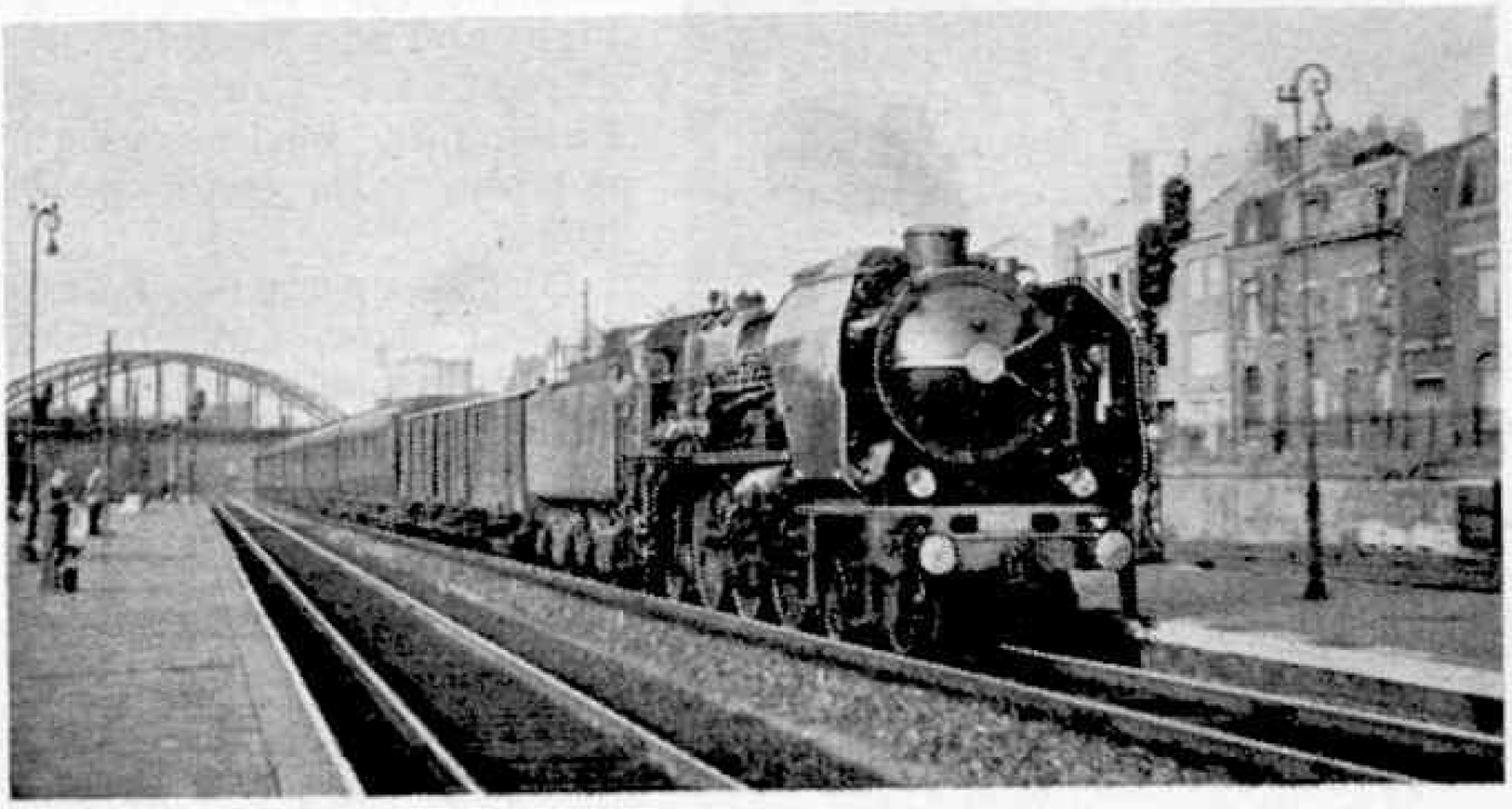
Some 55 diesel trains are in use in the Lincoln, Norwich and Stratford Motive Power districts. The Eastern Region has opened a new school to prepare and train drivers in readiness for the extension of diesel operated services.



A "Super-Pacific" of the former Nord system running through Arras with a Westbound S.N.C.F. express. Photograph by M. A. Arnold.

The Fastest Yet

by

John W. R. Taylor

The X-2 on its carriage being pushed under the fuselage of the "mother-plane" which has been raised to receive it. The illustrations to this article are by courtesy of the Bell Aircraft Corporation, U.S.A.

LAST June I told you the story of Major Charles "Chuck" Yeager of the U.S.A.F., who had flown faster than anyone else, at the controls of the Bell X-1A research aircraft.

His unofficial speed record of 1,650 m.p.h. has since been beaten by his old friend Lt. Col. Frank Everest in the Bell X-2 and, although this aircraft crashed at the end of September, it achieved so much in its short life that I felt sure you would like to know more about it.

Unlike the X-1 family, the X-2 had sweptback wings and tailplane. Its fuselage looked very much like that of the earlier machines, but the whole airframe was built of new materials such as stainless steel and K-monel, because its job was to gather data about the so-called "heat barrier"—the intense heat produced by the friction of air flowing past the aircraft's skin at very high speeds—which can weaken and even melt the materials normally used to cover wings and fuselages.

The X-2 also had a new type of rocket motor that was able to develop almost as much power as the engines of a naval cruiser. Known as the Curtiss-Wright LR25-W-1, it was one of the first rockets fitted with a throttle control, so that the pilot could vary its power in the same way as a piston or jet engine. Its two combustion chambers were of different sizes, so that the pilot could use the 4,000 lb. thrust of the smaller one for cruising flight and add the 8,000 lb. thrust of the larger chamber only when necessary for high-speed flying.

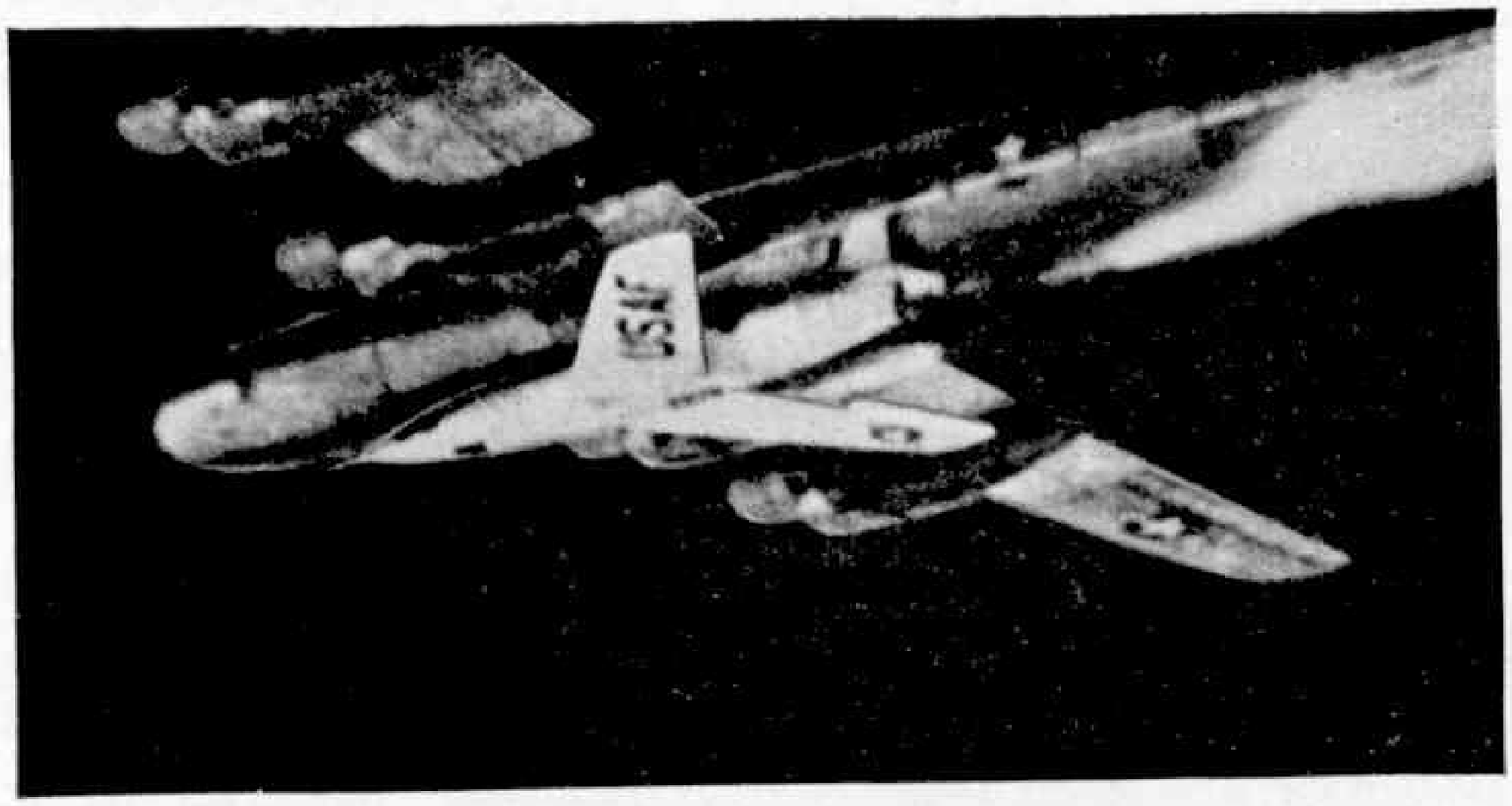
Such engines burn several tons of liquid oxygen propellant in a few minutes. So, to save fuel, the X-2 was always carried up to a height of about

In this picture the X-2 is shown attached to the underside of the fuselage of the parent aircraft.

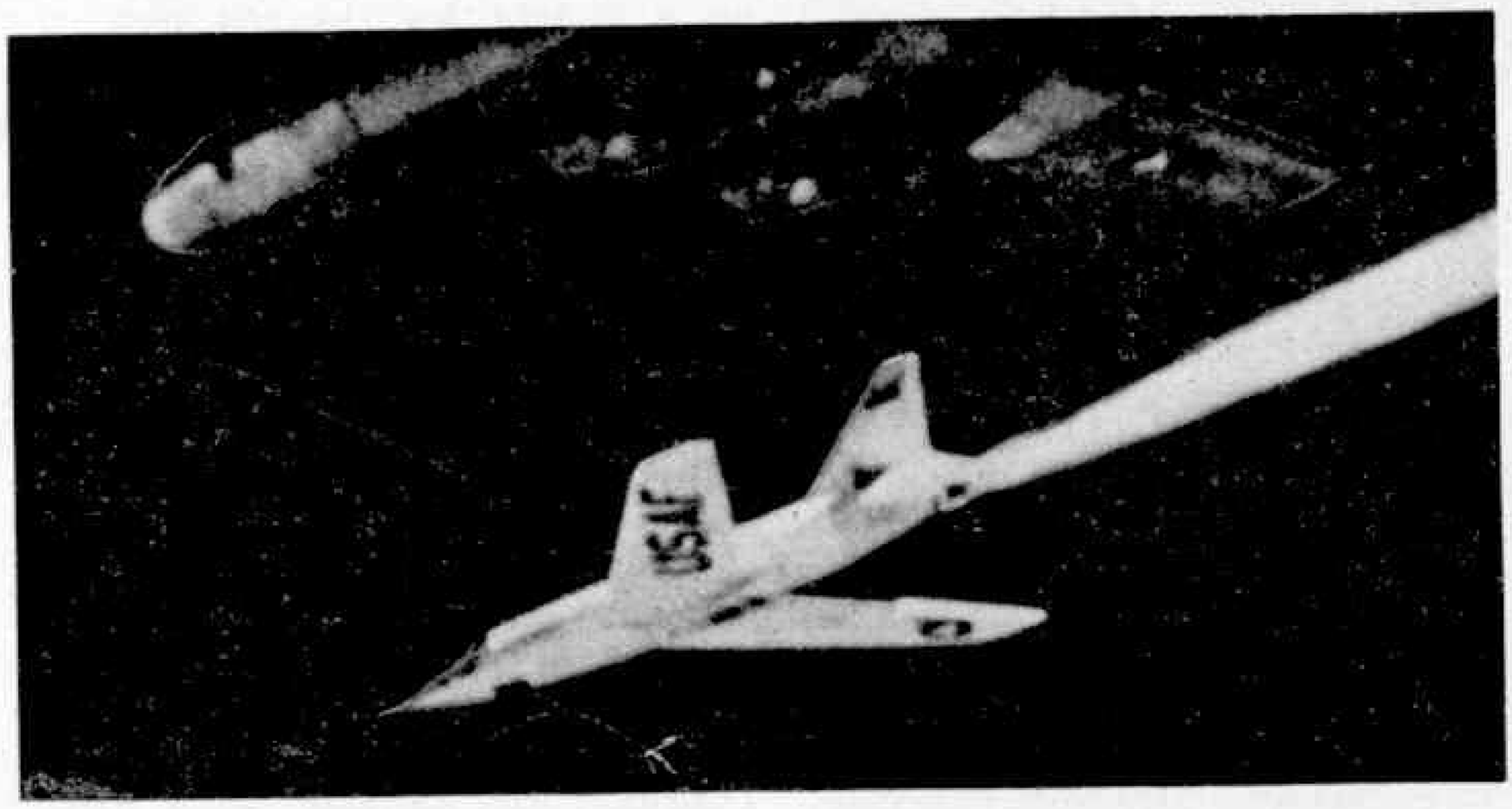
35,000 ft. under the B-50 Superfortress "mother-plane" which is seen in the pictures on this page, and launched in mid-air like a bomb.

As a result, it did not need a proper undercarriage and was fitted with just a large retractable landing skid and nosewheel under its fuselage, which enabled extra fuel to be packed into the space normally occupied by the main wheels. This sounds a bit rough on the pilot; but its landing speed should not have been too fast and unpleasant because, once its fuel was burned, it was no longer very heavy and it had quite large wings compared with the X-1 series.

What was the X-2 like to fly? Did its pilots have any rides as frightening as those made by Yeager in the X-1 and X-1A? All we know so far is that Col. Everest reached the fantastic speed of 1,900 m.p.h., nearly three times the speed of sound, during one flight, and that another of the U.S.A.F.'s team of crack test pilots from Edwards Air Force Base in California, Capt. Kincheloe, reached a reported height of 126,000 ft., which is nearly twice the official world height record for aeroplanes.



This high-speed camera shot shows the X-2 about to be detached from the "mother-plane"—



—and here the X-2 is seen in independent flight, heading for new record speeds.

Like the X-1, the X-2 has pointed the way to the future. Some of its new features—like the ailerons which have thick, square trailing edges instead of the usual knife-edges—will become commonplace on the supersonic civil and military aircraft of the future. The data it snatched in a few seconds of ultra-high-speed flight will help to make those aircraft faster, safer and easier to fly.

Every care was taken to protect the pilot if anything went wrong. The small cabin was heavily insulated and pressurised against the intense cold and lack of oxygen at high altitudes and, instead of relying on the usual ejection seat, the entire cabin of the X-2 was so designed that it could be blown clear of the rest of the aircraft by explosive charges in an emergency and then drift down under a large ribbon-type parachute to a low altitude where the pilot could take safely to his own 'chute.

While research machines like the X-2 are being built and men of courage and skill can be found to fly them, we need never fear that aviation progress will be halted by the sound, heat or any other barrier.

Old Customs of Christmastide

By Reece Winstone

AT Christmastime many unusual customs are observed year after year. Most of these are connected with the story of Christ, but there are others with more local origins.

The first reminder to be seen in London was the arrival of the toy parades on the pavement of Holborn. The word "was" is used advisedly, because every man must carry a licence badge granted by the City of London police, and no new licenses are being issued. So that as the pre-war generation of street vendors fades away, this custom will disappear. The men formerly plied their wares in Ludgate Hill, until congestion forced a move to their pitch in Holborn opposite one of the largest stores.

Christmas at Torquay, Devon. On the edge of the little harbour a tall Christmas Tree appears in December; services are held and collections made for local charities. Our illustrations are from photographs by the author.

The flowering of the "Glastonbury Thorn" is a Christmas event in Somerset. Shortly after the death of Christ, St. Joseph of Arimathea arrived at Glastonbury bringing with him the Chalice of the Last Supper. Up on Wirrall Hill, nearby, the Saint leaned on his staff to pray, and "Lo, when the prayer was ended the staff had taken root and blossomed."

So runs the legend and we are told this original tree was cut down by a fanatic 17 centuries later. Slips had been taken, however, and planted, one in the Abbey grounds and another in front of the Parish Church.

Bristol has an interesting annual custom held on 21st December, dating from 1613. For more than 300 years the old folk of Dr. White's Almshouses, attached to Temple Church, which has the leaning tower, have celebrated the memory of the founder of the 31 houses, called Temple Hospital, in which they lived. On that day the Governors dine and entertain the Lord Mayor, the Sheriff and the "antientist alderman of the city," with other honoured guests. Afterwards, in the Common Room downstairs the feast is laid for the old folk, and the Vicar of Temple Church presides and carves for this interesting annual feast.

Until 1939 the traditional old time menu at this feast included "Baron of Beef, Pease Pudding, and a mighty Apple Pie." In less austere times the latter contained 99 apples and one quince, and had to be cooked in a pewter dish. The Baron of Beef roasted practically all day, in a spit before a roaring fire, just as in centuries gone by.

With just mention of the Christmas Trees that appear each year, in Trafalgar Square, Bristol, Torquay, and outside Bath Abbey among other places, we come to the Yuletide customs of Boxing Day itself. The 26th of December is a great day for huntsmen and one of the most picturesque scenes is the meet at the Ship Inn, Alveston, in Gloucestershire. With the background of an old coaching inn, appearing much as it did in Dickensian days, large crowds gather to watch the start of the Berkeley Hunt.

Another West Country custom is the burning of the ashen faggot, regularly

The Christmas Toy Parade in Holborn, London. The street vendors appear about 22nd November and work from 10 a.m. to 5.30 p.m. But few remain and those now seen are the last of the street toysellers.

observed at the Luttrell Arms, Dunster. The company drink a toast as each binding band round the faggots bursts. The faggots had previously been placed on the fire by the oldest man or woman present. The custom is also celebrated in many Somerset farmhouses over Christmas, and really commemorates the exploits of King Alfred.

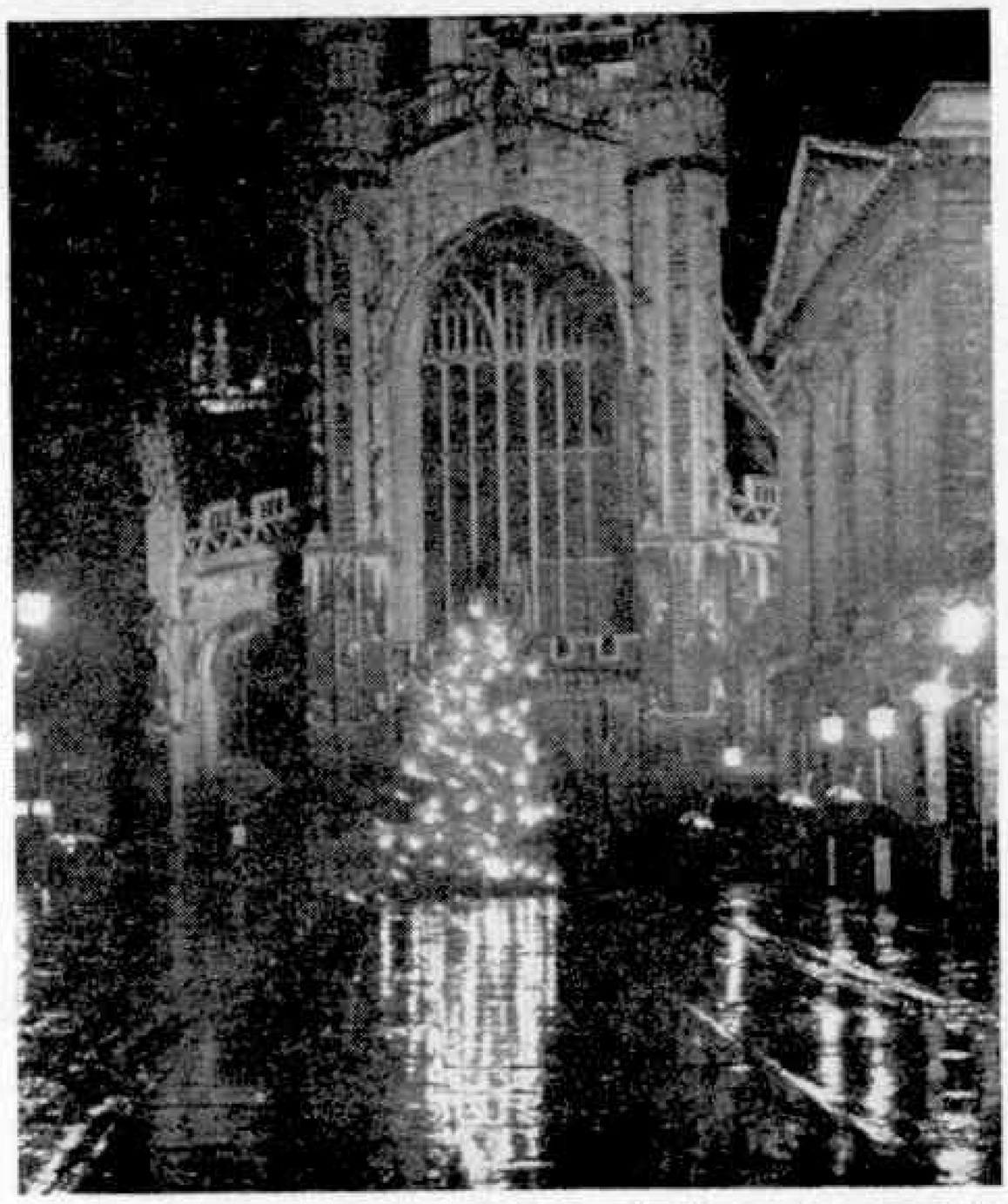
One of the quaintest and most picturesque customs of Yuletide is the mumming play, a survival of mediævalism still remaining in our English countryside. The old word "Mummer" means actor, but these mummers are actors such as one never meets on the stage! They are from the ordinary village community, and their parts have been handed down from father to son for at least 800 years. Elements in their play go back to the sacrificial rites of primitive paganism, long before the dawn of history.

Mumming plays may be seen at Halnaker near Chichester in Sussex, Freefolk in North Hampshire, Evershot and Dorchester in Dorset, and Marshfield in Gloucestershire, besides places in Oxfordshire, and Warwickshire. Usually their costumes are strips of coloured paper or cloth, and may represent the mail clad attire of Norman Knights, with paper visors to conceal the features. Characters in the play include a King, Old Father Christmas, a Doctor, Beelzebub the Devil, and others varying according to the locality.

A custom for the romantic tourist is the Figlet Market observed at Okehampton, Devon, on the Sunday after Christmas. A man may speak to, or kiss any girl who takes his fancy—and no mistletoe is required for this rite!

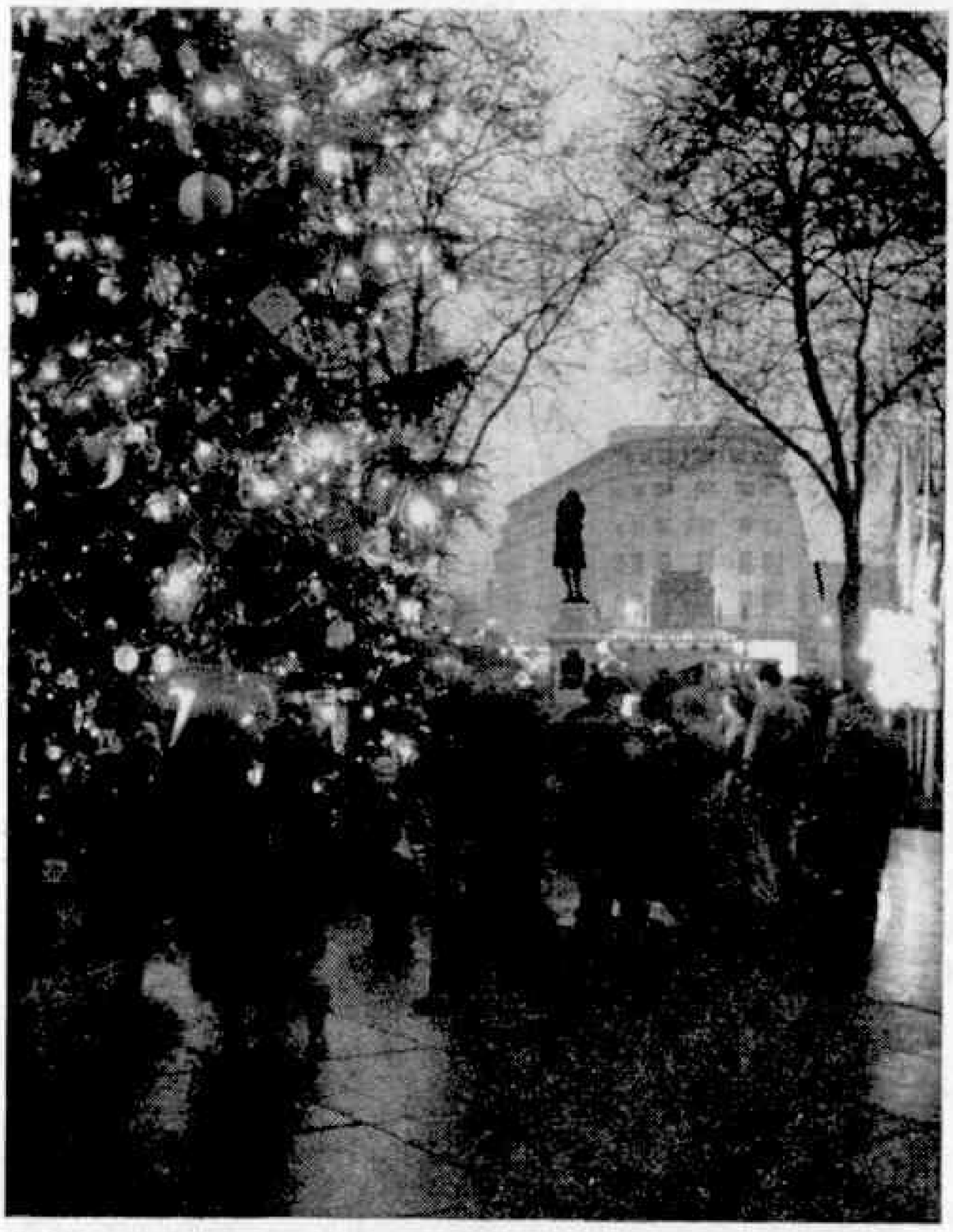
A New Year custom, but associated with Christmas as it is held on Old Twelfth Night, 16th January, takes place at Garhampton, and at Dunster, in Somerset—the custom of toasting the apple trees to ensure a good crop. The men of the villages form parties and proceed to orchards, where the farmer meets them with his storm lantern. They all stand in a ring round the trees and then sing the old time Wassailer's Song which has this chorus:

"Old Apple tree, Old Apple Tree, we've come to Wassail thee
To bear, and to bow apples enow, hats full, caps full, three bushel
Bags full, Barn floors full, and a little heap under the stairs."



Christmas at Bath, Somerset. The Christmas Tree outside the Abbey and Pump Room is reflected on the wet pavestones.

After this has been sung, cider is handed round and drunk to the tree's health with many toasts. Finally *evil* spirits are scared away by the firing of a gun through the branches, and a piece of toasted bread is placed in the fork ostensibly for the birds, but really intended as an offering for the *good* spirits to watch over the apple trees. It is another custom dating from the dawn of history, and it is good news to hear of its annual observance in these modern times.



Christmas Eve in Colston Avenue, Bristol, the heart of the City, where parents and children gather round the Christmas Tree.

We are taking much more interest in these ancient customs and an example of this is the showing of a Kissing Bough each Christmas in Bristol's Museum. Made by a local lady, it is of iron, bent in the form of a crown or globe, covered with greenery and decorated with apples and lighted candles. Usually a bunch of mistletoe is fixed to the underside, and in the North of England small presents are hung from it on long streamers of coloured ribbons.

Although this modern version has electric candles, it gives a good idea of the old-time custom. Holly, Ivy, Yew and Rosemary were freely used from early days, but mistletoe was forbidden in church as being indicative of paganism. These were superseded in England by the Christmas Tree of Northern Europe about 1880. This design is in the form of a globe; for low ceilings, a crown was chosen.

Many charities are connected with the festival of Christmas. One celebrated in the Somerset village of Keynsham is the Holbin Charity, dating from 1619. A sum of money allows the poor and aged folk of the parish to receive a gift of bread. The age of the oldest recipient is actually exceeded by the age of one of the trustees, both being nonagenarians.

The toys of small boys—and girls—are special features in the weeks before Christmas; local stores arrange that their version of Santa Claus shall arrive by air, sea, or road, and he gives away presents during his triumphant progress. Cathedrals and churches invite young people to give their toys for redistribution to their less fortunate fellows, and this is generally done by adding the parcels to a Christmas Tree set up in the nave. A striking scene presents itself annually in the blitzed church of St. Nicholas, Bristol—a toy laden Christmas Tree and a representation of the Bethlehem scene set against a background of ruined walls and open to the sky.

So you will find the real old Christmas spirit in town and country, and in many places the merry season being celebrated in traditional and picturesque ways.

Flying in the Land of the Reindeer—(*Continued from page 603*)

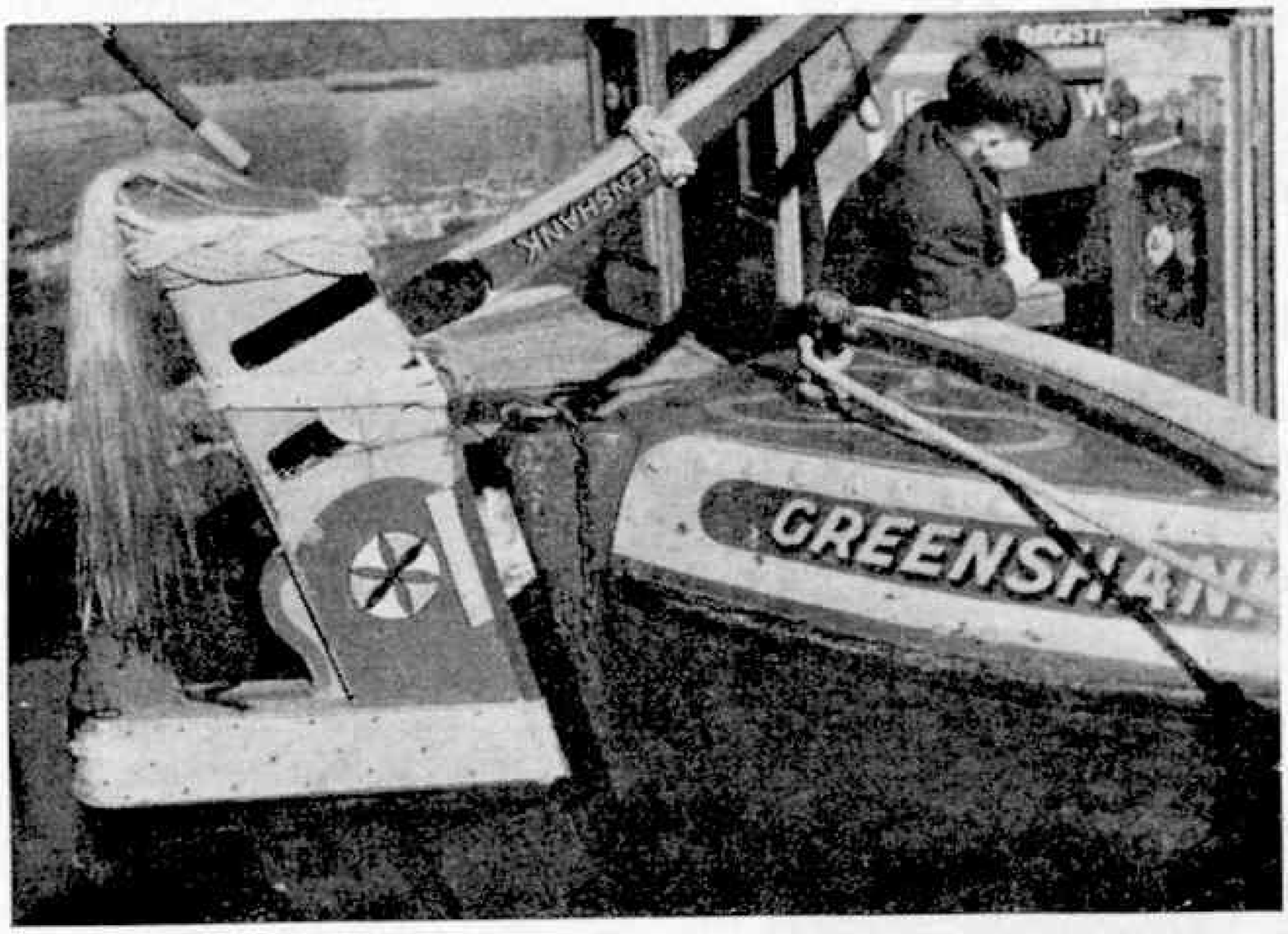
has grown to be not only one of the densest in the world but one of the most popular, because fares are only threepence a mile. One of the places served is Ivalo, 143 miles inside the Arctic Circle, and Finnair also flies to Paris, London, Hamburg, Amsterdam, Stockholm, Copenhagen and Moscow. It was, in fact, the first Western European airline to receive permission to operate to the Russian capital, in February, 1956.

Today, Finnair's fleet includes one Convair-440 Metropolitan, three Convair-340's and ten Douglas DC-3's with another Metropolitan on order. In the first seven months of this year they carried 167,625 passengers, which may not sound a lot until you remember that Finland's total population is less than half that of London.

MECCANO MAGAZINE

Junior Section

IT is not often that a narrow boat with a tail can be seen plying on the canals of Great Britain. *Greenshank*, seen in the upper picture on this page, has a white horse tail nailed to its rudder post. I. Broadhead, the reader who photographed it, tells me that the boat is believed to have belonged to a canal family that lost a cherished white horse, and its tail was pinned astern so that its strength and virtue might go with them forever.



Narrow boat with a white tail. Photograph by I. Broadhead, Wakefield.

I do not need to tell you that horses are little used today for hauling barges. They have been largely replaced by that more modern form of power, the diesel engine. Modern ways appear to have been introduced too in the decoration of barges. At one time delightful pictures of roses and castles and other favourite subjects were painted on their sides by hand, and were the pride of those who lived in them. Boatmen of today speak regretfully of the days when this was the rule. Today many of the decorations seem to be applied by means of transfers.

A boat of another kind is prominent in the second picture on this page. In this instance the boat is well and truly inland, for the picture was taken at Banbury, which is not so very far from the very centre of England—but it is on its way to the sea.

How to carry a boat to sea. Photograph by Bernard Croft, Cranleigh.

Easy Model-Building

Spanner's Special Section for Juniors

Attractive Models for Outfits No. 00 and 2

THE simple Windmill shown in Fig. 1 can be built from parts in a Meccano No. 00 Outfit, but the *Magic* Motor by which it is driven, is of course not included in the Outfit.

You should start building the model by bolting two Trunnions 1 to a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate. The Flanged Plate forms a base for the model and the Trunnions support two Strips 2 and 3. For the Strip 2 you can make use of a $5\frac{1}{2}''$ Strip, but for strip 3 you must bolt together two $2\frac{1}{2}''$ Strips.

The Windmill sails are made by fixing a $5\frac{1}{2}''$ Strip to an Angle Bracket. Now thread a nut on to a bolt and pass the bolt through the Angle Bracket. Screw the bolt into a threaded hole in the boss of a 1" Pulley 4, and then tighten the nut to fix the Angle Bracket in place. Fix the Pulley 4 on a 2" Rod 5, which you should pass through holes in the Strips 2 and 3.

The next step is to bolt a *Magic* Clockwork Motor to the base and connect the Motor pulley to a $\frac{1}{2}''$ Pulley 6 with a cord belt. You should fasten Pulley 6 on a $3\frac{1}{2}''$ Rod, which also is supported in Strips 2 and 3, and connect a 1" Pulley 7 on the Rod to Pulley 4 by means of a Driving Band. Use Spring Clips to hold the Rods in place in the Strips. The $\frac{1}{2}''$ Pulley and the Driving Band are supplied with the *Magic* Clockwork Motor.

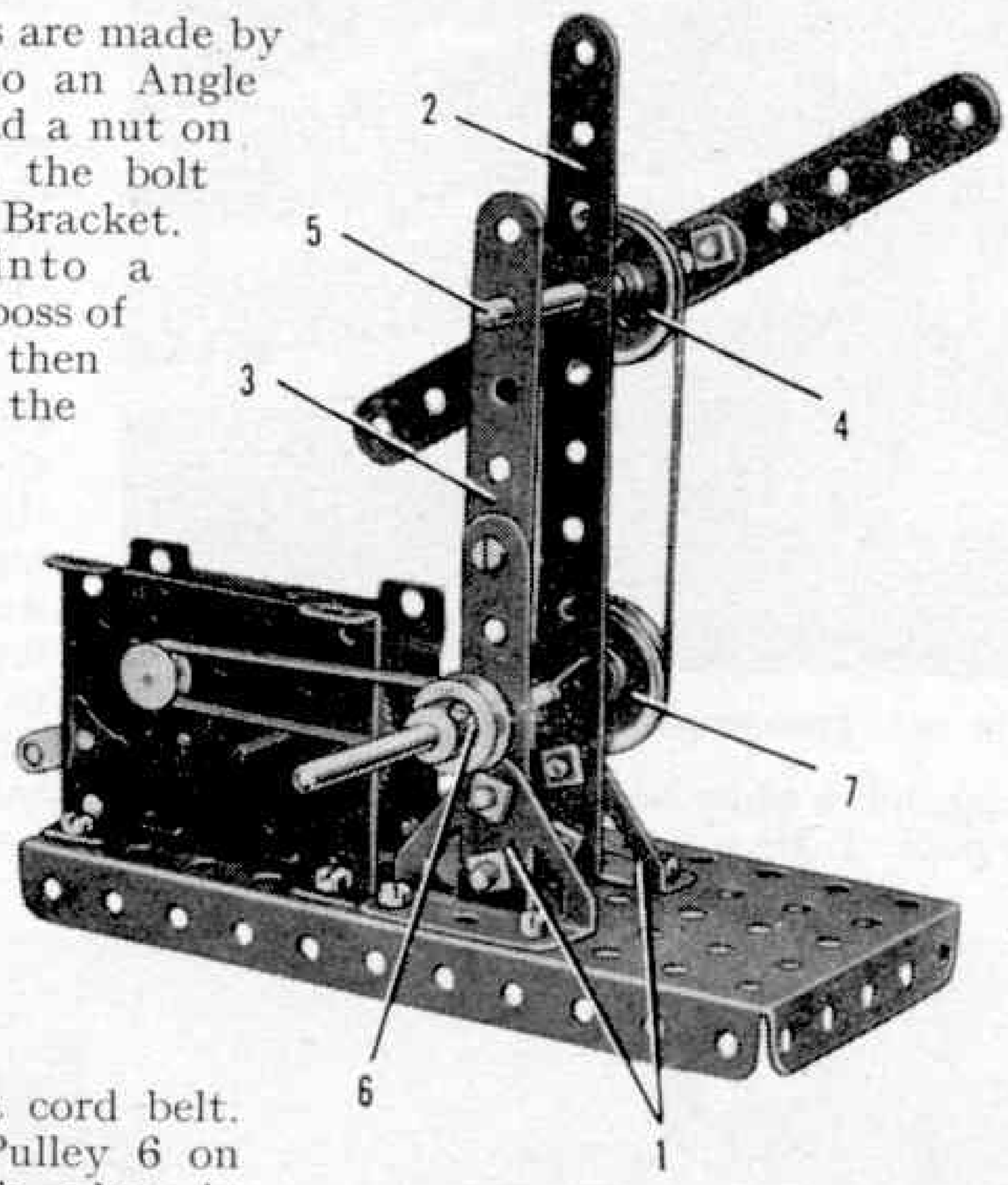


Fig. 1. This Windmill is an attractive example of a No. 00 Outfit model driven by a Magic Clockwork Motor.

You will require the following parts to build the Windmill: 2 of No. 2; 2 of No. 5; 1 of No. 12; 1 of No. 16; 1 of No. 17; 2 of No. 22; 3 of No. 35; 13 of No. 37a; 13 of No. 37b; 1 of No. 52; 2 of No. 126; 1 *Magic* Clockwork Motor.

Mobile Crane

You should begin construction of this model by making the wheeled base. For this you require a $5\frac{1}{2}'' \times 2\frac{1}{2}''$ Flanged Plate, with four 1" Pulleys fixed in pairs on $3\frac{1}{2}''$ Rods mounted in the side flanges. Bolt an Angle Bracket to a Trunnion 1, and fix the Angle Bracket tightly to the base so that the hole at the pointed end of the Trunnion is exactly over the centre hole in the Flanged Plate.

To make the sides and rear of the cab you should bend two $5\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plates as shown in Fig. 3 and bolt them together. Now fix a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate to four Angle Brackets bolted to the front ends of the sides, and bolt two $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips between the sides. One of these Double Angle Strips is held by the bolts marked 2 in the pictures and the other by the bolts marked 3. You can fill in the top of the cab with a $2\frac{1}{2}'' \times 2\frac{1}{2}''$ Flexible Plate 4 and a $2\frac{1}{2}'' \times 1\frac{1}{2}''$ Flexible Plate 5. Bolt these to the Double Angle Strip held by bolts 2, using the same bolt to attach two Angle Brackets, to each of which you must fix a Flat Trunnion 6. Now bolt a $2\frac{1}{2}''$ Stepped Curved Strip to the Flexible Plate 4 and connect it to the back of the cab with an Angle Bracket.

The side window of the driver's cabin is made from two $2\frac{1}{2}''$ Strips, and the roof is a Trunnion bolted to these Strips.

You should fix two Fishplates to the Trunnion as shown in Fig. 3. The cab is now ready to be mounted on the wheeled base. To do this you should fit a Rod and Strip Connector to one end of a 2″ Rod, then pass the Rod through the Double Angle Strip held by the bolts 3 and through the Trunnion 1 and the Flanged Plate. Fix a Road Wheel on the lower end of the Rod to hold the cab and the base together.

Each side of the jib is made from two 5½″ and two 2½″ Strips arranged as shown. The sides are connected by a ½″ Reversed Angle Bracket 7 and a ⅜″ Bolt 8, which is held in one side by two nuts. You must mount the jib on a 2″ Rod passed through holes in the lower Strips of each side, and through holes in the Flat Trunnions 6. This Rod is the winding shaft for the hoisting Cord, which is tied to the Rod, passed over the Bolt 8 and fitted with a small Loaded Hook. A handle on the Rod can be made by fixing a ⅜″ Bolt in a Bush Wheel 9.

To raise and lower the jib a Cord is tied to a Crank Handle 10 and to the rear ends of the 2½″ Strips. The Crank Handle is mounted in the Flat Trunnions 6 and is held in place by Spring Clips.

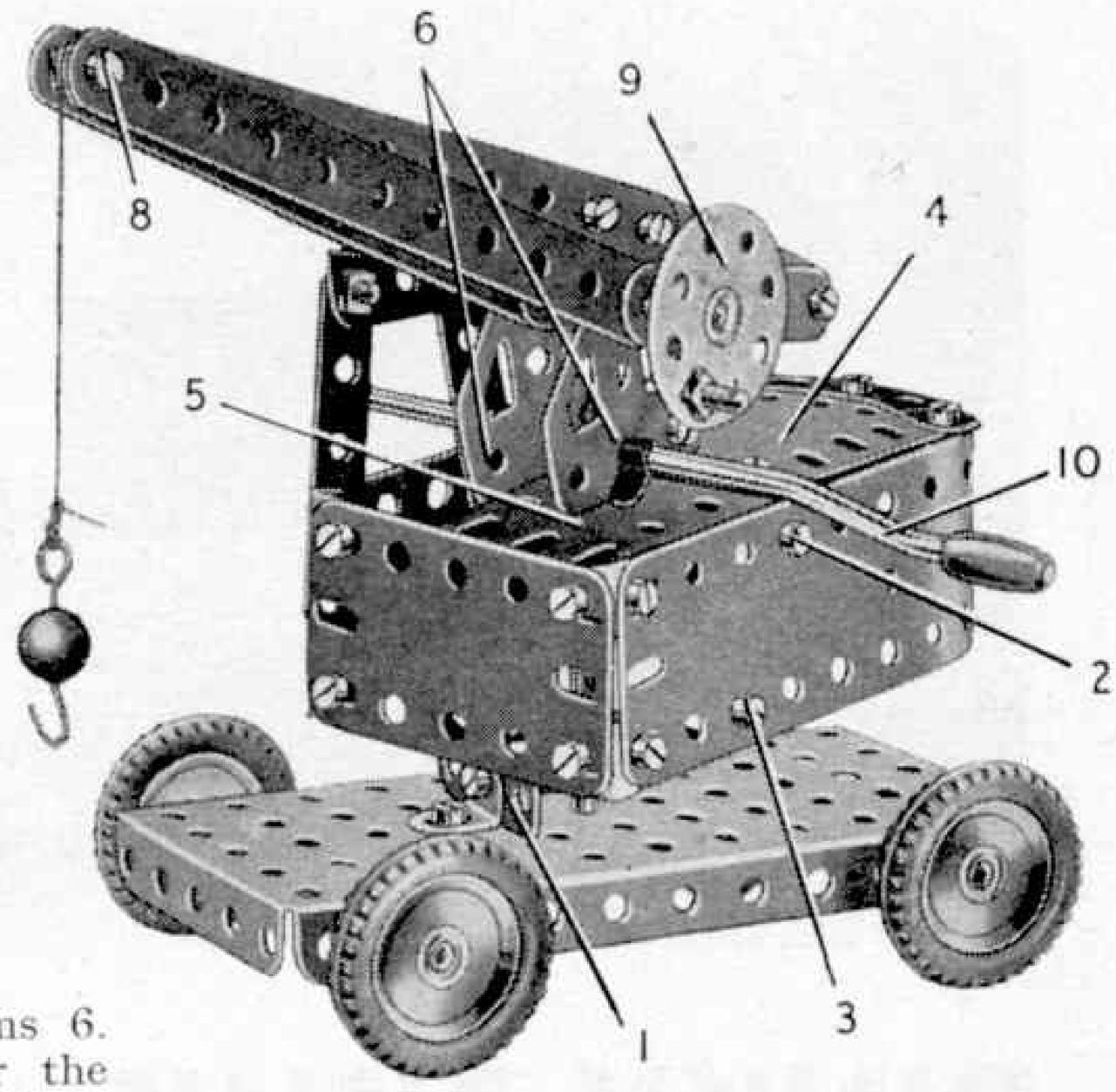


Fig. 2. A splendid Mobile Crane that makes a fine model for owners of a No. 2 Outfit.

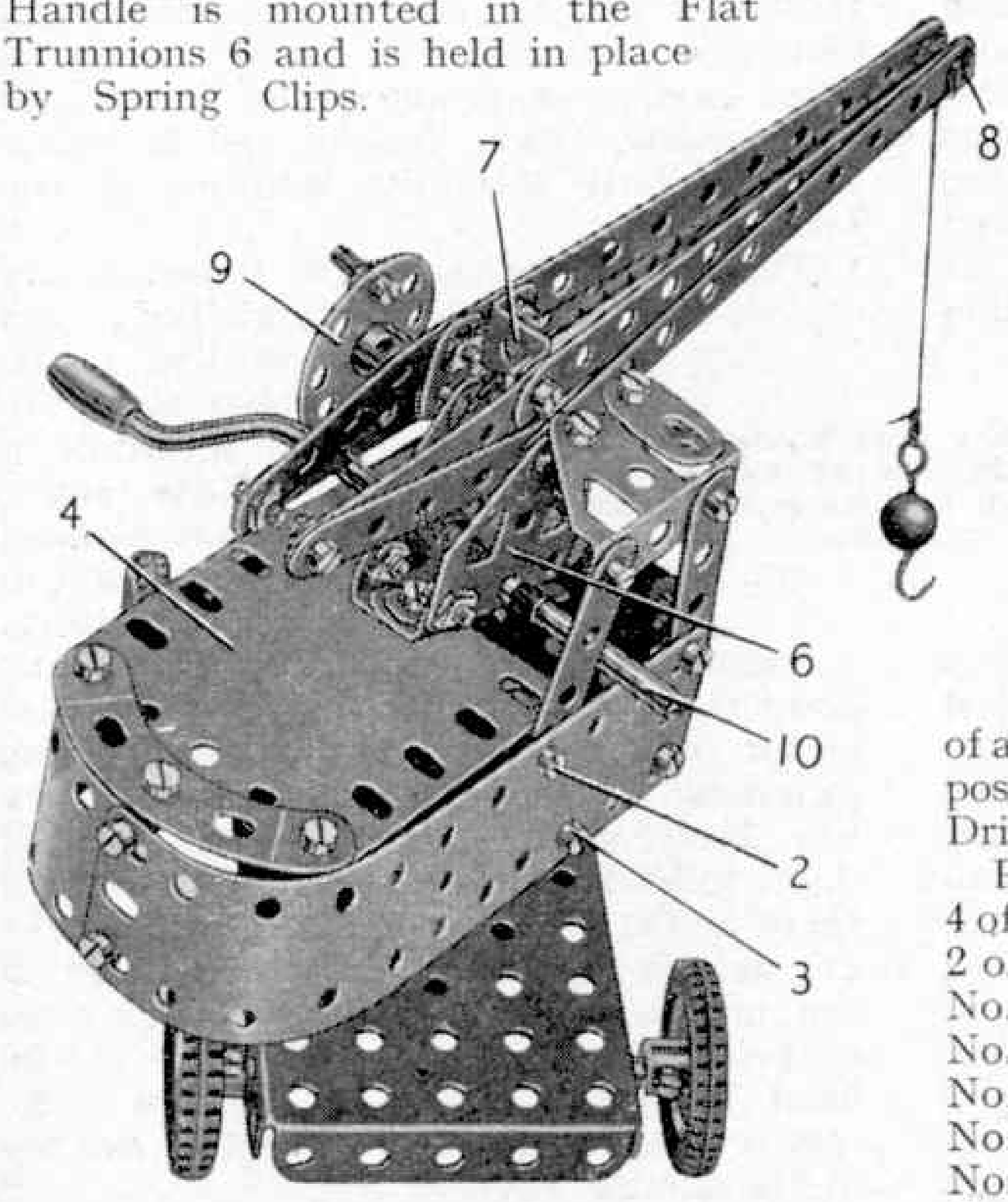
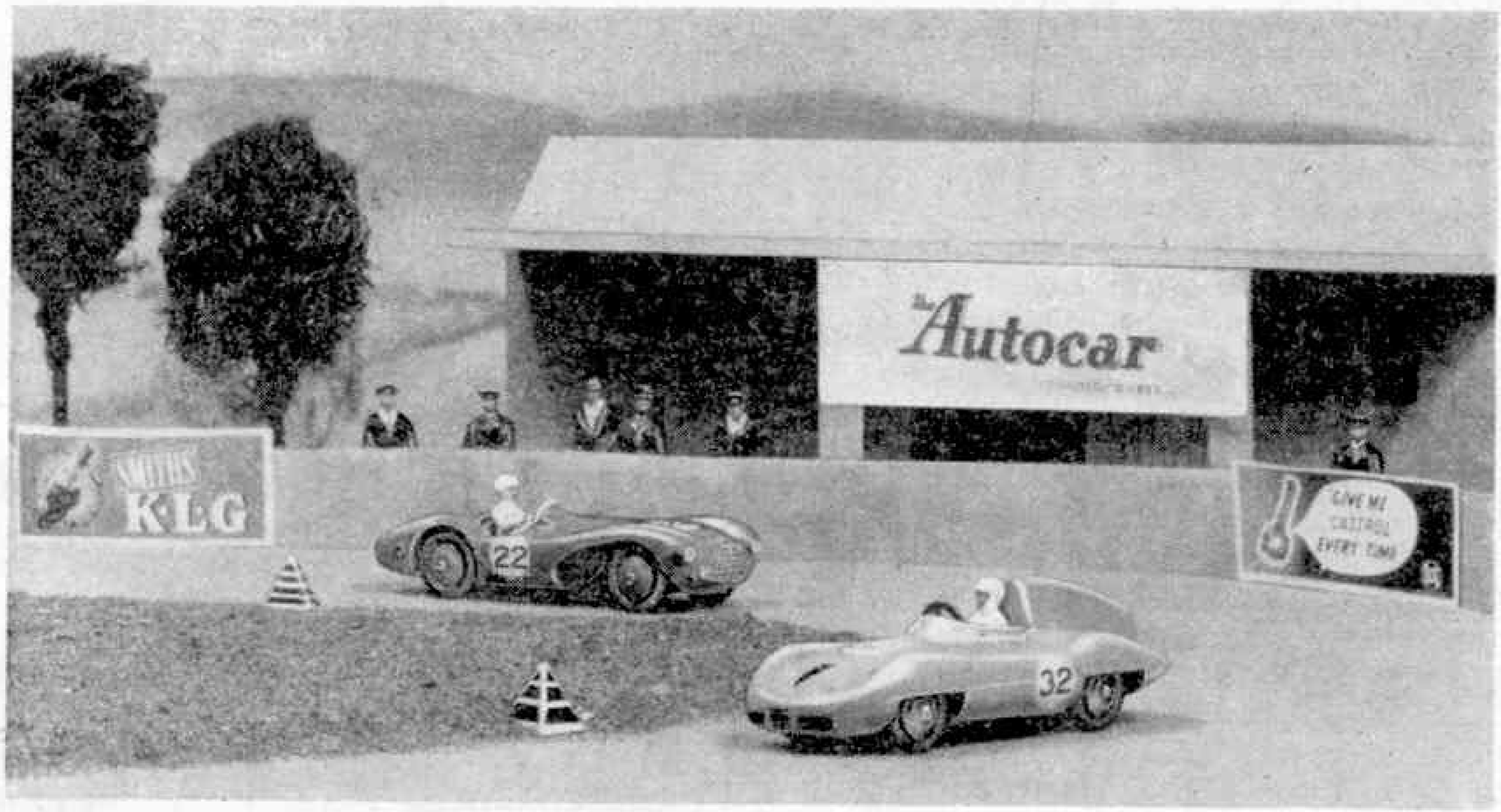


Fig. 3. This view of the Mobile Crane shows details of the top of the cab and the jib supports.

If you have a *Magic* Motor available and a few extra parts you can use the Motor to drive the Crane along the ground. To arrange the model for motor drive you will need to make a few minor alterations to the model as follows. First remove the Road Wheel that holds the cab and the base together and replace it with a Collar. Instead of mounting the wheel axles in the Flanged Plate bolt four Flat Trunnions to the flanges of the Plate in pairs, in line with each other. Then push an axle through the hole at the pointed end of each Flat Trunnion and fix the wheels on them in the usual manner. One of the axles should be fitted with a ½″ fast Pulley at its centre. Bolt the *Magic* Motor underneath the Flanged Plate and connect its driving pulley to the ½″ fast Pulley on the axle by means of a Driving Band. Take care to arrange the position of the *Magic* Motor so that the Driving Band runs quite freely.

Parts required to build the Mobile Crane: 4 of No. 2; 6 of No. 5; 4 of No. 10; 8 of No. 12; 2 of No. 16; 2 of No. 17; 1 of No. 19g; 4 of No. 22; 1 of No. 24; 4 of No. 35; 36 of No. 37a; 32 of No. 37b; 2 of No. 38; 1 of No. 40; 2 of No. 48a; 1 of No. 52; 1 of No. 57c; 1 of No. 90a; 2 of No. 111c; 1 of No. 125; 2 of No. 126; 2 of No. 126a; 4 of No. 142c; 1 of No. 187; 2 of No. 188; 2 of No. 189; 1 of No. 190; 1 of No. 212.



The latest Dinky Toys Racing Car, No. 236, Connaught, has an exciting duel with a rival for the lead in a miniature race game.

DINKY NEWS

A New Racing Car

By **THE TOYMAN**

IN recent years there has been a tremendous increase in the popularity of motor racing in this country, and Grand Prix races and other major events now attract thousands of enthusiasts. No doubt the television broadcasts of car racing have done a great deal to bring this exciting sport into the limelight, but whatever the reason it is certain that motor racing is now an outstanding attraction.

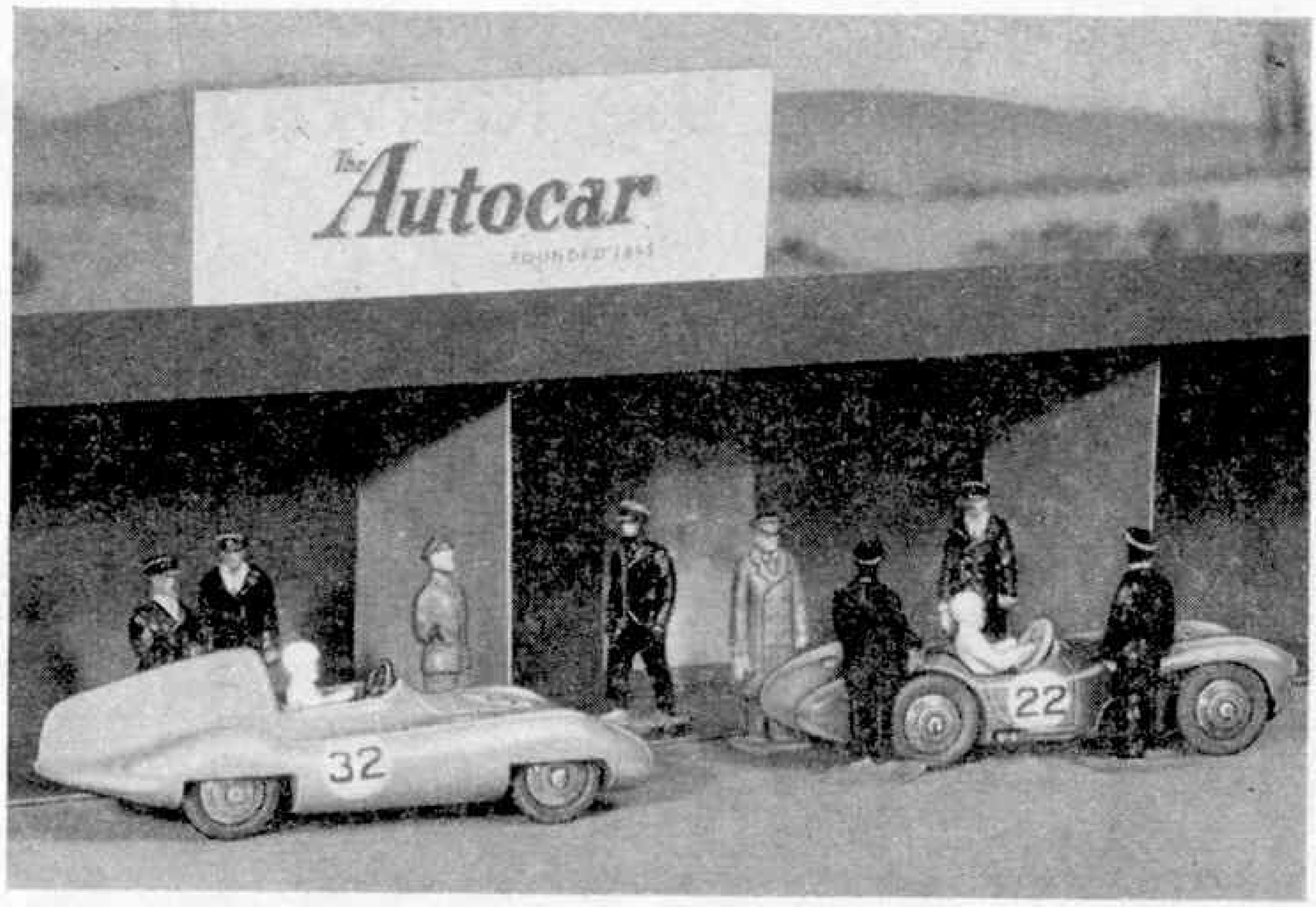
This growth in the popularity of car racing is reflected in the requests we receive for more Dinky Toys based on racing cars, and I am glad to be able to give you news of a new development in this field. The latest model is the Connaught Racing Car, Dinky Toys No. 236, which is illustrated on the opposite page and appears in the two miniature race track scenes pictured in these pages.

For many years continental car manufacturers reigned almost supreme in international car racing events, but recently this supremacy has been challenged very successfully by several British interests. Practically all of these are small in comparison with the continental firms who specialise in racing, whose resources and experience are considerably superior, and the achievements of the British cars therefore are all the more noteworthy. Our new Dinky Toy is based on one of these cars, that produced by Connaught Engineering, Send, Surrey, and it makes a particularly attractive addition to the range.

The Connaught racing car is beautifully styled, and has an aerodynamic body with exceptionally clean lines. These lines are reproduced faithfully in the Dinky Toys model, and the result is most attractive, as you can see from my pictures.

One of the problems with an aerodynamic body style is to direct an adequate flow of air over the brake drums for cooling purposes. In the Connaught this problem has been solved by providing special ducts to lead cooling air to the brakes, and these ducts and the radiator air intake are among the many details included in the model. At a first glance, the most striking feature of the real car is the head fairing extended to form a large tail fin, and this also is copied exactly in the Dinky Toy.

The model is finished in an attractive shade of green that does full justice to



This scene at the pits of a Dinky Toys race track shows a Connaught and an Aston Martin DB3S receiving attention during a race.

the sweeping lines of the body, and a miniature driver, "dressed" in white overalls, is provided. Altogether the model is one of the finest in the range and I am sure every enthusiast will want to add it to his collection.

Although essentially a racing car, in miniature there is nothing to prevent you from using the Connaught with some of the sports cars in the range. In one of my pictures the Connaught and an Aston Martin DB3S battle for the lead round a bend in a race track layout, while in the other both of these cars are shown at the pits. It is possible to arrange really exciting contests with the racing and sports cars now available, especially if you can devise a suitable system of handicapping to give the drivers of the smaller and less powerful cars a chance against larger and faster opponents.

Recently a keen Dinky Toys collector sent me details of an exciting race game he has devised. The scheme is very simple and it can be adapted to suit almost any miniature race track, whatever its size and shape. The only modification required to make a track suitable for the game is to draw or chalk a series of lines at regular intervals, say three or four inches apart, along the course. Any number of competitors can take part, and each in turn rolls a dice to determine the number of lines he can cross with his car.

Hazards of various kinds can be introduced to add excitement. For example, one of the lines across the course could be marked "Pull in to pits for refuelling, miss two turns," and any competitor unfortunate enough to stop on this line must obey the instructions. Another line just before or after a sharp bend could mean the loss of one turn for misjudging the corner and running off the track. With these hazards, and others you can devise to suit your own race track, a really thrilling race can be arranged, with the excitement reaching a peak if the cars come into the finishing straight together on the last lap. Any suitable number of laps can be decided on for a race, and if necessary preliminary heats can be arranged.

The smooth lines and clean appearance of the Connaught Racing Car are shown to advantage in this view of the miniature, Dinky Toys No. 236.

Helping the Railway Scene

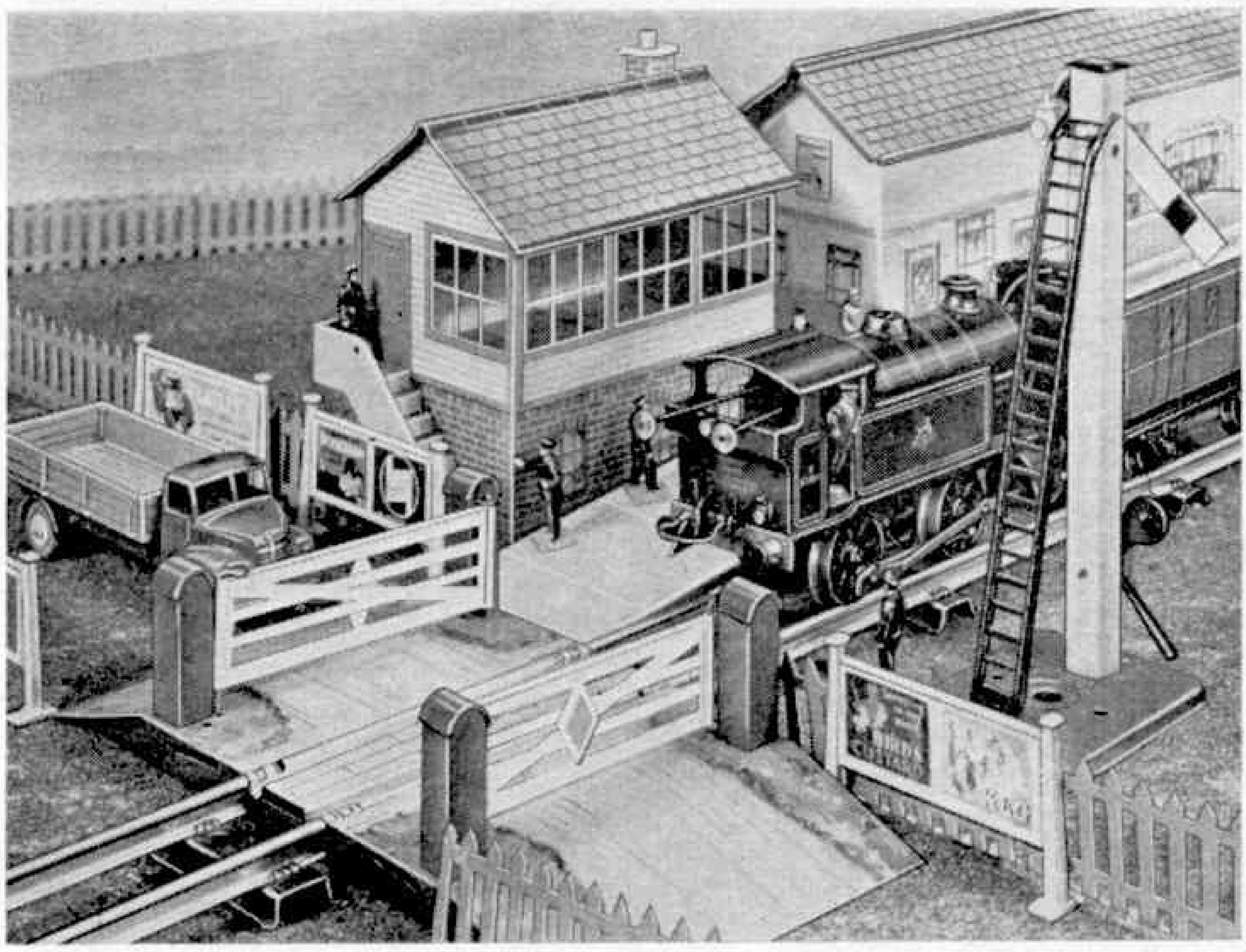
By "Tommy Dodd"

FOR our chat this month I have picked out one or two pictures that I think will interest most of you. They show various components of the Hornby System in use and we can, I think, find interesting things to say about each of them.

For instance, on this page we have a scene where the Level Crossing is placed near a Station, a situation for it that on real railways is common. In miniature, on the other hand, Level Crossings somehow are inclined to look somewhat "lost," because so often they are put "in the middle of nowhere." I know that it is not always easy to avoid this impression on a small railway that has to be put away when it is finished with, but use your Crossing along with other items in the System and you will be surprised by the improvement.

A real station is always reached by road; otherwise passengers would not easily get into it. And this road very often goes over the line by means of a level crossing. So it is good to use the Station and Crossing together. The Station in the picture is the well-known Hornby No. 3 Station, which is suited to the average Hornby Train.

Now look a little farther on the way to realism. You will notice that there is a Signal Cabin right by the Crossing, and therefore next to the Station platform. This position allows the Crossing to be properly controlled by the "Signalman," and you will notice that there is a home type Signal protecting the Crossing. Here the Hornby operator will find plenty to do. The Crossing Gates must be opened for road traffic when no trains are about and the Signal Arm is then kept in the *Stop* position. When a train is due, road traffic must be stopped by closing the gates across the roadway, and only then should the Signal be worked to show *Line Clear* to the train that is expected.

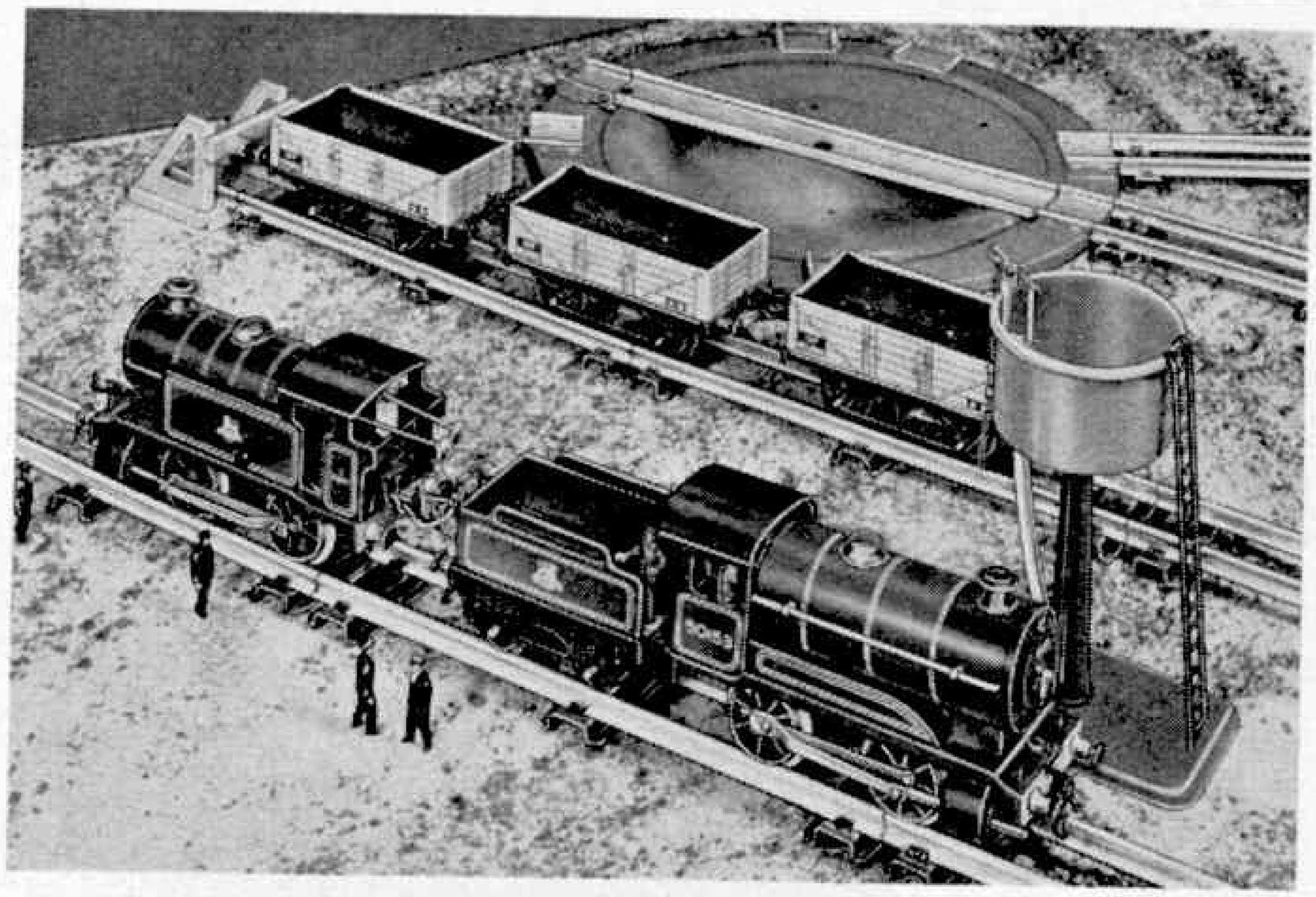


The road lorry waits at the gates while the train in charge of a No. 40 Tank is signalled past.

Perhaps the miniature train operator may not work the road traffic over the Crossing when the way is clear. Quite often this is a job that is thoroughly enjoyed by younger brothers, or sisters. Where there are several to run a line, one could be given the job of looking after the Crossing, working the gates and the Signal, and moving the Dinky Toys road vehicles that will naturally form the bulk of the road traffic. This will leave the others to look after the management of the engine and train, and the performance of station and other duties generally.

I expect that some of you will wonder how the railings or fencing shown in the picture are made. They can be assembled

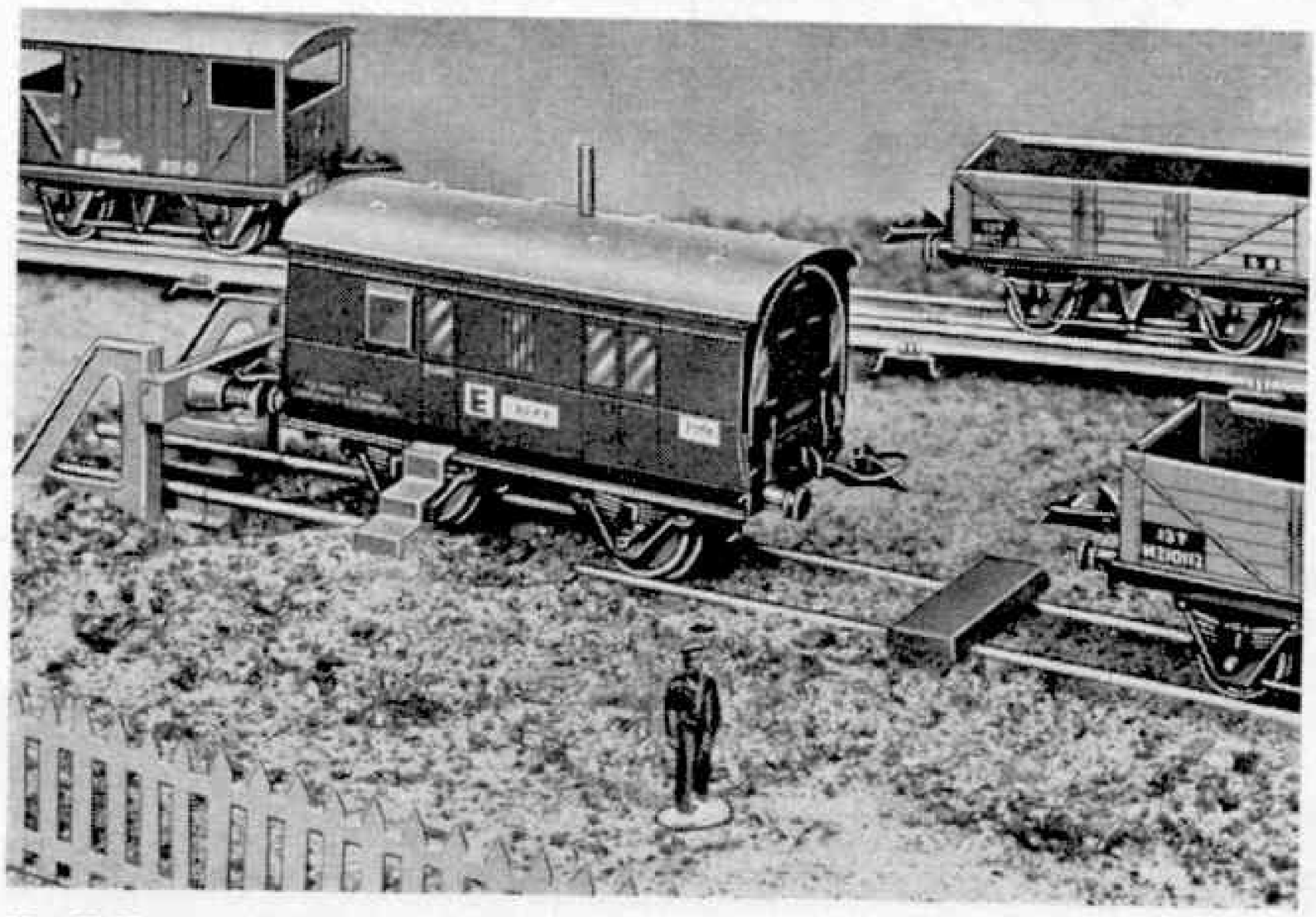
by gluing strips of thin wood or even card together, a sufficient number of pieces being cut to the right length before the business of gluing is begun. Alternatively, as you will have read before in the *M.M.*, the fencing can be drawn on card at first and then the spaces between the individual upright pieces cut out. A sharp knife is needed for this, so mind your fingers.



The Hornby Locomotives shown here are waiting for their next turn of duty. They are standing on the engine siding forming part of a locomotive yard.

Our next picture shows Hornby engines at home, or at least resting before their next journeys. To refresh them there is the familiar Water Tank, an effective item that looks well either in the engine yard where it is shown in the picture, in sidings where a lot of shunting is always going on, or at the end of the Station platform. There are nearly always wagons about near the engine sidings, either for the coal supplies needed, or to carry away the ashes and so on that are removed from real engines after their journeys. So we have three Hornby No. 1 Wagons standing behind the Water Tank.

The Hornby No. 2 Turntable appears in this picture. It can be fitted into the layout in different ways. It is long enough to accommodate any Hornby engine and tender of the types now listed, which is a useful thing for the "Motive Power Superintendent" to know. It can be used just for turning engines round, or it can be employed to transfer them to other roads in the yard. In addition, I have seen one in use at one end of a loop line arrangement, where it not only takes the place of Points, but also makes it possible for engines to be turned in the course of running round operations.



No. 41 Passenger Brake Van adapted to serve as a mobile mess room. A timber block across the track prevents other vehicles from being shunted into it.

Finally, we have a scene that is quite common in actual practice. A brake van or some similar vehicle is often adapted to serve as a mess room when engineering work of some duration is being carried on. The vehicle lives on a siding handy to the job. In our picture we have a No. 41 Passenger Brake Van fitted up to represent it.

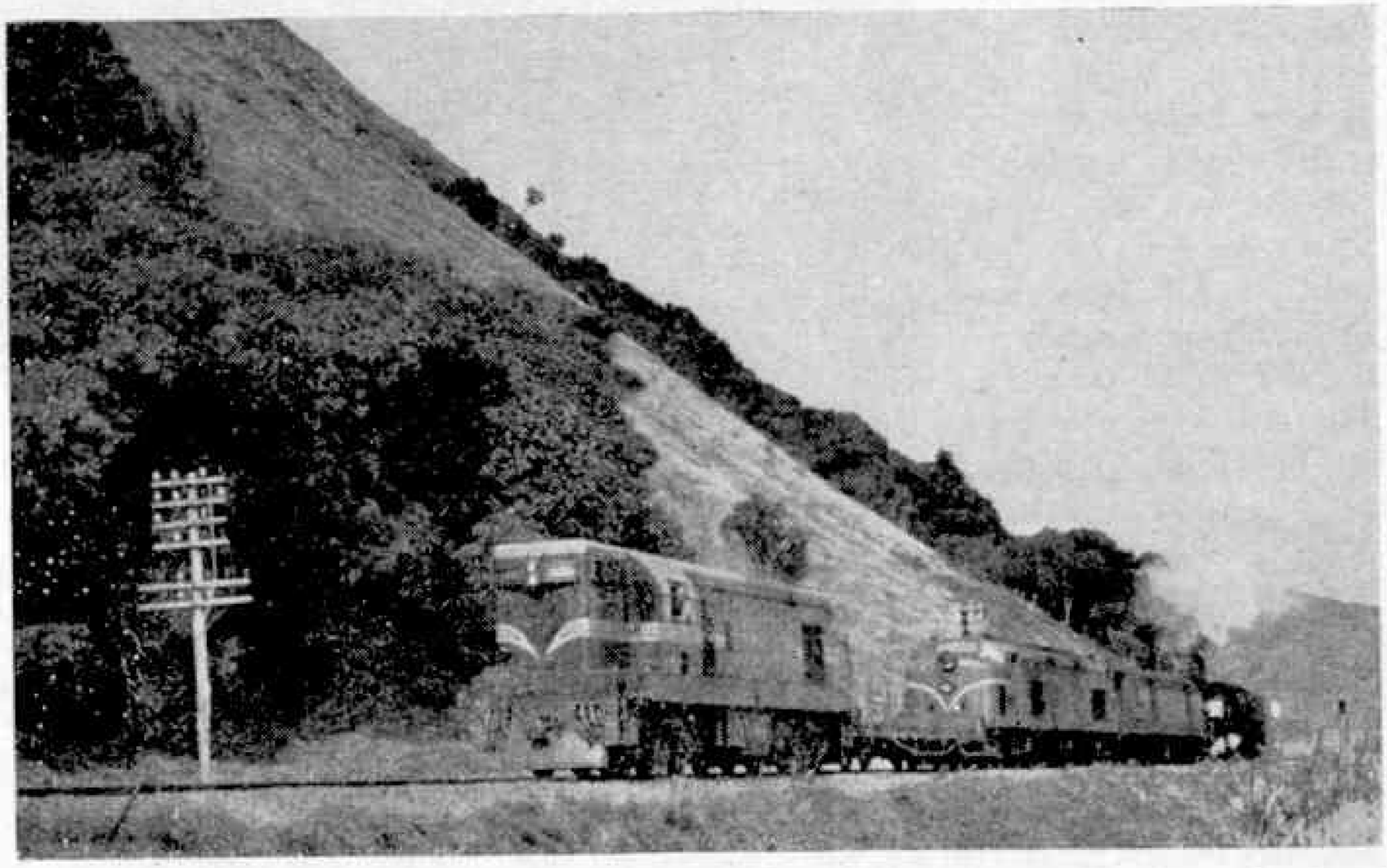
Such a van must have a "chimney" of course. You can make this from a strip of paper rolled up and glued. A stairway too is wanted, and can be formed from card.

Of General Interest

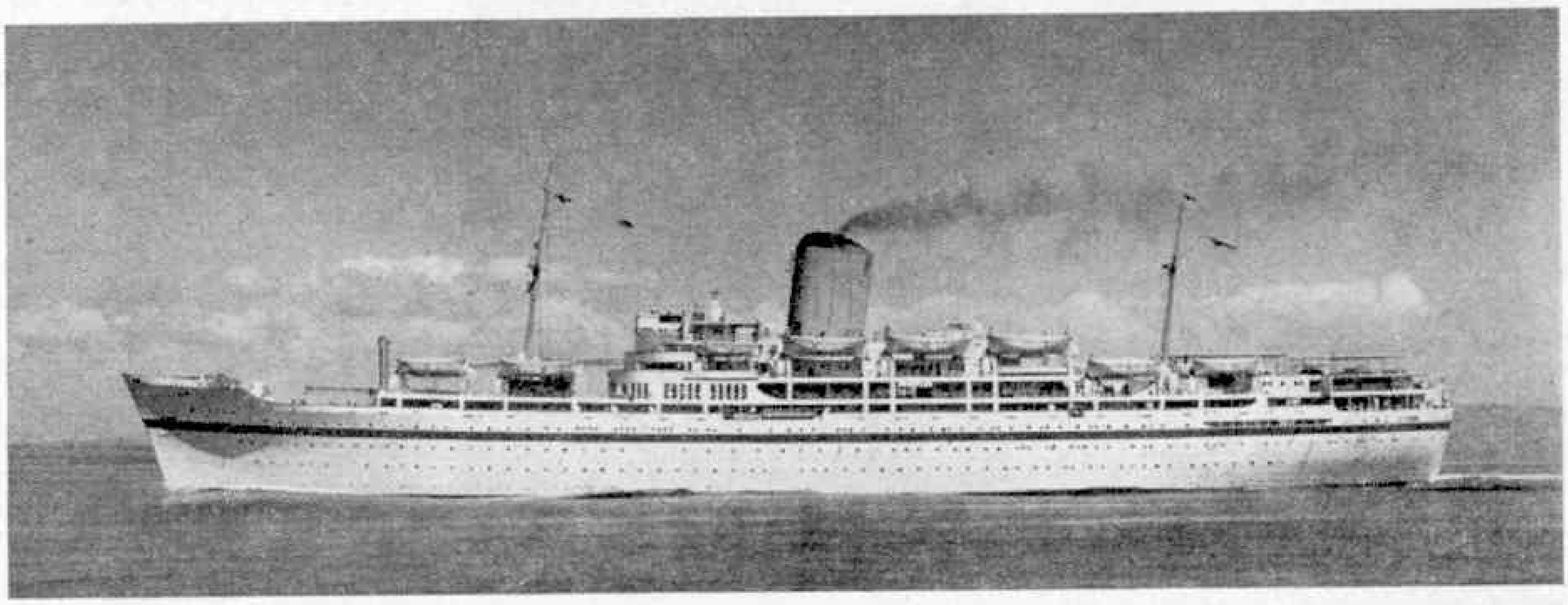
THE unusual train seen in the accompanying photograph was made up in New Zealand for testing rails. Electrical strain gauges were attached to the rails to show how they behaved under the load of the weighty train. This included two steam locomotives, one of the 145-ton Ka class, the largest in New Zealand, with one American and two English diesel-electric locomotives, a guard's van and three bogie wagons.

J. W. Walton, the New Zealand reader who sent me this information, took part in the final run on the Rimutaka Incline, an article on which appeared in the *M.M.* for September 1955. On that occasion he had ticket number 00000 and his son had a child's ticket with the same number, a remarkable combination.

In the past British troops have usually been carried overseas in passenger liners chartered and converted for the purpose. Now two new vessels are to be used only as troopships. One of these is the *Nevasa*, which is seen in the lower illustration on this page, the largest ship so far constructed for trooping purposes. She has accommodation of very high standard, and can carry 500 passengers in her first, second and third class accommodation, 69 sergeants and 931 troops. The number of troops carried can be nearly doubled in a very short time if necessary.

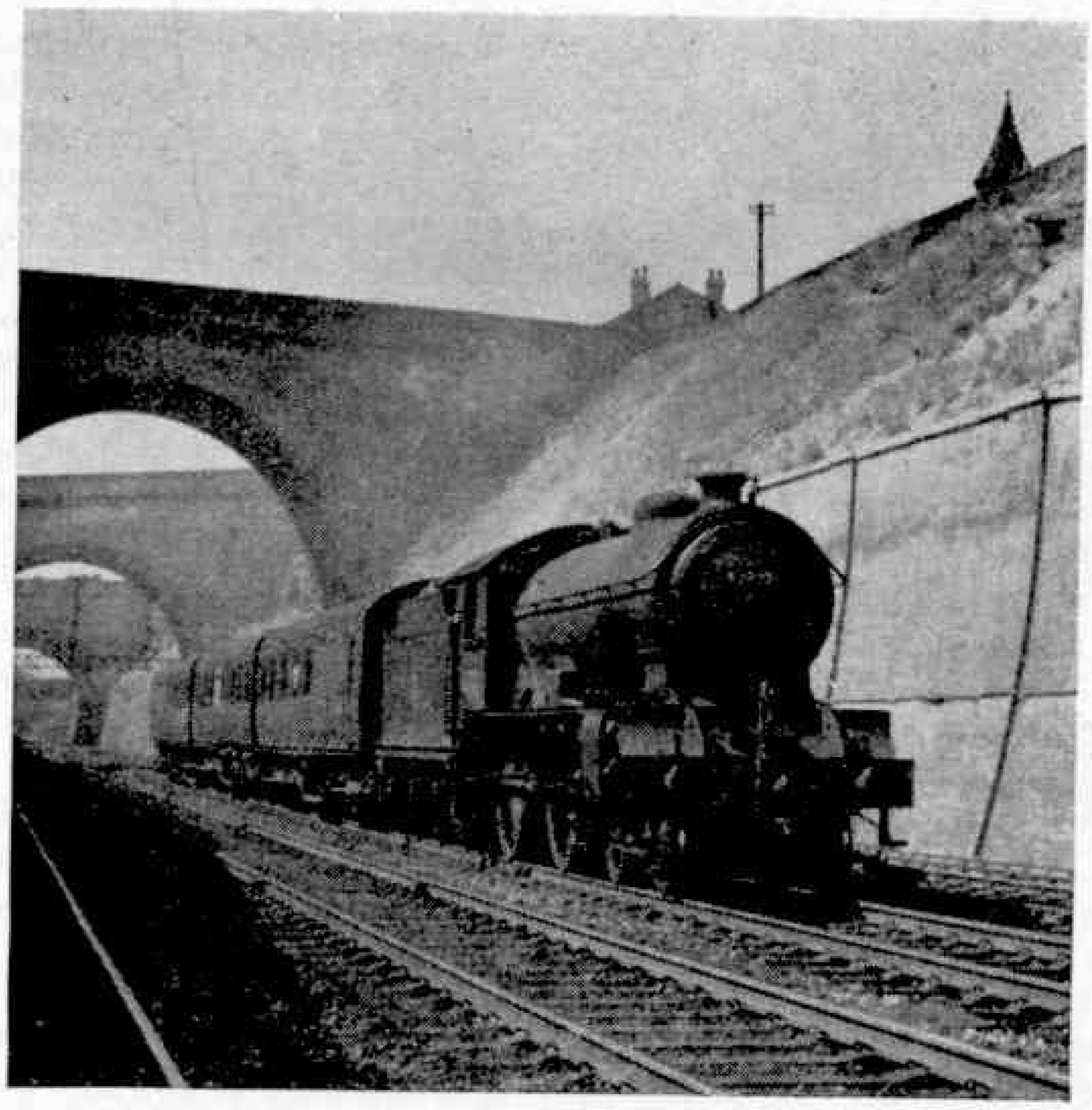


An unusual New Zealand train used for testing the behaviour of rails under load. New Zealand Railways photograph.



Britain's largest troopship, s.s. "Nevasa," of 20,527 gross tons. She was built by Barclay, Curle and Co. Ltd. at Whiteinch, on the Clyde, for the British India Steam Navigation Co. Ltd.

The Leeds and Selby Railway



by Yorkshireman

In Eighteen Hundred and Thirty Four,
I was working on the Railway,
Buildin Bridges, Dodgin Injins,
Diggin Ditches, Corduroy Britches,
I was working on the Railway,
The Leeds and Selby Railway.

THUS ran the calypso-like jingle of the Navigator engaged in making the iron way from Leeds to Selebia, the latter being the legendary name of Selby, on the Ouse. This was the mythical kingdom of a foreign prelate seeking a peaceful site to found a Church. It was chosen for him by a flight of swans, and so the swan became the symbol of Selby.

The Leeds and Selby Railway was a remnant of a grand alliance of 1824, a scheme to link the ports of Hull and Liverpool by a line of railway in three sections, Liverpool-Manchester, Manchester-Leeds and Leeds-Hull. Too many doubts as to its value caused the plan to be put aside. Later this proved to have been a false step, for on 28th June, 1826, the port of Goole was opened, and as it was nearer to the centre of industry than Hull, it at once began to deprive the latter port of trade.

Things came to a head two years later, in April 1828, when Goole began to despatch goods overseas and to receive imports. Urgent meetings were called in Leeds and Hull to revive the railway scheme, and it was agreed that the Leeds and Selby section should be built as soon as possible, and that goods should be shipped to Hull from Selby by fast packet boats. Accordingly, a Leeds and Selby Railway Committee was formed on 20th March, 1829, and the Act of Incorporation was obtained on 1st June, 1830.

Meantime, in the West there were no doubters, for the Liverpool and Manchester Railway Company had been formed in 1826. This line was opened throughout on 15th September, 1830, between Crown Street, Liverpool, and Liverpool Road, Manchester. Joseph Locke, a pupil of George Stephenson, had surveyed the line from Leeds to Selby in 1824, but now in 1829, serious objections to his line were found, and a new survey was completed by Walker and Comrie. Their report, dated 18th July, 1829, was approved by Stephenson and the Board. Walker and another engineer, Burgess, were retained as engineers to the Company, construction being let to Hamer and Pratt, of Goole, and Nowell and Sons, of Dewsbury, ground being broken on 1st October, 1830.

Pending a scheme whereby the Leeds and Selby was to join in a line through Leeds to Bradford, which came to nothing, active work did not begin until February 1831,

The picture at the head of the page shows No. 62702 "Oxfordshire" climbing through Marsh Lane cutting with a local train from Leeds to York. This stretch was in a tunnel when the Leeds and Selby Railway was built, and was opened out into a cutting about 60 years ago. The illustrations to this article are from photographs by the author.

when the 20 miles of works were pushed through with vigour. The major engineering work, the 700-yd. Marsh Lane tunnel, was completed in June 1833, and for the official opening on 22nd September, 1834, the interior was whitewashed in order to relieve the gloom, the only light being from three ventilation shafts, augmented by reflectors placed around the bottom of these. The structure which took 2½ years to construct, was looked upon as a fearful wonder by early travellers.

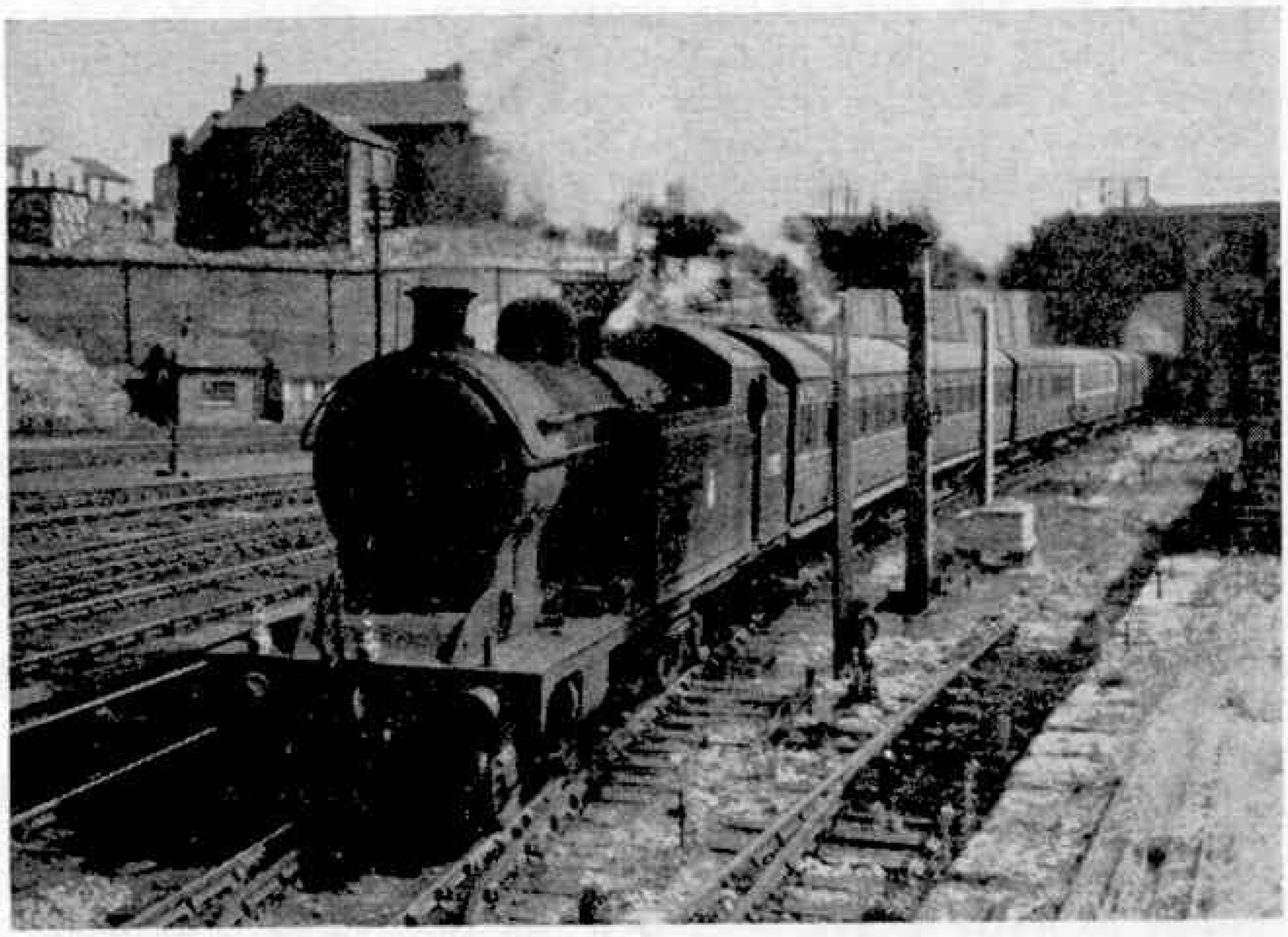
The official date of opening was 15th September, 1830, though runs had been made on the 14th. The day dawned fine, but Fenton, Murray and Wood's engine *Nelson*, took 2½ hours to reach Selby. Speed on the gradient to Garforth was as low as 3 m.p.h. Passenger traffic began on 23rd September, 1834, and goods traffic on 15th December, after a second line of rails was completed.

Stone station houses were provided at Cross Gates, Garforth, New Micklefield, South Milford, and Hambleton, and at Roman Ridge between Garforth and Micklefield, where the Gascoigne Colliery wagon way joined the Leeds and Selby, a Halt was provided so that passengers might reach Aberford Village. In 1835 wooden, barn-like stations were erected in Selby and Leeds. These were devoid of platforms and waiting rooms, and their joint cost was £28,600. The station at Selby is still in use as a goods station. Fares between Leeds and Selby were 3/- 1st Class, and 2/- 2nd Class. From Selby Hull and York were reached by Steam Packet and coach respectively, the latter journey costing 7/- booked from Leeds.

Until 1836, the line pursued its peaceful way, but with the granting in that year of the Acts of the Hull and Selby, Manchester and Leeds, and York and North Midland Railways, the shadow of the latter's Chairman, George Hudson, fell on the Leeds and Selby, for he at once tried to dictate junction terms, but at the time without result. The York and North Midland was opened to a junction with the Leeds and Selby at South Milford on 29th May, 1839, and to Normanton on 1st July, 1840, on which date the Hull and Selby was completed to an end on junction with the Leeds and Selby, crossing the Ouse at Selby by a cast iron double bascule bridge 191 ft. 6 in. long, erected in three years by the Briggs Butterley Iron Company.

A section of the Manchester and Leeds also was near completion, and fearing competition from it, Hudson again approached the Leeds and Selby with terms. These the Company was little inclined to accept, but the threat of competition with the York and North Midland to Hull led to a meeting of shareholders on 23rd October, 1840, and with almost indecent haste the Leeds and Selby was leased to the York and North Midland at a rental of £17,000 per year. Peter Clarke, its Manager, then announced to an astonished city that after 9th November, 1840, the line would be closed to passengers. They would then have to take a longer and dearer journey to Hull.

The haste of improper organisation led to a terrible accident at Milford Junction two days later, 11th November, 1840.



The site of the original station at Marsh Lane, which was the Leeds terminal of the Leeds and Selby Railway.

For ten years the Leeds and Selby carried only goods traffic, during which in 1844, it was bought outright by the York and North Midland for £210,000, and the Hull and Selby was leased to that Company also from 1846, giving it command of the North Eastern routes out of Leeds.

The Manchester and Leeds, thus thwarted of its plans to reach Hull, threatened a line via York and Market Weighton, and in order to prevent this, they too were allowed an option on the Hull and Selby, so that a through service, coast to coast, was at last available.

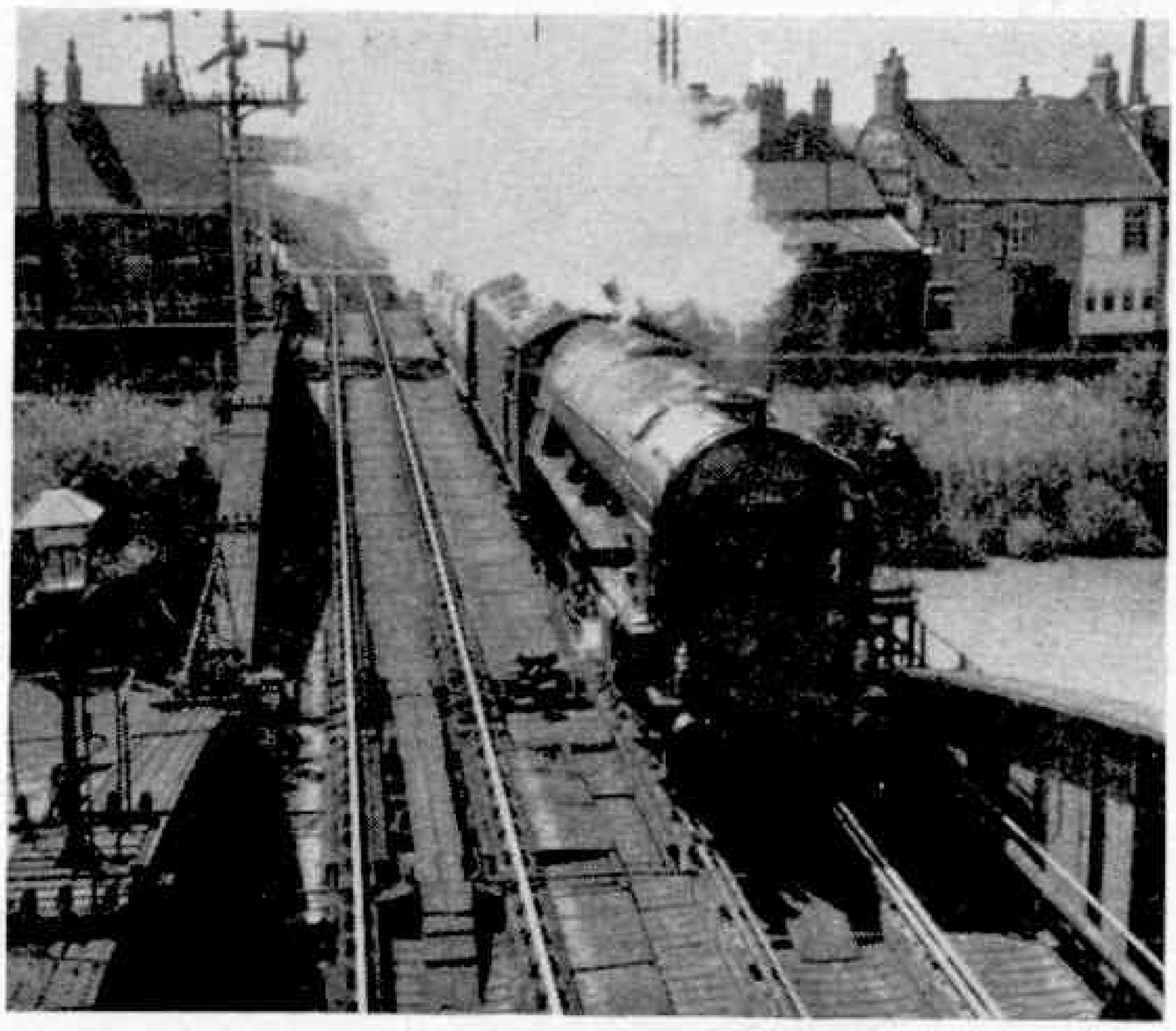
In 1849, Hudson fell from grace and early in 1850, the directors of the York and North Midland were obliged to re-open a passenger service between Marsh Lane and Milford Junction, pending a new agreement with the Midland for the use of its Station in Leeds. This service continued until 1869.

No. 62742 "The Braes of Derwent," of the Hunt class, leaving Leeds City Station with a Scarborough express. The York and Scarborough line diverges from the original Leeds and Selby Line at New Micklefield.

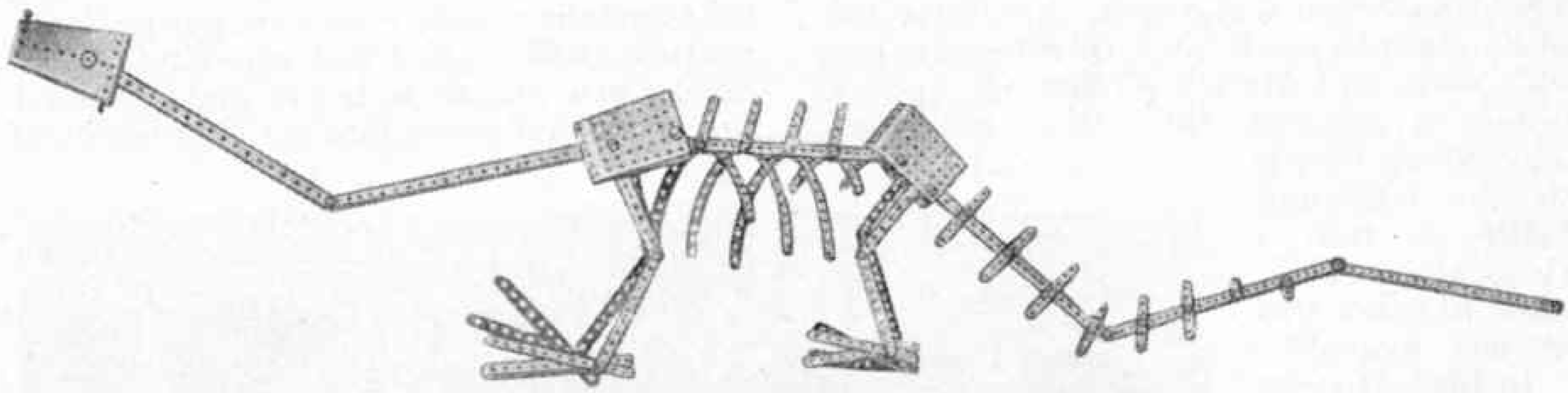
In 1854, along with many other lines, the York and North Midland was absorbed to form the North Eastern Railway Co., and along with the London and North Western Co., which had absorbed the Liverpool and Manchester in 1846, plans for development in Leeds and to complete the through route to Hull were put forward. In July 1865 a Joint Act was obtained to build a new Station in Leeds, and to extend the Leeds and Selby into it. This involved a viaduct, and an embankment from Marsh Lane passing through the graveyard of the Leeds Parish Church, the slopes of which were flagged by grave stones, though the graves were left untouched.

The new line and station were opened on 1st January 1869, at the same time as a diversion line was opened from New Micklefield to Church Fenton, thus shortening the route to York, and at last the 1824 plans were complete. The New Station, as it was called, covered an area of 7½ acres and was built entirely on brick arches reputed to contain 18,000,000 bricks, many facings being white glazed.

On 1st May, 1876, Cross Gates became a junction station, when the N.E.R. Wetherby Branch was opened, and on 12th August, 1878, a branch to Castleford made a junction with the Leeds and Selby near Garforth. Leeds New Station was enlarged at the same time, and the Marsh Lane cutting was opened out, along with the tunnel, to allow five lines of rails to be laid during the years 1894 to 1898. Then in 1904, a large locomotive shed and goods yard was opened at Neville Hill, along with a branch to the Great Northern Railway at Hunslet. (Continued on page 652)



This fine picture shows A1 Pacific No. 60148 "Aboyeur" crossing the swing bridge over the Ouse at Selby, which is used by trains to Hull as well as East Coast main line trains. The lamp on the left is a warning to shipping on the river when the bridge is closed.



It went—and "Doynged" as Well!

By R. V. Dickson

WITH *Punch*, *Picture Post*, the local daily, etc., there lay a small magazine with a fine picture in colour on the cover, and I, a portly forty, found long forgotten joy in its perusal, mixed with curiosity. It was the *M.M.* This could have been none of my wife's shopping, I thought. She reported: "Bessie bought it." And any passing doubts of the sanity of my hard-headed, business-woman elder sister Bessie vanished when I learned that she saw it on a bookstall, and bought it "because she remembered I used to take it."

After my digestion of every line, the Magazine passed on to a client's child isolated from his Meccano by a prolonged stay in hospital with a grim complaint, and for three years since I have seen to it that the supply is maintained.

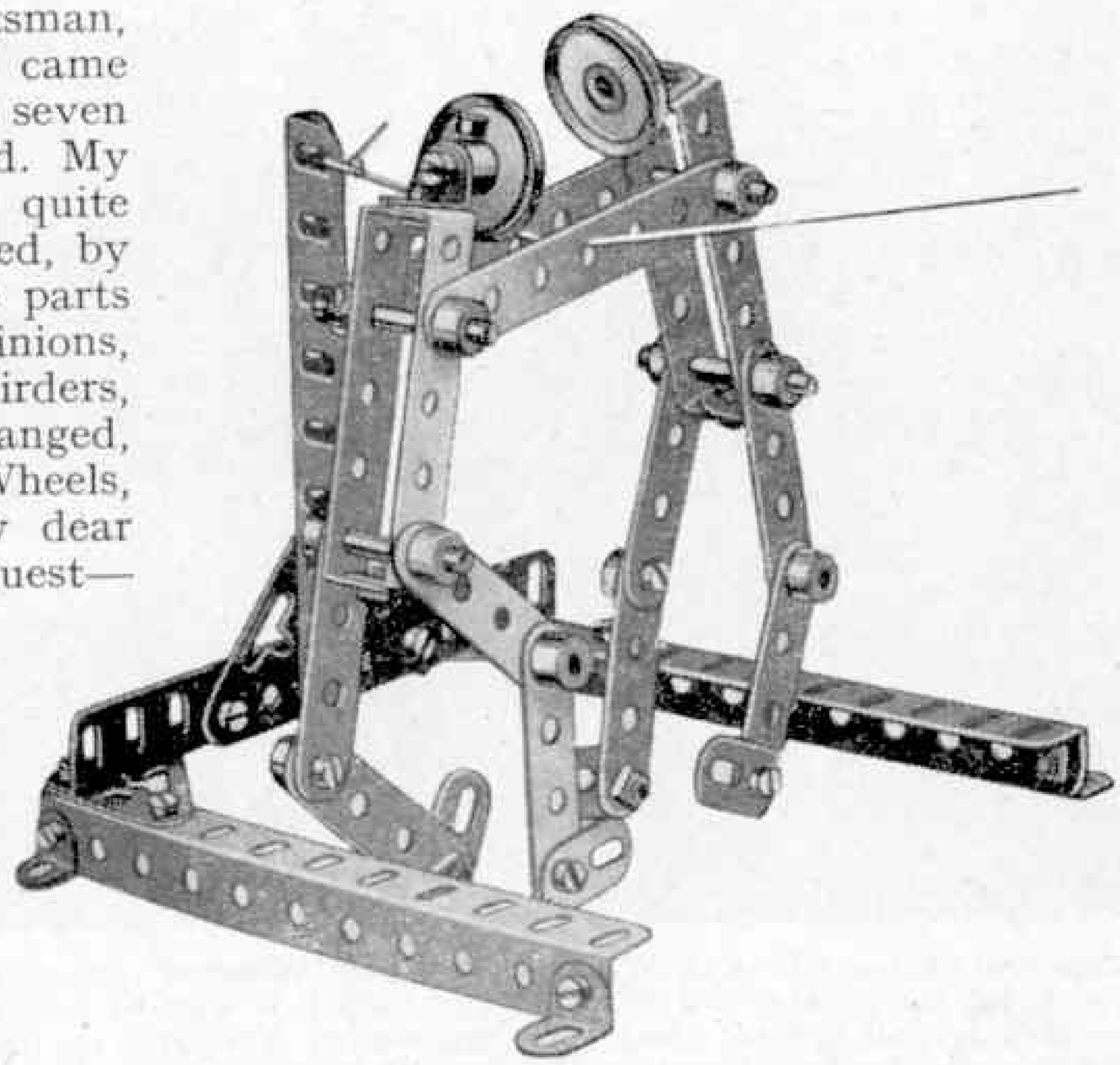
The humble 1/– that brings to Master X his current Meccano news, brings also to me a host of memories. Sets were once numbered 0 to 7, and *I* was a Craftsman, apprenticed on a No. 1. Then came nervous illness, spread over the ages seven to ten, with long confinements to bed. My complaint was relieved and, I am quite prepared to argue, largely vanquished, by frequent contributions of ever more parts and pieces. There were Gears, Pinions, Worms, Plates, Rods, Crankshafts, Girders, Strips, Wheels Flat and Wheels Flanged, Wheels large and Wheels small, Wheels, Pulley and Trunnions, Flat. How dear mother puzzled over that last request—"What on earth is a Trunnion?" she asked. Pawls and Ratchets, Sprockets and Eccentrics—this should be set to music!—all were enlisted in the swelling ranks of my beloved army. And when motors gave life to the cold steel, joy was unconfined! Those were the days!

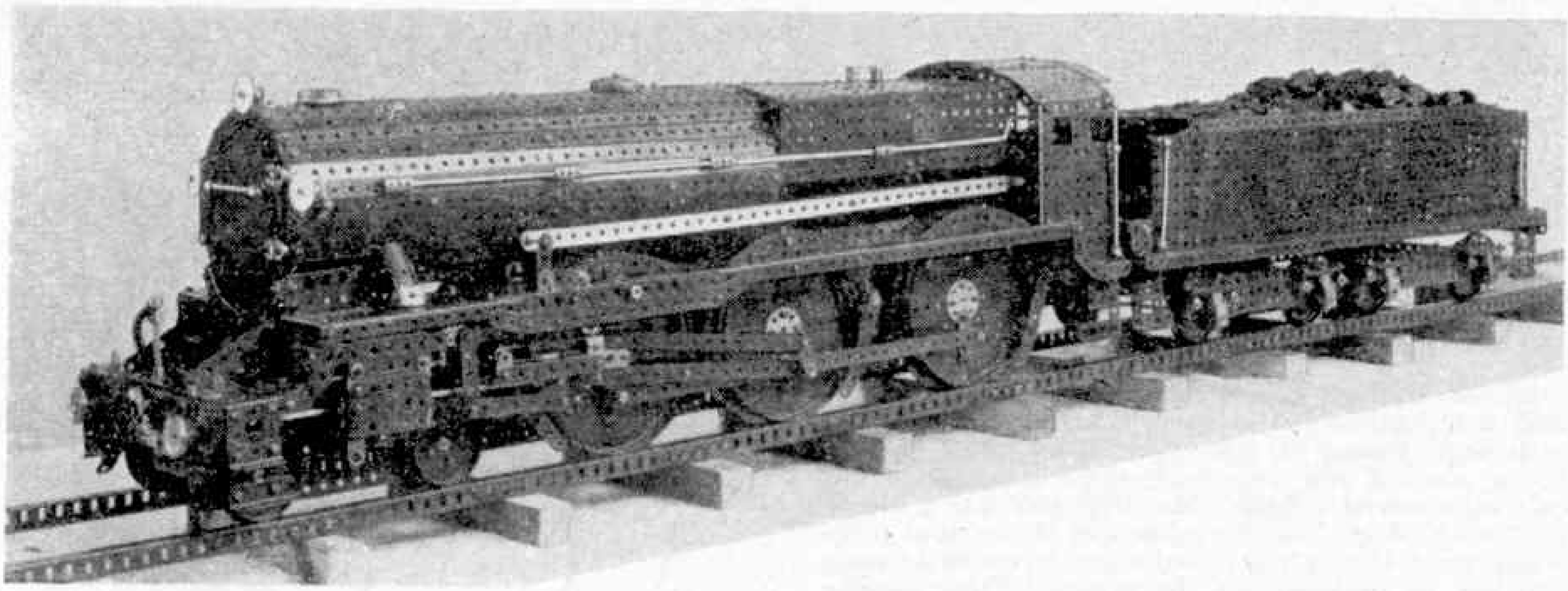
Can you recall your first Meccano model? I can. Two 12½" Strips similarly joined at ends by 2½" Angle Girders, 3½" Rods through the third hole from each end, four 1" Pulleys for wheels, two more 12½" Strips similarly joined at one end only, the free ends bolted, not too tightly, into the second holes from one end, string to simulate the steps of a ladder—and behold, a Fire Engine! Not from the book. Straight from the brain. I was seven!

I made a "Tank" that was really nothing more than a Clockwork Motor fitted with Sprocket Wheels and Chains, an outrageous Well Wagon and a Petrol Bowser, with a Cerebos Salt tin for a tank, a vast furniture van, and a suicidal Big Dipper, and from the manual, "The Wrestlers" and the Diplodocus, who is most dejected when he droops, as you can see from his picture.

And then came the Thing. It began, I think, as a stationary steam engine. A

(Continued on page 652)





A fine locomotive based on a 4-6-0 "Lord Nelson" Class engine of the former Southern Railway. It was built by Mr. M. M. Stewart, Surbiton, and won a prize in a previous Meccano Competition.

Prizes for Model-Builders

Enter The Winter Model-Building Competition Now!

THOUSANDS of Meccano enthusiasts all over the world will now be busy on their models for entry in the Winter Model-Building Competition that was announced in the October and November issues of the *M.M.* This great Contest will remain open for entries until 31st January next, so that there is still time for those who did not see the earlier announcement to prepare and send in their entries. Have you ever won a prize in a Meccano Competition? If not, here is an opportunity for you to make a good attempt, and if you have already received an award there is no reason at all why you should not win another, and perhaps a better one.

The prizes offered in the Winter Competition are listed in the panel on this page. As you will see, they are well worth winning, quite apart from gaining the pleasure and satisfaction you would receive from knowing that your work had competed successfully against that of other model-builders.

Don't worry about age or experience. The competition is open to everyone irrespective of age, and steps have been taken to ensure that younger entrants have just as good a chance of success as older competitors who have been building models for a longer time. This has been done by dividing the contest into two sections as follows: A, for competitors who will be under 12 years of age on 31st January, 1957, and B, for competitors who will be 12 or over on that date.

Another important thing that you must bear in mind is that your model can be of any kind whatever, so that you can build whatever is most interesting to you, something about which you have direct knowledge perhaps. Cranes, motor cars, ships, locomotives and lots of other subjects are all suitable, so that you have a very wide range from which to choose. You can use any size of Outfit or any number of parts you choose, and indeed your model need not conform to any particular Outfit.

It is not necessary for you to send the actual model. A good sketch or drawing, or better still, a clear sharp photograph of it is all that is required.

Write your name and full address, with your age on 31st January next, on the back of the drawing or photograph and send it in a fully stamped envelope addressed to: *Winter Model-Building Competition, Meccano Limited, Binns Road, Liverpool 13.* Don't forget to post your entry in time to reach Liverpool on or before 31st Jan., 1957.

THE PRIZES

The following prizes will be awarded in each of the Sections A and B.

	£	s.	d.
First Prize, Cheque for	4	4	0
Second Prize, Cheque for	2	2	0
Third Prize, Cheque for	1	1	0
Ten Prizes, each of		10	0
Ten Prizes, each of		5	0

Among the Model-Builders

By "Spanner"

Two-Speed Gear-Box

Mr. M. H. Fay, Guildford, is a keen model-builder with a fine collection of parts that he is continually enlarging. Among his possessions is an E20R Electric Motor, and on one occasion he used it as the power unit in a model vehicle. Mr. Fay also has a No. 1 Clockwork Motor, and he made use of the final drive pinion from this in the construction of an interesting gear-box he designed for the vehicle. The gear-box provides two forward speeds, and its special claim to mention lies in the fact that its overall depth is only a little greater than the width of a Strip or an Angle Girder. This makes it particularly suitable for use in models such as underfloor engined buses and coaches, since it enables a flat floor to be built over the mechanism without leaving a large gap between the floor and the chassis.

The gear-box is shown in Fig. 1 and it will be seen that the housing is formed by two 5½" Strips joined by three 2½" × ½" Double Angle Strips. In an actual model however, the Double Angle Strips can be bolted between the Strips or the Girders that form the chassis of the vehicle.

The input shaft to the gear-box is mounted in one of the Double Angle Strips and it carries a Bush Wheel 1 fitted with two Threaded Pins that engage holes in a Bush Wheel 2. This Bush Wheel is fixed on a Rod that is able to slide about ¼" in holes in two of the Double Angle Strips, and which carries a ½" Pinion 3, a Coupling 4 and the Clockwork Motor pinion 5. Coupling 4 is mounted loosely on the Rod between the Pinions 3 and 5, and it is fixed on a Rod 6 that also is mounted in two of the Double Angle Strips. This Rod serves to hold the Coupling in a horizontal position, and a 1¼" Bolt fixed by a nut in the Coupling forms a gear change lever.

The output shaft 7 carries a ½" Pinion 8 and a ¾" Pinion 9. When the slideable Rod is moved to the left, Fig. 1, pinions 3 and 8 engage and provide top gear. When the Rod is moved to the right these Pinions disengage and pinion 5 is brought into mesh with Pinion 9.

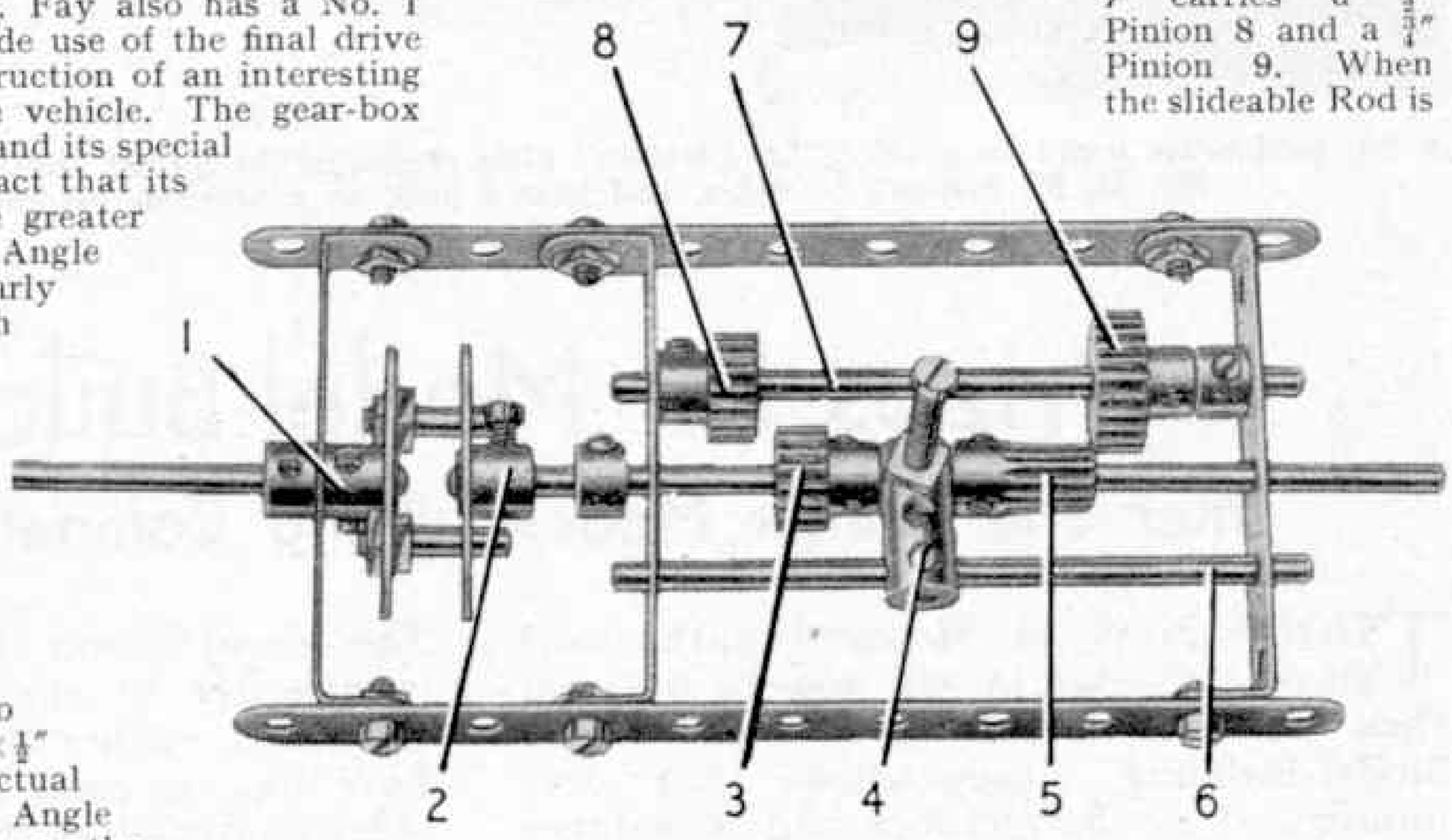


Fig. 1. A suggestion for a two-speed gear-box sent in by M. H. Fay, Guildford. It is described in detail on this page.

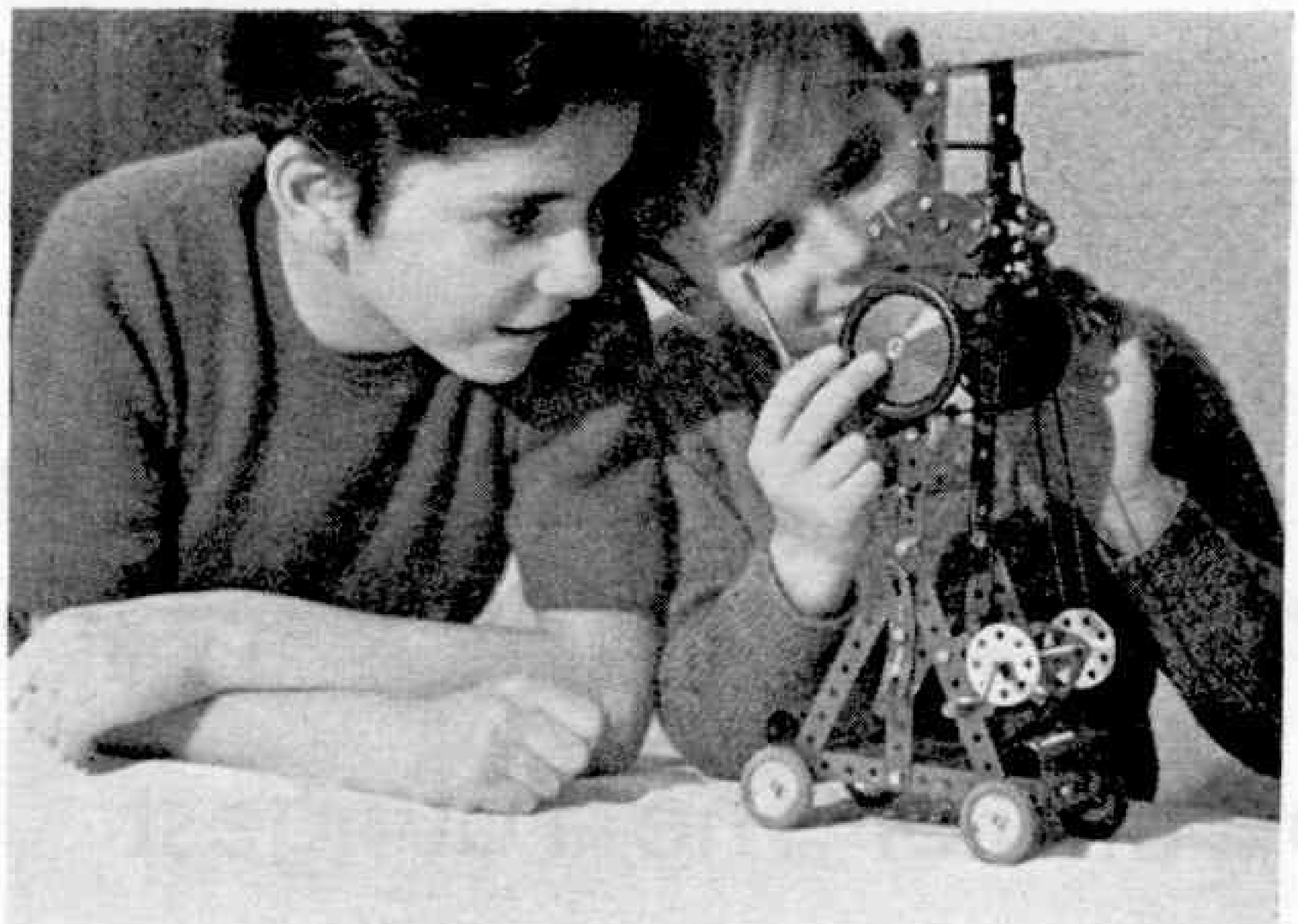
What is it?

The arrival of a baby boy in the family of Mr. K. Birkett, Cheadle Hulme, who was a keen Meccano fan in his youth, appeared to be the perfect excuse for him to resume his active interest in the hobby. He realised of course that he would have to wait a few years before he could introduce his son to the hobby, but time soon passed, and when the boy reached the age of six years, he was duly presented by Father Christmas with a Meccano Outfit No. 3. He quickly picked up the model-building idea, and after a little instruction in the matter of tightening up the nuts and bolts it was not very long before he was able to put the various pieces together.

On one occasion the boy was left alone for an hour or so with the Outfit, while his father attended to some other important business. When he eventually returned to the room Mr. Birkett was surprised to see on the table a curious Meccano construction that in his own words, "defied description." On enquiring what this was supposed to be, his son told him that it was "something out of his head," with which his father had to be content.

This curious structure is shown in the upper illustration on the next page, and it appeared to give the child more enjoyment than anything he had built from the

The young son of Mr. Parks, Peacehaven, photographed with a model bus built by his father, that was displayed in a local Meccano dealer's shop window.



Jean Birkett watches her brother Ronald, aged six, putting the finishing touches to an entirely original model. See the story on these pages.

Instructions Book! His sister also appeared to be able to see something in her brother's weird and wonderful production, but Mr. Birkett says that it escaped him completely.

This is not the only "model" Ronald has produced by this method, but his father says that he is looking forward to the time when he will find something on the table that he can recognise!

Intermittent Ratchet Feed Mechanism

Following the recent introduction of the 4" Rod with Keyway and the Key Bolt, many model-builders have written to say how pleased they are with these new parts, and how useful they have found them, either in building new mechanisms or making novel variations of older and more orthodox mechanisms. Some ingenious mechanisms and devices made possible by the introduction of the new parts have been brought to my notice, and in most of these the Rod with Keyway and the Key Bolts are used to enable Gears and Pinions to turn with the Rod while they are free to slide along it. Of course this use of the new parts is the primary reason why they were added to the range, but several other uses can be found for them and one example of these is shown in Fig. 2.

The mechanism illustrated is designed to provide an intermittent ratchet feed to two shafts from a common input shaft that is driven continuously. A Rod with Keyway is used to support the Pawls of the ratchet mechanisms, and Key Bolts engaging the slot in the Rod ensure that although the Rod is free to slide it cannot rotate in its bearings. While it is possible to provide this arrangement in other ways the construction is simplified considerably by the use of the new parts.

The driving shaft carries a Bush Wheel 1 fitted with a Threaded Pin, and a 5½" Slotted Strip 2 is passed over the Pin as shown and is held in place by a Collar. The Slotted Strip pivots freely on a ⅜" Bolt fixed by two nuts in a Double Bent Strip. A second ⅜" Bolt is passed through the Slotted Strip and is screwed into a Coupling 3, which is fixed on a 4" Rod with Keyway 4. The Rod with Keyway is free to slide in two Short Couplings 5, and a further Short Coupling 6 is fixed at each of its ends. A Pawl without boss is pivoted freely on a bolt fixed in each of the Short Couplings 6 by a nut. The Pawl engages the teeth of a Ratchet Wheel fixed on the output shaft. The Rod with Keyway is prevented from turning by Key Bolts screwed into the Short Couplings 5 so that their spigots engage the slot in the Rod.

SUGGESTIONS PLEASE!

At this time of the year many boys join the ranks of Meccano model-builders for the first time. Although the System is so delightfully simple that any boy who can use a Spanner and a Screwdriver can start building right away, inevitably problems will crop up from time to time. On the other hand, experienced model-builders and newcomers to the hobby alike often come across a novel design or mechanism, or think of a new part they consider would make a valuable addition to the range. Whether you have a problem or an idea, write and let me have details of it. I shall be delighted to help you with your difficulties and I will consider any new suggestions you have to put forward. Ideas for new parts are always interesting, but you should bear in mind that we must avoid introducing parts which while of great value to some model-builders, are of little use to the majority of boys who are interested in the popular kinds of models. However, if you have any ideas or problems on your mind, don't hesitate to write to me.

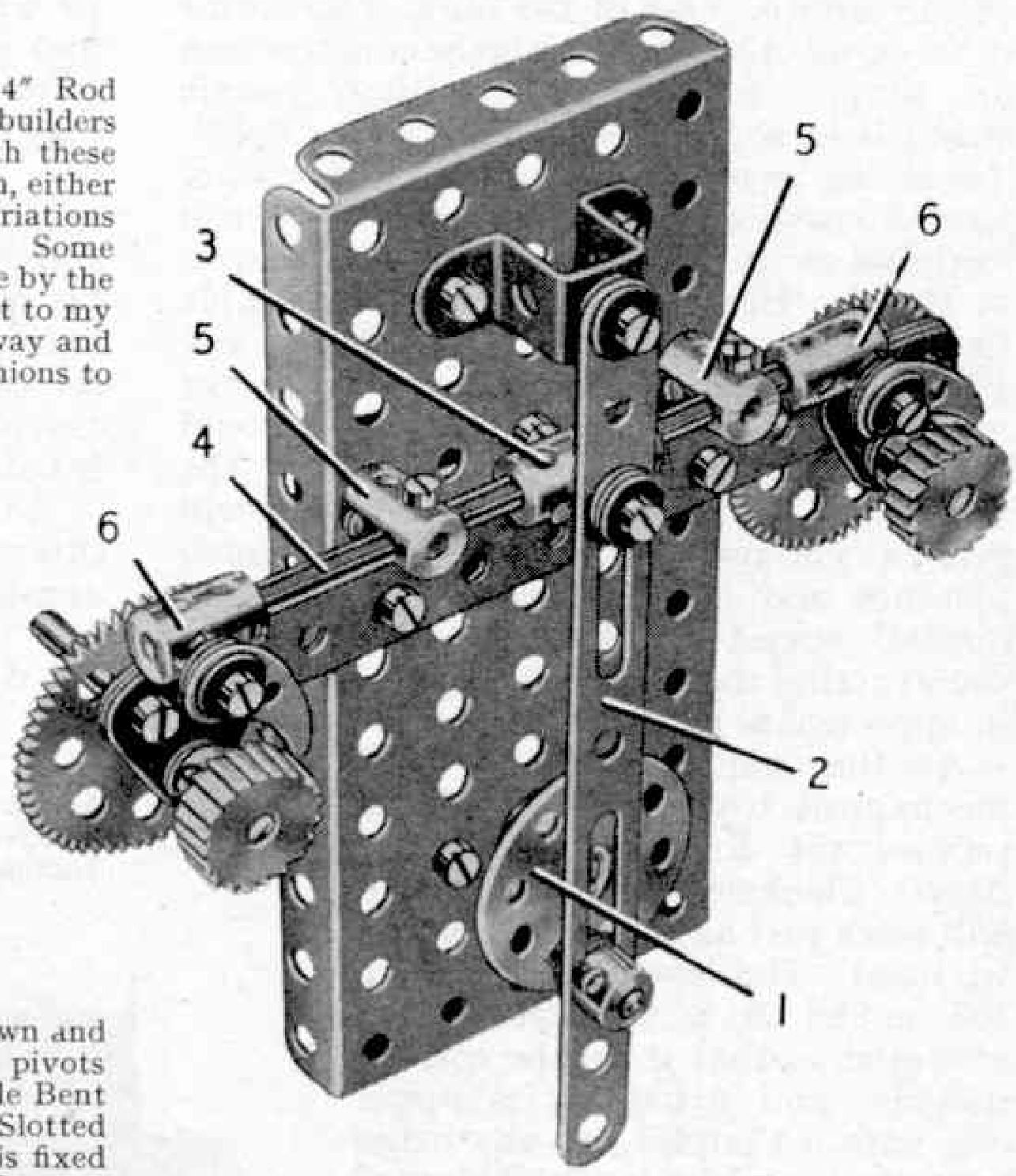


Fig. 2. Experienced model-builders will be able to find several uses for an intermittent ratchet feed mechanism of the kind shown in this illustration. Details are given on this page.

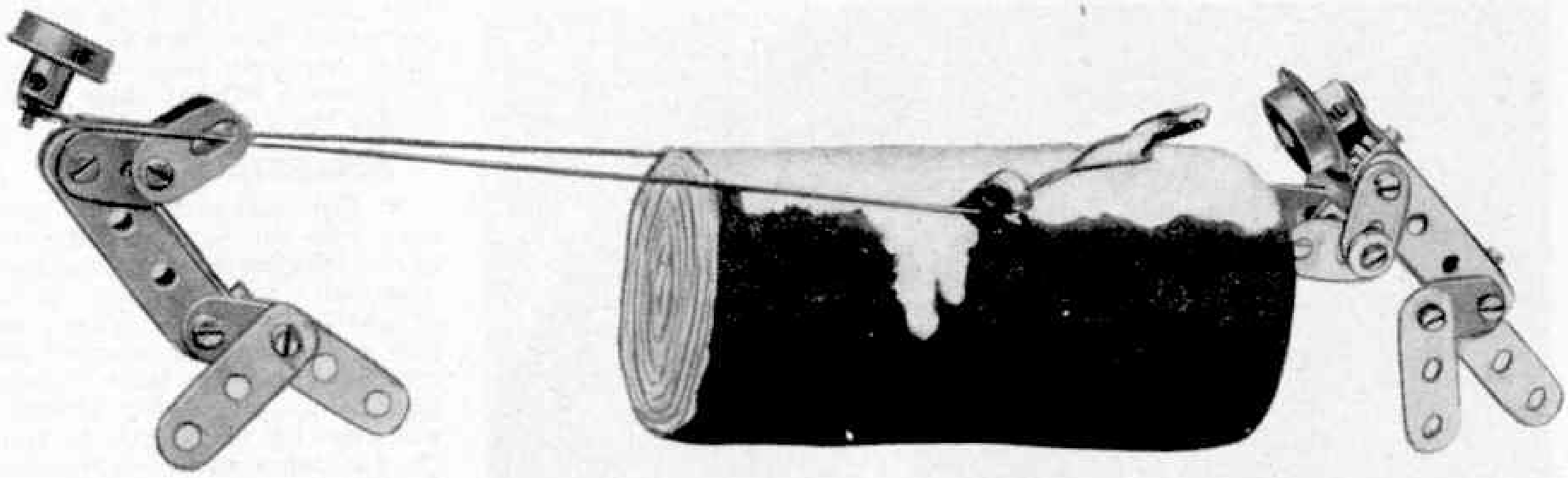


Fig. 1. Bringing home the Yule log! A simple but attractive group of figures arranged in a seasonal setting.

Meccano Fun For The Youngest

Simple Novelties You Can Make For Christmas

THE Christmas season provides a fine opportunity for Meccano model-builders to indulge in the lighter side of the hobby by using their Outfits to make toys, games and humorous figures, etc., that will provide fun and pleasure for the younger members of the family. One of the most jolly forms of this kind of Meccanoing is the construction of simple figures representing people engaged in some kind of activity or sport. These can be either single figures or several figures composing a group, and a typical example of what we have in mind is shown in Fig. 1. Here we have two very simple figures composed of a few Strips and Flanged Wheels, arranged to represent two people engaged in the traditional Christmas task of "Bringing Home the Yule Log." A little effort of this kind will give a younger brother or sister much pleasure and in addition the builder will himself spend a pleasant half hour in constructing the figures and arranging them in appropriate attitudes.

Another amusing novelty is the simple mechanical toy shown in Fig. 2. In the picture the toy is shown fitted with a *Magic* Clockwork Motor, but it will work just as well if it is driven by hand. The essential feature of the model is a vertical Rod 1 mounted so that it can be rotated quickly, and fitted at its upper end with a Coupling or any other part that enables a small card 2 to be fixed in place. This card carries two suitable pictures, pasted one on each side. In the example illustrated one of these pictures shows a rather stern-looking and helmet-less policeman, while the one on the other side of the card is of a policeman's helmet. Now if you spin the Rod rapidly to rotate the card, you will find that the policeman is ready for duty and appears to be wearing his helmet. It is quite easy to find suitable pictures for use with this toy from illustrations in newspapers or magazines, or if you have artistic abilities you should be able to draw amusing sketches of your own. The main points to watch are to keep the pictures simple, and to position them carefully on the card so that they line up correctly when the card is rotated.

An amusing toy of a different kind is the acrobat designed by Mr. H. H. Taylor, Huddersfield, and

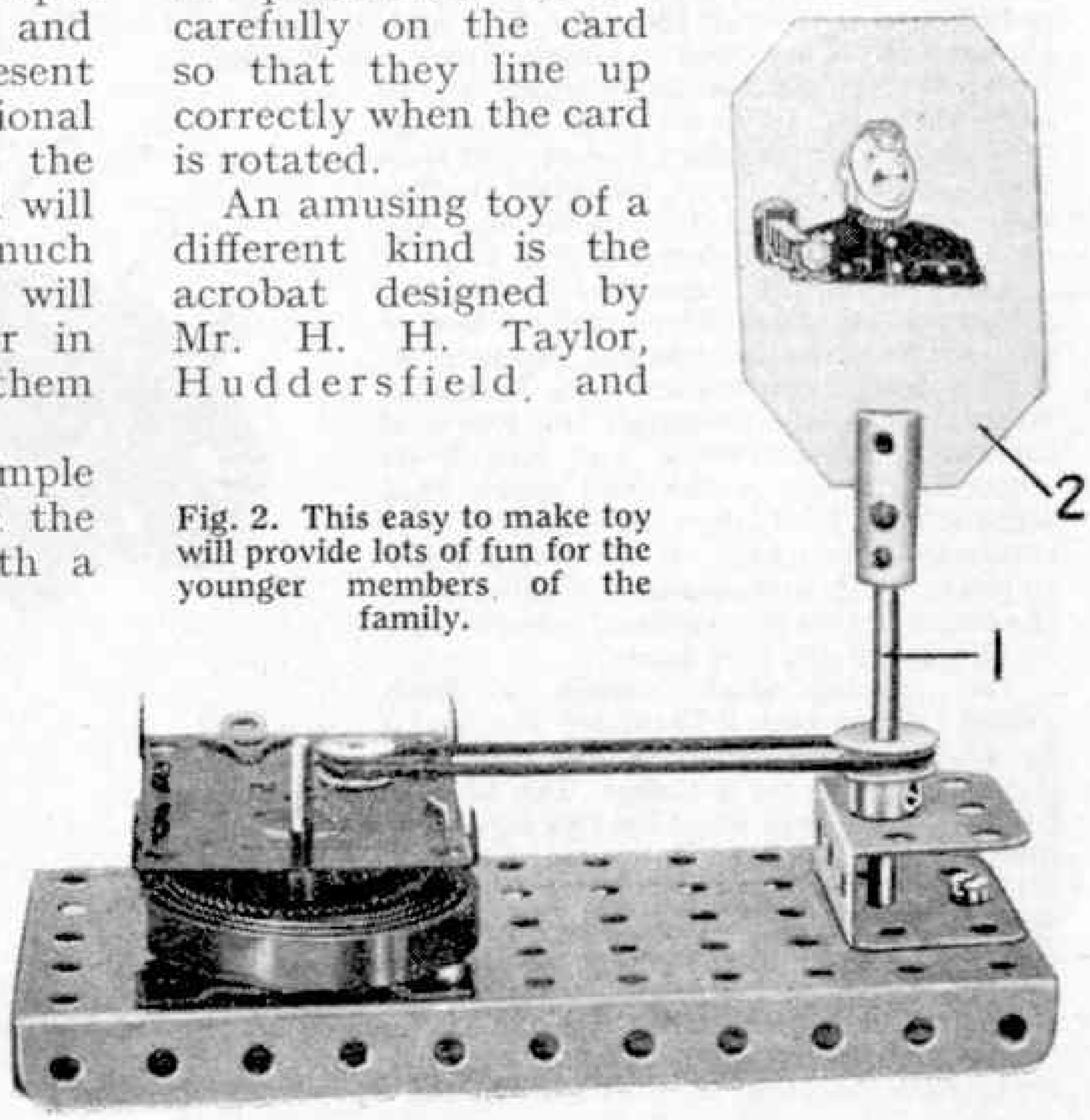


Fig. 2. This easy to make toy will provide lots of fun for the younger members of the family.

shown in Fig. 4. This model is very simple to build and to operate, but with a little practice the acrobat can be made to perform some amazing tricks. The figure is very easy to make, the only point that requires careful attention being the mounting of the arms and legs. These must be able to swing freely. The frame to support the figure consists of two channel girders, each made from two long Angle Girders bolted together. The channel girders are spaced apart at the centre by Collars on a 3½″ Rod. The acrobat is suspended on a piece of strong string. This should be passed through the upper two holes of one of the channel girders, through the upper two holes in each arm of the figure, and then through holes in the other channel girder. The ends of the string must be tied together tightly. To make the acrobat perform he should first be made to turn a few somersaults by hand, to twist the string. Now if you alternately press and release the lower ends of the channel girders the little figure will carry out a variety of tricks.

The little model seen in Fig. 3 was designed by a young Meccano enthusiast, John Holmes, Epsom College, Epsom, who calls his model "Sam the silly cyclist." Just how silly Sam is you will realise when you see that he is riding without using his hands. This may be a timely reminder to readers who are fortunate enough to be given a bicycle for Christmas this year. The model itself is easy to make, the frame of the cycle being built from Strips of various sizes. Sam's body consists of Flexible Plates, his arms and legs are Strips and his head is formed by Wheel Discs, a Bush Wheel and a 1½″ Pulley. His hat is a ¾″ Flanged Wheel. The legs must be pivoted freely so that they move easily as the pedals are driven round when the model is pushed along the floor.

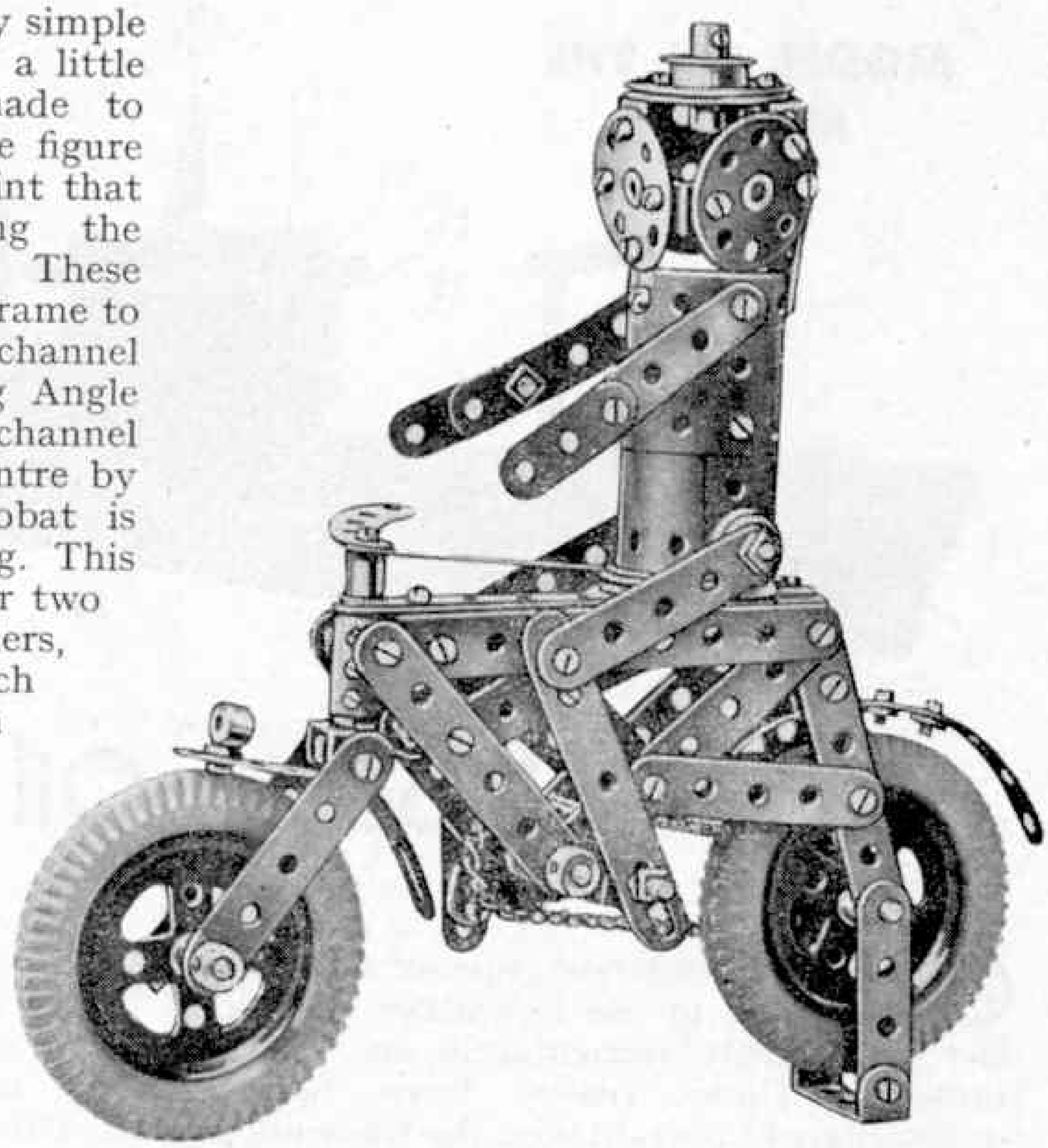


Fig. 3. Sam the silly cyclist! A close look at this picture will reveal the reason for the title, as Sam is riding without using his hands.

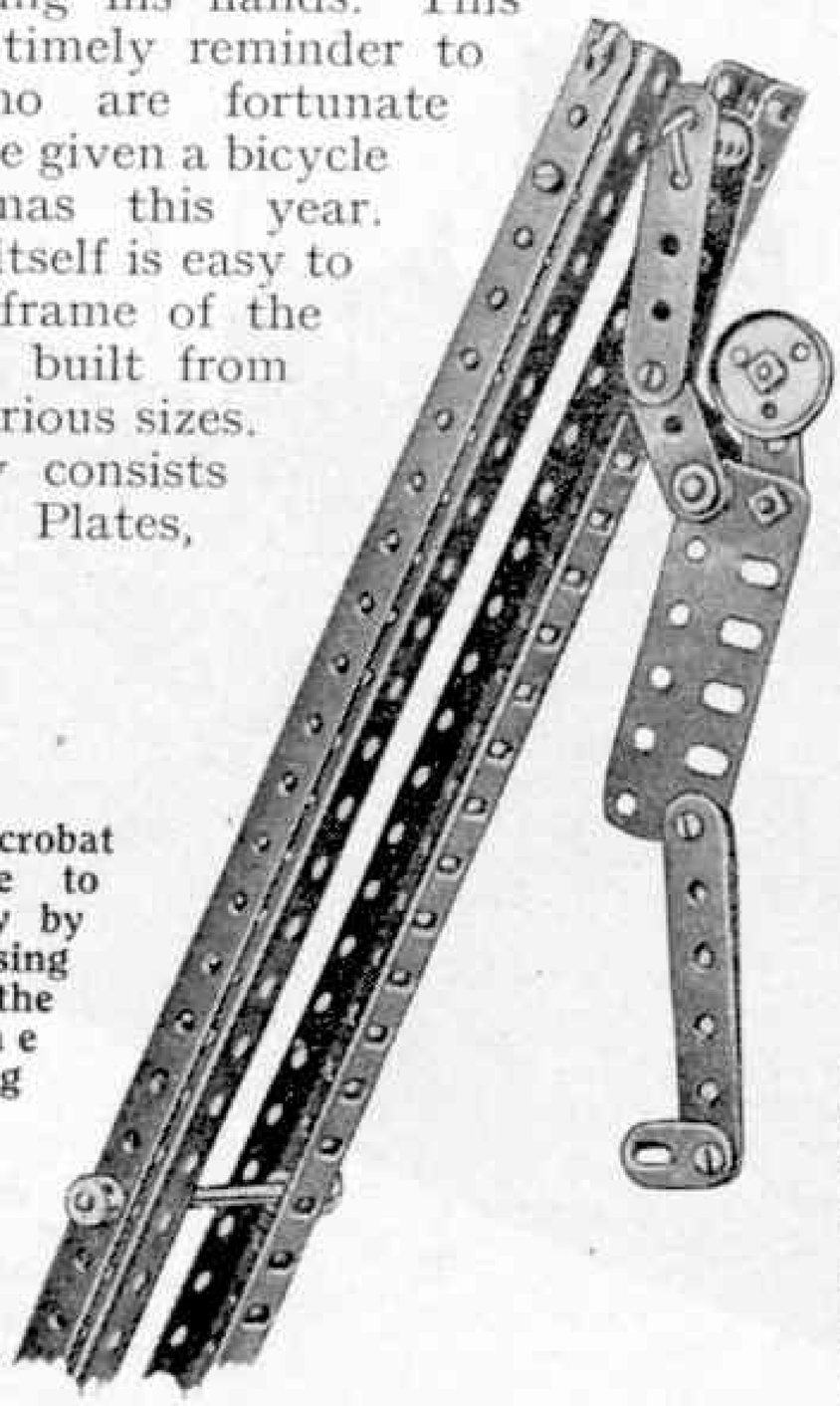


Fig. 4. This acrobat can be made to perform simply by alternately pressing and releasing the ends of the supporting girders.

The simple novelties illustrated in the pictures on these pages will serve as a guide to the many amusing models that can be made with Meccano. The scope is practically unlimited, and it is great fun planning and building the models. Among the many simple subjects that come to mind are a gymnast and a jumping jack. For the former all that is needed is a simple figure of a man built up from Strips with his legs and arms pivotally attached to the Strips forming the body. Two short Strips, say 2″ long, can form the arms and the figure is then pivoted on a Crank Handle passed through the end holes of the arms. The Crank Handle should be mounted in two simple supports placed one each side of the figure. When the Crank Handle is jerked sharply back and forward the figure will perform some highly amusing and laughter-provoking gymnastic tricks.

MODEL OF THE MONTH

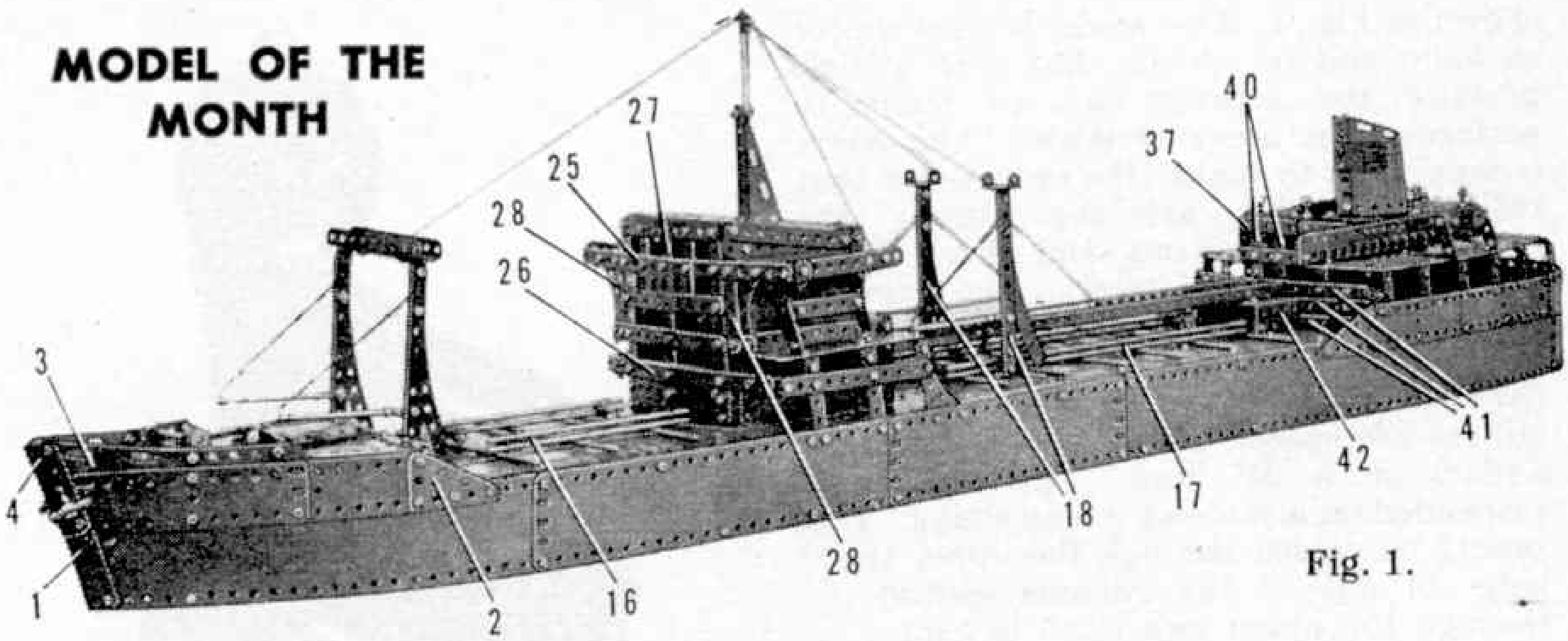


Fig. 1.

A Modern Oil Tanker

OF the many different types of merchant ships seen in use nowadays, perhaps the most easily recognisable are the oil tankers. These vessels have become increasingly important with the tremendous growth in our requirements for oil and petroleum products. The increased demand for oil has resulted not only in larger tanker fleets, but in the use of bigger tankers, and our model this month is based on a large oil tanker of typically modern design.

Readers will remember that in the March issue of the *M.M.* this year we published pictures and details of the *Spyros Niarchos*, built by Vickers-Armstrongs (Shipbuilders) Ltd. At the time when she came into service this vessel was believed to be the largest single-purpose oil tanker in the world. Our November Model of the Month is not a scale model of the *Spyros Niarchos;* but it follows the general design of that fine ship fairly closely and includes many of her characteristic points.

The most noticeable feature of an oil tanker is the aft positioning of the engines and boilers. This is immediately apparent to an observer by the mounting of the funnel towards the stern, and is an important factor in the safety precautions in a ship designed to carry inflammable

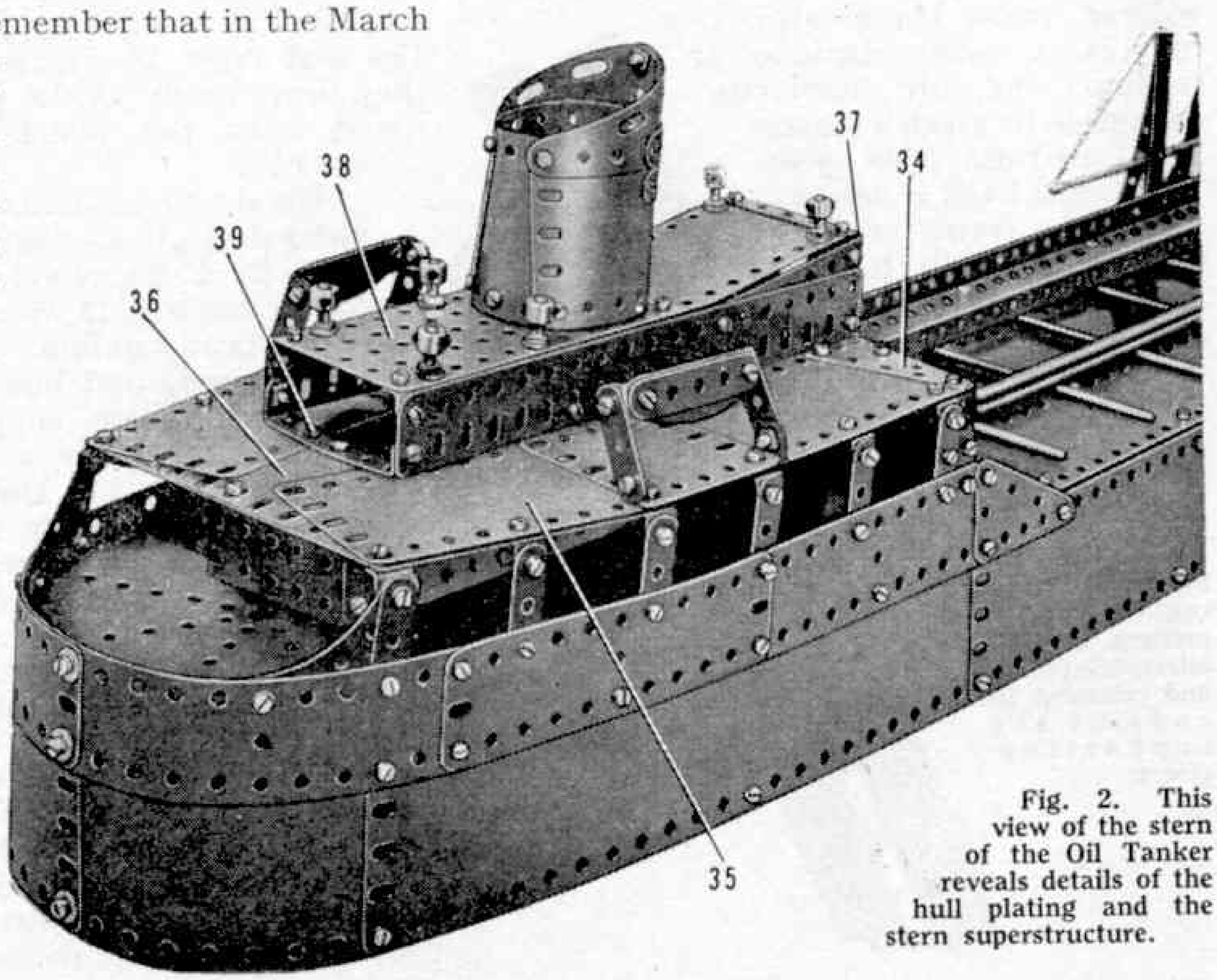


Fig. 2. This view of the stern of the Oil Tanker reveals details of the hull plating and the stern superstructure.

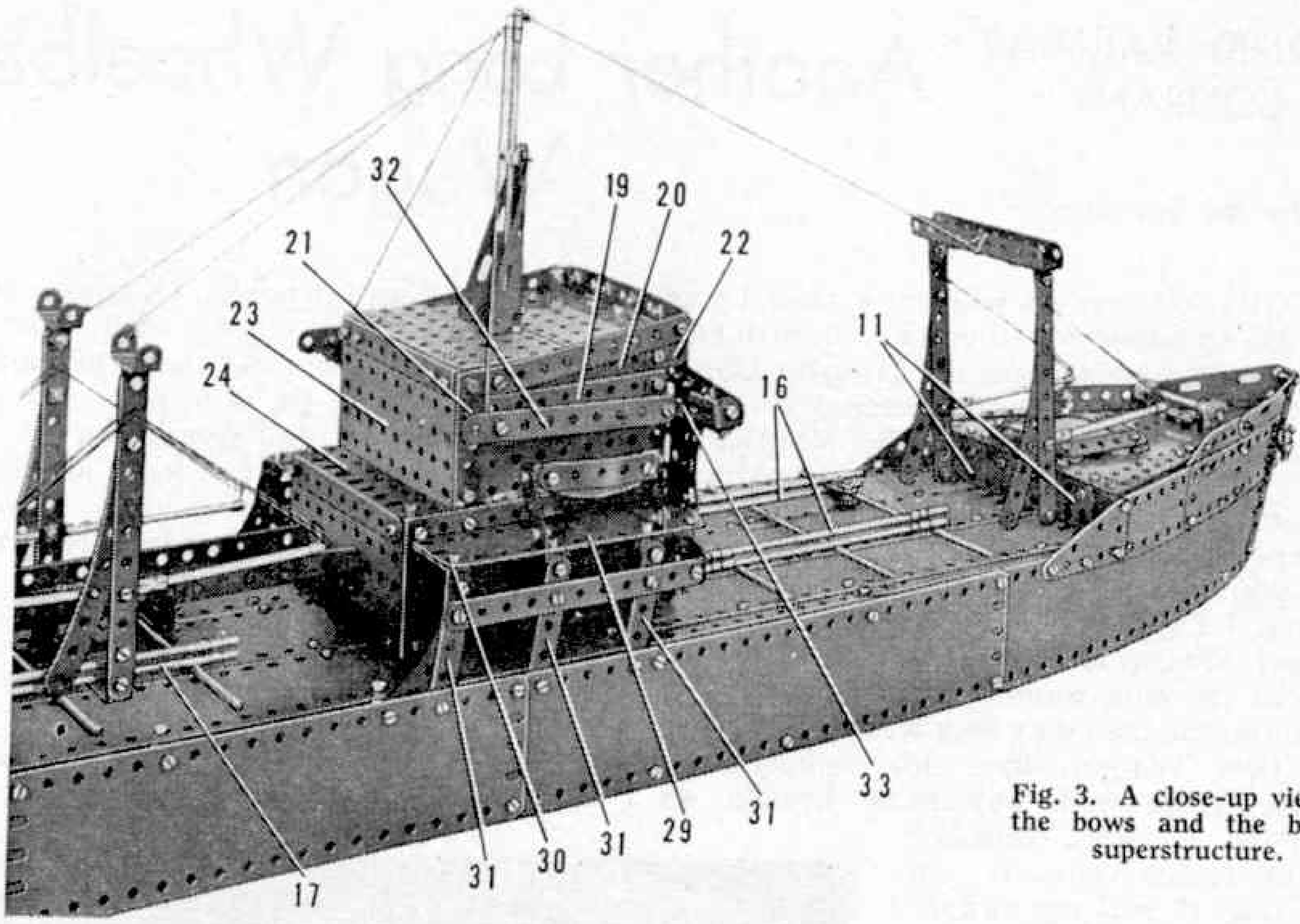


Fig. 3. A close-up view of the bows and the bridge superstructure.

liquids. In the tanker represented by the model the accommodation for officers and crew is above the engine room, and the whole length of the hull forward of these compartments is available for oil-carrying purposes, with the exception of a hold for dry cargo in the bows. The captain, radio operators and deck officers are housed in the bridge superstructure. The cargo oil carrying section of the hull is divided into rows of tanks, with cofferdams separating them from the dry cargo hold and from the fuel oil tanks at the stern.

As usual in Meccano ship design, this month's model is a waterline model, that is one in which only the section of the hull normally visible above the water is reproduced. For constructional purposes the model can be divided into three convenient units, comprising the hull, the bridge superstructure and the stern superstructure. The sides of the hull and the deck are built up of Strip and Flexible Plates, braced on the inside by Angle Girders and Strips. A catwalk is fitted between the stern and the bridge superstructure, and deck fittings of various kinds, including derricks and oil pipes, are represented.

Full constructional details for building this fine model, and a list of the parts required, can be obtained by writing to the Editor, enclosing a 2d. stamp for postage. To avoid disappointment, and to help us in the distribution of the instructions, please write for your copy as soon as possible. A special supply will be reserved for Overseas readers.

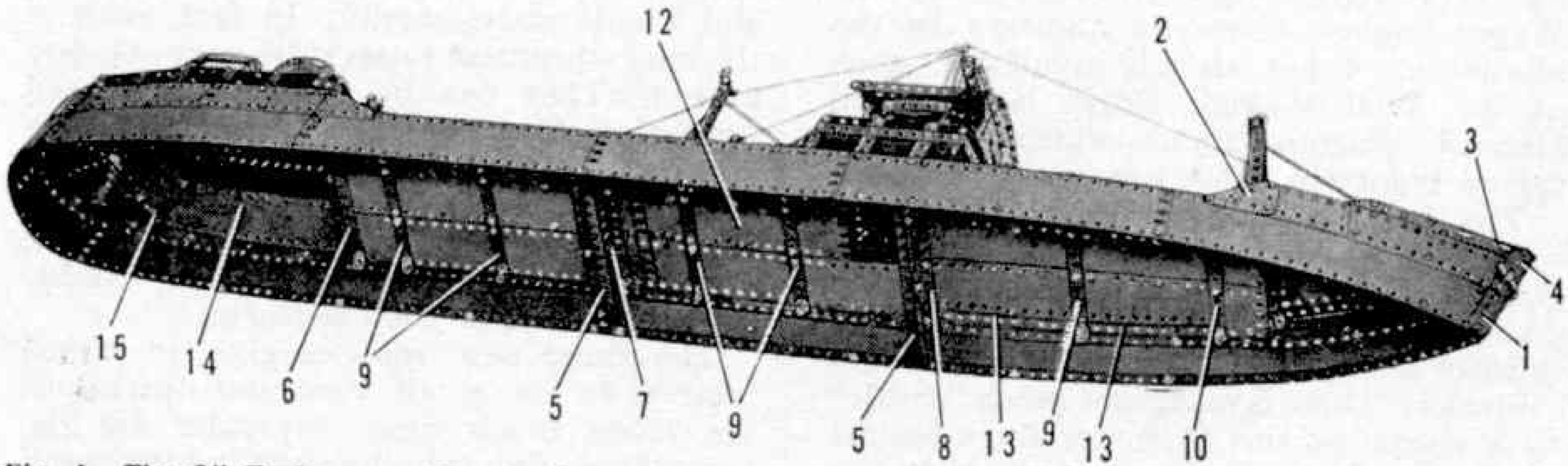


Fig. 4. The Oil Tanker seen from underneath. The general arrangement of the deck plates and the bracing members can be seen in this picture.

HORNBY RAILWAY COMPANY

Another Long Wheelbase Wagon

By the Secretary

REGULAR readers will know that I was able to introduce to you last month two of the recent additions in Hornby-Dublo rolling stock. These were respectively the 20-ton Tube Wagon and the Ventilated Van, both having long wheelbase characteristics and both suited for running in express goods trains. This month I can tell you about another long wheelbase wagon. This is the attractive Double Bolster Wagon shown next to the Buffer Stop in the picture on this page.

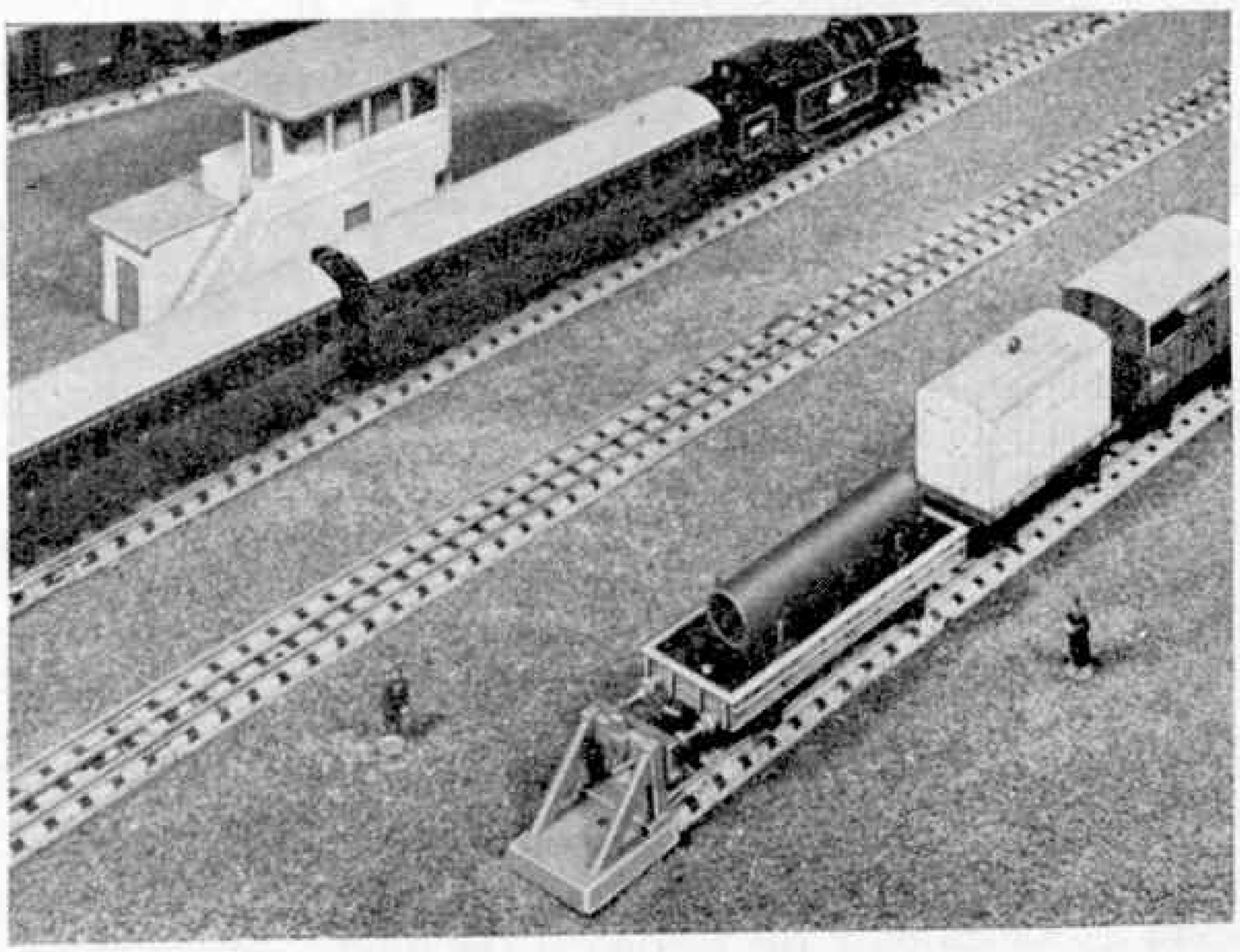
Unlike the previous long wheelbase types this new Wagon does not represent a vehicle fitted with automatic brakes, so that it is for ordinary freight trains only. I am sure that it will not fail to attract you on this account, however, as the amount of detail included on the vehicle is really satisfying. It includes the tonnage and number in white lettering on the usual black patch. These figures are small in the miniature, but are extremely clear.

The whole of the base, body and bolsters is formed by a single die-casting and special attention has been given to reproducing in relief the flanges of the side, end and solebar members. In addition, the angle and T-section stiffening members that are characteristic of the real bolster wagons of the type represented are shown, so the Wagon makes a worthy addition to the all-die-cast types already available, such as the Well Wagon, Bogie Bolster and Mineral Wagons about which we have talked before in these pages.

The finish of sides and ends is carried out in B.R. wagon grey, with the axle guards and characteristic dummy brake gear, as well as the interior of the Wagon, finished in black. Although I use the word "interior," there is really not much "inside" to a wagon of this type, for the sides are shallow and, in the prototype, they are made to drop down if required for loading and unloading purposes. Of course the two bolsters are provided with the usual upright stanchions, so that the miniature load that most of you will add to the Wagon will not fall overboard.

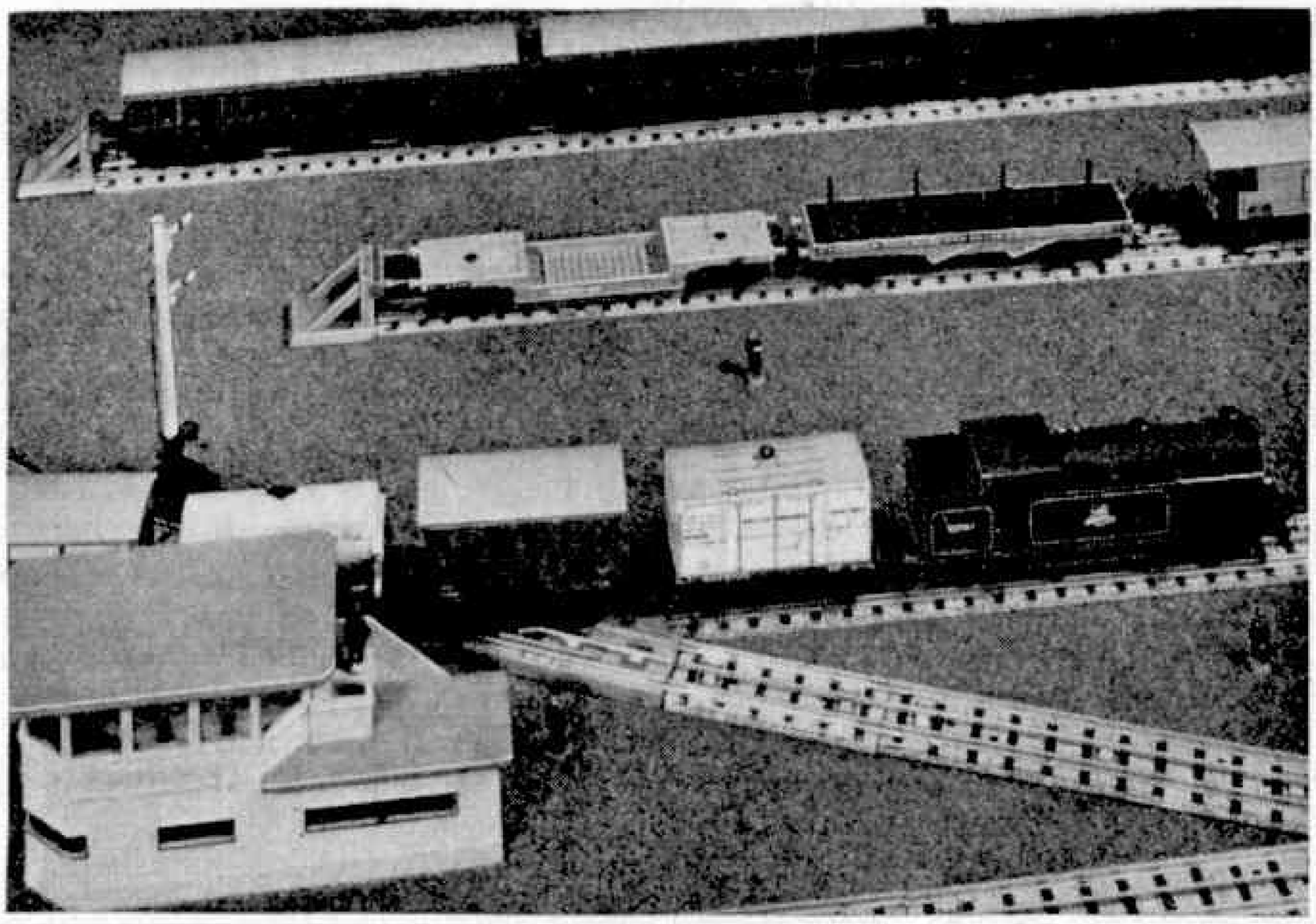
Miniature timbers cut from wooden pipe spills make an attractive load. The one in the picture is a cardboard tube representing a section of large-diameter pipe. Round timber or poles not long enough to require a Bogie Bolster Wagon can be carried on this latest addition to the Hornby-Dublo range.

The long wheelbases of the three new types I have mentioned do not prevent them from traversing Hornby-Dublo Curves and Points satisfactorily. In fact, each of the long wheelbase types rides very steadily indeed. They can be added to a mixed formation of Hornby-Dublo vehicles without any fears on the part of the "Yardmaster" of the home railway system. I have watched many of these new items running and have been struck by the reliable manner in which they perform.



The new Double Bolster Wagon, with an appropriate load, stands next to the Buffer Stop. One of the yard staff is admiring this new vehicle!

The three new vehicles give an added interest to the goods yard and operations are made much more enjoyable by the use of these fine introductions, which stand out from the other four-wheelers in the



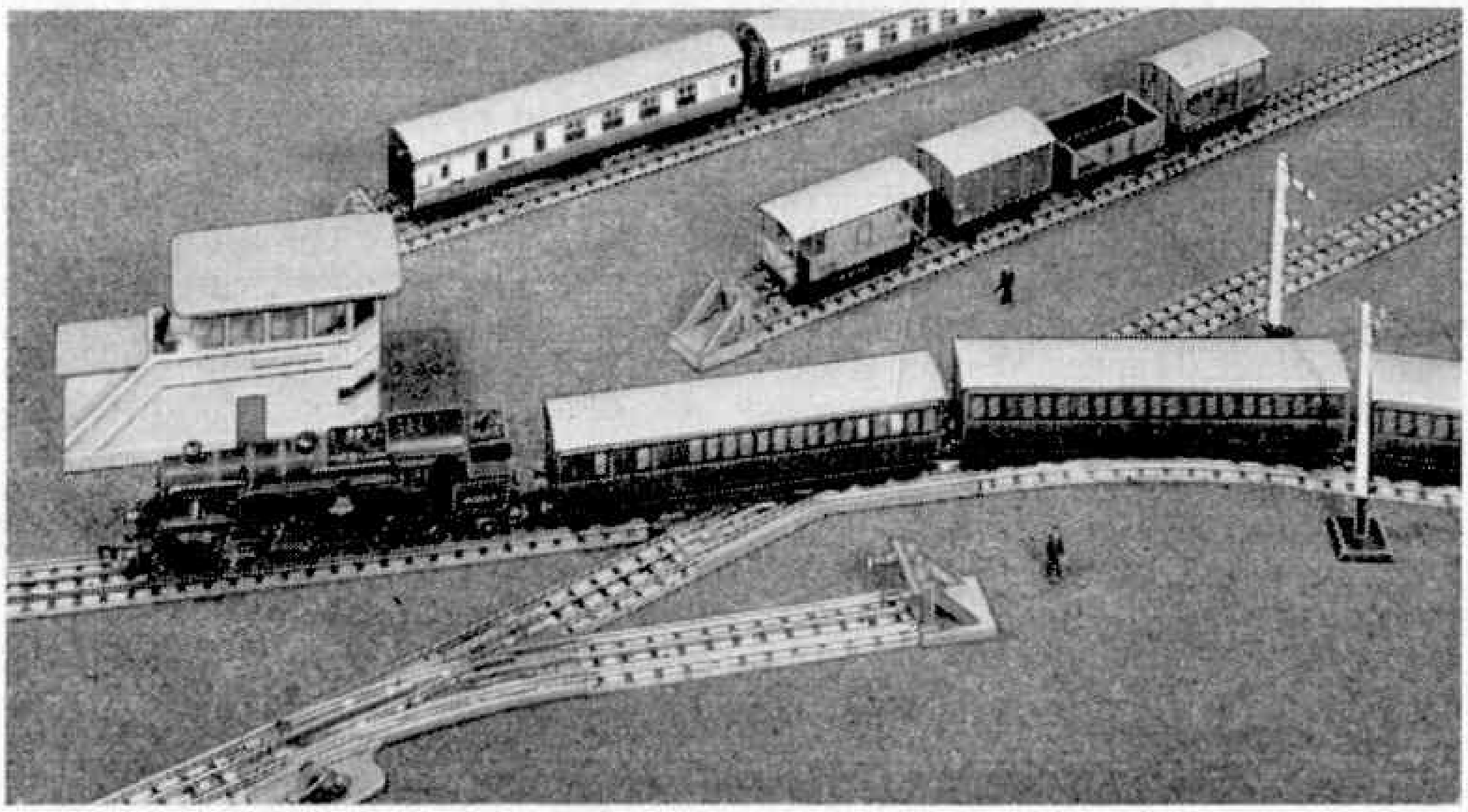
A mixed goods train passes the Signal Cabin. Two well-known Hornby-Dublo bogie wagons are in the siding beyond.

System because of their long wheelbases. Although they are all essentially goods-type stock, the Ventilated Van particularly looks quite at home on a passenger train. It can be run next to the engine quite successfully, or it can bring up the rear in the same way that many of the real ones do.

Recently I saw a Hornby-Dublo passenger train formation that ended up, behind the final Brake Third, with a long wheelbase Ventilated Van, a standard Goods Van and then a Low-Sided Wagon with Container. This assembly looked very realistic indeed and many of you will want to do more of this sort of thing fairly often. As a rule the most important expresses of real practice do not carry such additions, but the more ordinary express trains do quite frequently convey a van or two if required.

In Hornby-Dublo, the attachment and detachment of extras of this kind adds a great deal to the fun of station operations. A layout on which this is done needs suitable isolating sections, however, where the vehicles to be attached or detached at the rear end of the train can be moved by a separate engine. Operations at the head end of the train of course can be handled by the train engine.

Through stations are particularly suitable to working of this kind. On a small layout with a single station these extra vehicles will be added to or taken off the train when it has made a given number of circuits of the track. If there is more than one station with suitable sidings, traffic can be conveyed from one to the other. Terminal Stations may not be quite so well adapted to handling such traffic, but this will depend on the scope and extent of the individual layout. Platform roads and loops should be longer than the average train formation and then there will be no difficulties.

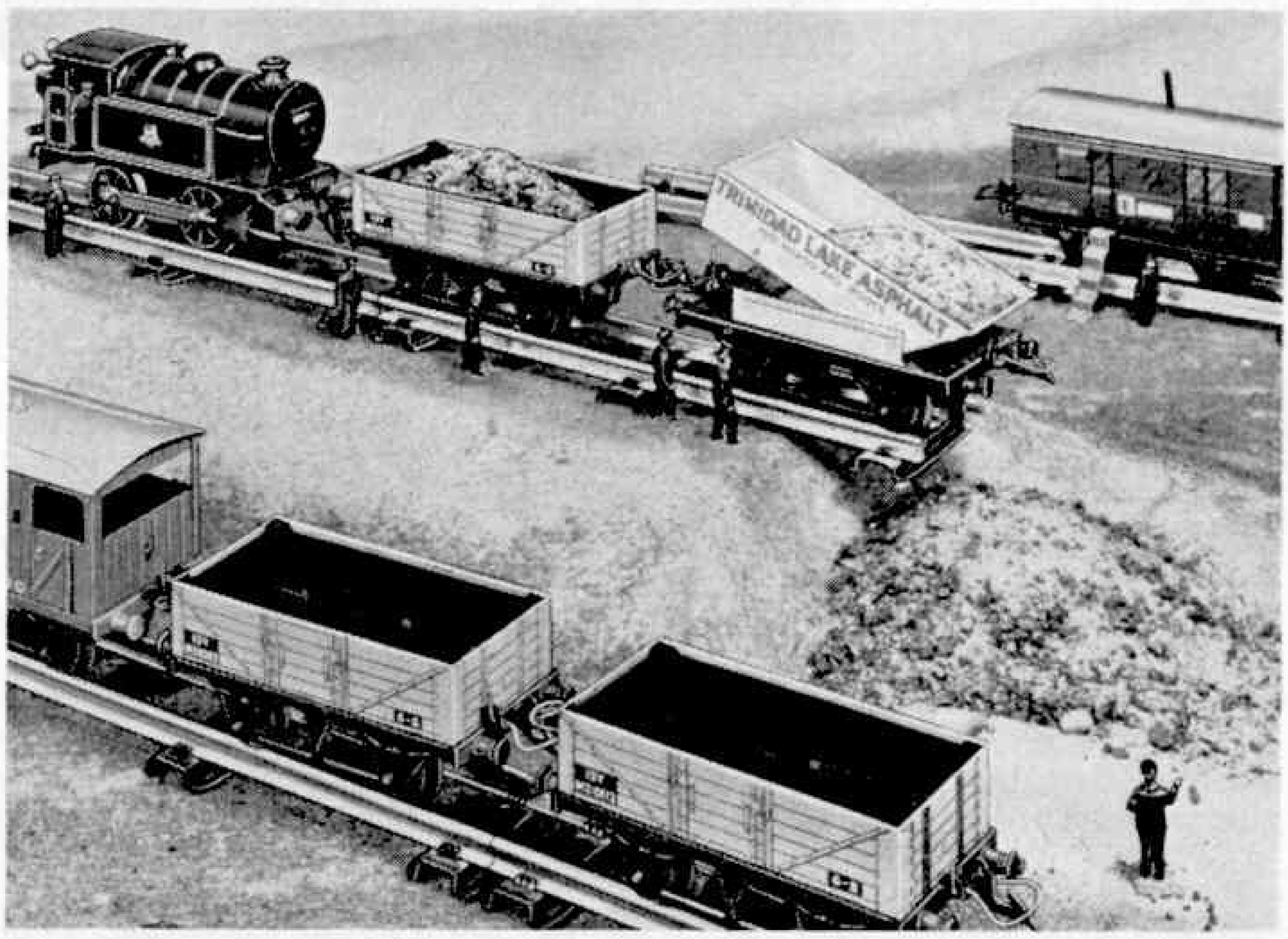


Intersecting tracks at the Diamond Crossing have their separate Signals.

Tippers and Hoppers

THE above may seem an odd title for an *M.M.* article, but those familiar with the Hornby System will realise that it refers to the various Tipping Wagons, and the Hopper Wagons, that are important units of rolling stock in the Hornby range. These can be considered as a group, because each of them is concerned with the unloading of material as well as its transport. The name of the Tipping Wagon shows this. Its outstanding feature is the way in which it can be made to tip its load when required, and wagons of this type are necessary where earthwork, filling or ballasting is required.

Probably many small Hornby railways employing Nos. 20/21 components include the Rotary and the Side Tipping Wagon that are made in that range. These are neat little vehicles and their small owners can have plenty of fun, tipping real or perhaps even imaginary loads on and about the track.



"Engineering work" in progress. Hornby Tipping Wagons are just the thing for operations of this kind.

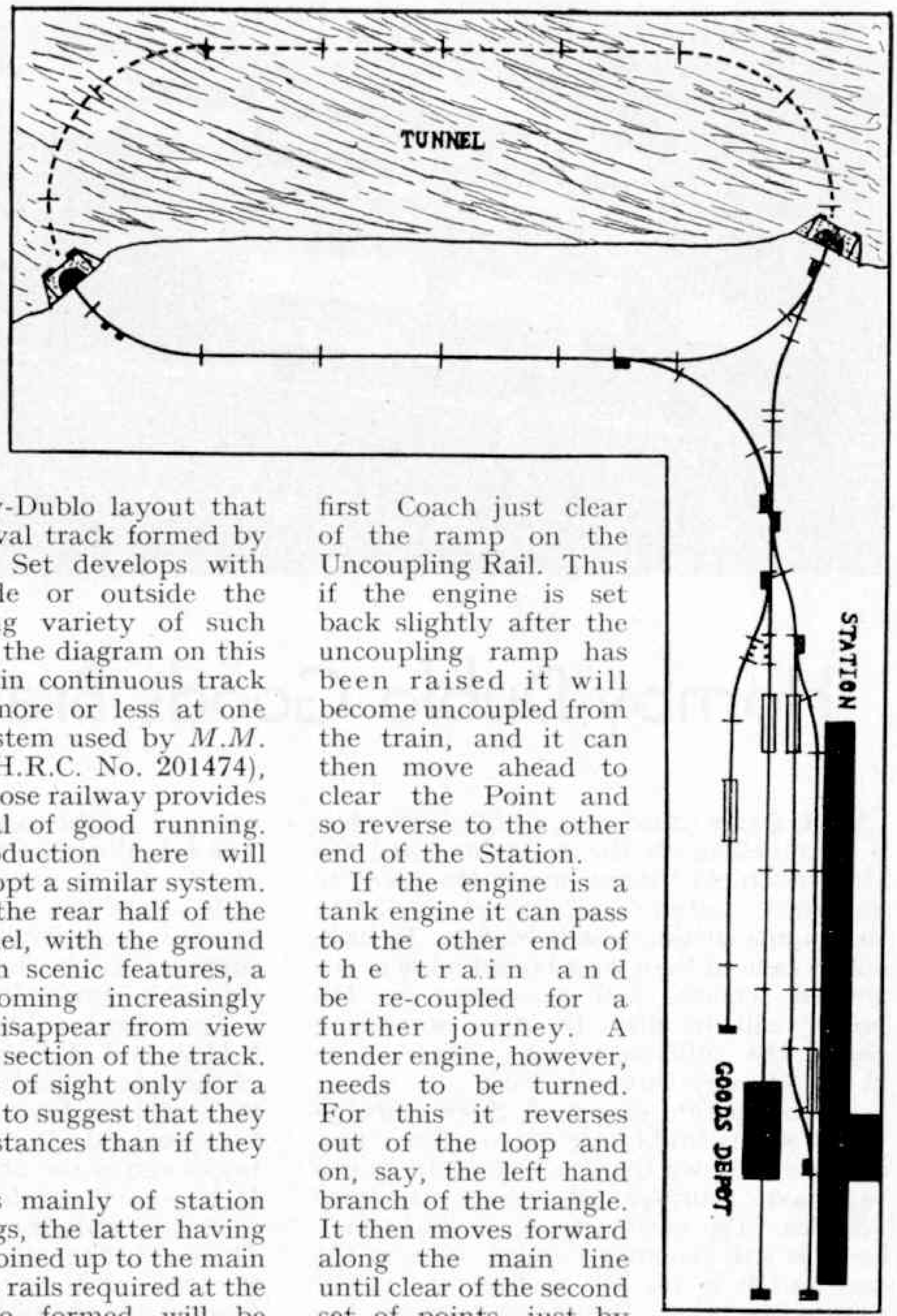
Among the No. 1 type vehicles of the Hornby System, that is those fitted with automatic couplings, there is Side Tipping Wagon No. 1, and Rotary Tipping Wagon No. 1, and the latter is seen in action in the illustration on this page. As a change from train running some owners make a practice of setting up some railway scene, often based on something that they have themselves seen or watched.

In the picture here the scene represents tipping operations in the construction of an embankment. The part of the "bank" already formed is imitated by laying a cloth, a sheet of not-too-stiff brown paper or something similar over a block of wood, or even on a pile of cardboard boxes arranged to give shape to the bank. Along the top of the bank Hornby Rails are laid and they can be allowed to project for a short distance over the end of the bank already formed. Plenty of imagination can be brought into play in fixing up a scene like this, and with the aid of the right rolling stock some good fun can be obtained.

The Hopper Wagon is different from the tipping types in having bottom doors that allow its load to be discharged between the rails. This can be used in supposed ballasting operations. The Hopper also can be run into a siding serving a power station or similar plant. At such installations wagons are frequently run over an elevated gantry for discharge purposes.

What to use for loads for such wagons is sometimes a problem. Sand or anything like that can be a nuisance indoors, but the imitation stone or coal that can be obtained from many model shops is good. Quite a harmless load can be easily made by screwing up pieces of paper into sufficient little balls to fill a wagon.

A Useful Oval and Branch



AS a rule a Hornby-Dublo layout that begins with the oval track formed by the Rails in a Train Set develops with additions either inside or outside the circuit. An interesting variety of such development is seen in the diagram on this page, in which the main continuous track throws off a branch more or less at one corner. This is the system used by *M.M.* reader D. C. McNab (H.R.C. No. 201474), of Sandhurst, Kent, whose railway provides him with a great deal of good running. No doubt its reproduction here will encourage others to adopt a similar system.

What we may call the rear half of the main oval is in a tunnel, with the ground above it built up with scenic features, a scheme that is becoming increasingly popular. The trains disappear from view when running over this section of the track. Although they are out of sight only for a short time, the effect is to suggest that they are covering longer distances than if they were always visible.

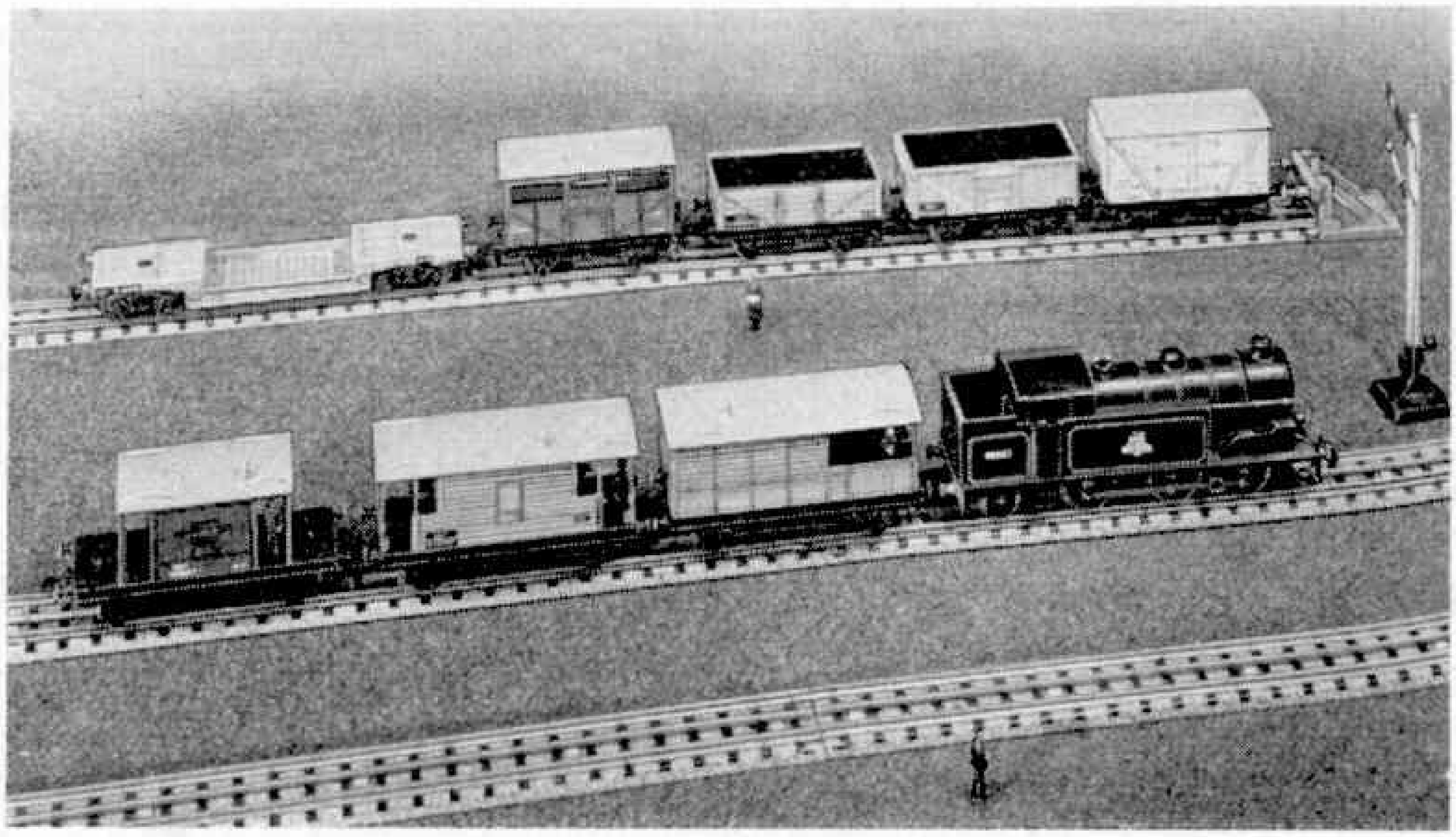
The branch consists mainly of station tracks and goods sidings, the latter having Isolating Rails, and is joined up to the main oval in two places. The rails required at the triangular junction so formed will be apparent from the diagram. This junction allows trains, whether from the station or from the goods sidings, to run in either direction on the main track and to return to their starting point.

The station platform is served by a single track, which is terminated by a Buffer Stop. A loop connected to this track permits the release of an arriving engine, as there is sufficient distance between the loop Point and the Buffer Stop for an engine to move clear of its train. The Uncoupling Rail makes it possible for a train to arrive at the platform, the operator taking care to bring the engine to a stop with the couplings between it and the first Coach just clear of the ramp on the Uncoupling Rail. Thus if the engine is set back slightly after the uncoupling ramp has been raised it will become uncoupled from the train, and it can then move ahead to clear the Point and so reverse to the other end of the Station.

If the engine is a tank engine it can pass to the other end of the train and be re-coupled for a further journey. A tender engine, however, needs to be turned. For this it reverses out of the loop and on, say, the left hand branch of the triangle. It then moves forward along the main line until clear of the second set of points, just by the right hand tunnel mouth. Finally it reverses back on to the train.

The engine of an arriving goods train that is to be shunted into the yard will first have to bring the train into the station loop. It runs round the train and draws it out of the station, after which the vehicles can be shunted into the goods roads, and even into the loop if necessary, in the order required.

The layout requires 7 EDA1, 1 EDAT1, 6 EDA1½, 17 EDB1, 6 EDB1½, 3 EDB1¼, 1 EDBS, 2 IBR¼, 4 UBR, 4 EODPL, 3 EODPR, 7 Switches D1, 2 Switches D2, 3 Buffer Stops.



The three Hornby-Dublo Goods Brake Vans are on their way down the line.

Hornby-Dublo Goods Brake Vans

ALL goods trains need a brake van when travelling on the main line, and the Hornby-Dublo System meets the needs of miniature railway owners by including three quite distinct goods brakes. To have one of each of these on a layout adds to the general realism, and newcomers to the hobby will be glad to learn something about the different Goods Brake Vans in the Hornby-Dublo System.

In the picture above all three Hornby-Dublo goods brakes are seen on their way to a yard "down the line" where there is a supposed shortage of these necessary vehicles. The goods guard, or brakesman as he is still sometimes called, rides in the van and it is his job to help the driver control the train. For this purpose he has his hand brake, which is applied from inside, and not from an outside lever down below, as is the case with ordinary wagon brakes. On a fully fitted freight train, that is one fitted with vacuum brakes throughout, the guard has no need to assist the driver in his braking, but he still has charge of the train and has to supervise any attaching and detaching during the journey.

Probably the best known goods brake van is the B.R. Standard type that is represented in Hornby-Dublo by the end vehicle in the train of brakes shown above. This has been developed from an Eastern Region prototype, and as it represents a van fitted with automatic brakes it is coloured in the familiar B.R. bauxite red. The actual van part is only short, the deck of the vehicle projecting out beyond the ends of the two verandahs. If you run an express goods train in miniature that is supposed to be brake fitted throughout, this is the Brake Van that should be used.

The other two Vans represent respectively L.M.R. and W.R. prototypes and as both of them are finished in grey they represent the ordinary type of brake van used on loose-coupled goods trains. The L.M.R. brake van is the one that is double ended. It has a verandah with side entrance at each end, with openings into the van itself. There are many of these "road brakes," as the men call them, in the London Midland Region and nowadays they can be seen elsewhere on British Railways.

Finally, next to the engine is a reproduction of the characteristic Western Region Goods Brake Van. This has a single long verandah. Unlike the other two vehicles, it carries the name of the yard to which it is allocated—*Park Royal* in this instance. This marking is a feature of Western Region practice, though not to the same extent as formerly.

Although W.R. brake vans keep for the most part to their native Region, they do wander elsewhere at times, so that any Hornby-Dublo enthusiast who likes the look of this Van has plenty of excuse, if he needs any, for using it.

Club and Branch News

WITH THE SECRETARY

CHRISTMAS GREETINGS

It certainly does not seem a year since last I began this page by wishing all members of the Guild and H.R.C. a Merry Christmas, I do so again this month with the greatest pleasure, and I hope that all concerned will have a really jolly time.

It has been a year of steady progress, with new Clubs and Branches consolidating their positions and older ones maintaining their enthusiasm and popularity. I have no doubt that the Christmas spirit of goodwill and good cheer will find expression in seasonable festivities in every Club and Branch, and I shall look forward to hearing all about their celebrations.

CLUB NOTES

Borden Grammar School (Sittingbourne) M.C.—The current Winter Session has produced some excellent Meccano models, and several interesting model-building competitions have been held. In a Simplicity contest members were required to build a model in which not more than 20 nuts and bolts were used, and the three winning models were of a road drill, roundabout and a motor cycle. Club roll: 18. *Secretary:* G. Mason, 66 College Road, Sittingbourne, Kent.

Exeter M.C.—As usual Meccano model-building is a major activity, and excellent models completed recently included one of the Tower Bridge, a windmill, and various types of cranes. The Club football team, *Meccano Gunners*, is now playing in the Third Division of the local League. Club roll: 20. *Secretary:* P. Phillips, 12 Alpha Street, Heavitree, Exeter, Devon.

St. Thomas District (Exeter) M.C.—Meetings are held in quarters loaned to the Club by the Salvation Army, who have kindly allotted the Club a second and larger room, in view of a greatly increased membership. These additional facilities enable the Club to use one room for model-building activities and the other for games. Club roll: 30. *Secretary:* B. Madge, 42 Duckworth Road, St. Thomas, Exeter.

Mile End (Portsmouth) M.C.—Meetings are being well attended, and an Exhibition early in the current Session was a great success. A social evening and American Supper held recently coincided with the birthday of the Secretary, and the celebration was greatly enjoyed. Club roll: 30. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

AUSTRALIA

Maylands M.C.—The Club's annual camp was held during the school holidays, at the usual camping site on the coast. The Leader and 19 members spent an enjoyable ten days under canvas, and were favoured with good weather until the last day. The campers spent their time fishing, hiking, and playing football, cricket and other outdoor games. Several parents and relatives visited the camp during the weekend, and were well satisfied with the arrangements. The regular activities of model-building, film shows, games evenings and table tennis tournaments have continued. Club roll: 46. *Secretary:* W. Miles, 6 Piaggio Street, Bayswater, Maylands, W. Australia.

SOUTH AFRICA

Cape Peninsula M.C.—Members have been busy preparing models for display at a Hobbies Fair, and a Club Competition has been arranged so as to determine the best models to show at the display. The programme drawn up for the Winter Session includes Meccano model-building, lectures, and film shows. Club roll: 23. *Secretary:* P. B. Simpson, "Sherwood", Newlands Road, Claremont, Cape Peninsula, South Africa.

BRANCH NEWS

Newport (I. o W.) Church of England Junior Boys' School—Track operations are a main feature of the indoor programme, and meetings are well attended. It is hoped that more accommodation will soon become available to the Club, so that it will be possible to put down a permanent layout. *Secretary:* P. Keeley, Newport Church of England Junior Boys' School, West Street, Newport, Isle of Wight.

Hale End (London)—An interesting programme of railway operations is being carried out. Members also have been busy making model racing cars of balsa wood. *Secretary:* A. L. Coe, 463 Hale End Road, Highams Park, London E.4.

From the other side of the world we have received this excellent picture of officials and some of the members of the Christchurch (New Zealand) M.C. Mr. C. E. Saunders, President, is seated in the centre of the middle row with R. Boundy, Secretary, next to him on his left. Mr. P. Saunders, the Treasurer, is on the extreme left of the back row, and next to him is Mr. M. Fraer, the Vice-President. This most successful Club is now in its 27th year.

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Stamp Collectors' Corner

By F. E. Metcalfe

COLLECTING QUEENS

Continuing my talks on group stamp collecting, I really must go into the formation of a collection of the most popular of all stamps, with the possible exception of those belonging to the last reign. I refer of course to the Queen Elizabeth issues. The stamps have everything that could be desired by a collector.

First, the stamps themselves. If you are a thematic fan, you will find on British Commonwealth stamps of today designs that fit into most subject collections. If you are a beginner, you can buy current sets up to a face value you can afford, and only later on, when you have more cash, need you bother to go in for higher values. As a matter of fact, you can now form a quite extensive collection, without buying any stamp that costs you more than a fraction over its face value.

You may, on the other hand, be a more advanced collector, who knows a good deal about the hobby. If so you will get real fun from studying retouches, re-entries, etc. The "Queens" will provide you with as much material of this kind to work upon as the older and more expensive issues. In a word, there is something for every type of collector, and as time goes on I feel sure that a "QEII" collection will become a piece of property well worth having. As a matter of fact, there are already some sets, like those of Nyasaland, and Northern and Southern Rhodesia, that already show owners a very nice profit if they were bought while current.

But I do not want to stress this investment angle; a hobby should never be turned into a money making pastime.

I am in a good position to know that the number of young collectors taking the "Queen's" stamps is surprisingly large. Unfortunately, many of them know very little about the finer points of collecting, those points that can provide so much fun. And it is for them that a new section has been added to the Commonwealth Catalogue Queen Elizabeth Stamps. A full explanation of all angles of the hobby is to be found in this section. It has been written in such a way that anyone can understand what it is all about.

The stamps of the late King's reign were most popular, and still are, but warm feelings for the new occupant of the throne have helped to strengthen the popularity of Commonwealth stamps of today.

British stamps have received a good deal of publicity lately, owing to the change in watermark. Do not overlook the fact that these stamps are overprinted for Bahrain, Kuwait, Muscat and Dubai, Morocco Agencies and Tangier, so that these stamps also have had their watermarks changed. Searching for the watermark varieties means a lot of fun.

If you are thinking of taking up this "QEII" group, get your loose leaf album—a quite nice one can be obtained for about £1—and you will find that the leaves have very faint crossed lines, to assist in the orderly arrangement of your stamps. Maybe you are only going to collect up to a face value of 3d. to start with, and perhaps you never intend to go above a shilling. That does not matter in the least, if you have an album with plain leaves, for you can arrange your set to your liking, and it need not look incomplete.

On the other hand, if you have what is known as a printed album, that is one with those squares for stamps, even if you have a set to 10/–, and there is a £1 stamp in the set, the page on which these stamps are mounted will have gaps in it.

Another point to remember is that with a printed album, you must stick to the printed spaces provided. That rules out the nice varieties and shades, which you might like to add to your collection, for even if there is room for these on a printed page, they will not fit in with the arrangement, and will in consequence spoil the appearance of that particular page.

First, buy up as fast as you can all the current sets. Don't strain your finances. If all you can afford are sets to 3d., which cost around a 1/– or 1/3 each, mount these carefully, each one on a page, leaving room below, for higher values, which you are likely to obtain later on, if you continue collecting.

If you are able to spend one pound a week on your "QEII" collection, then you can go in for practically all the stamps of the group. If on the other hand, about two shillings a week is as far as you intend to go, then start off with sets to 3d. or 6d., and after you have bought all the current sets, then go in for the higher values.

For a catalogue, you have the Commonwealth QEII section, which deals only with the stamps of the present reign (the new 1957 edition, cloth bound at 4/–) or Gibbons *Two Reigns*, which deals with both KGVI and QEII stamps, and costs 5/–, has a paper back, 6/6 boards, cloth bound, and 10/– interleaved. You will want a catalogue, whichever you decide to have.

As for the album, a Pragnell "Viking" or a Gibbons Simplex will be the most suitable, and if you go to the nearest stamp dealer, or if there is not one of these near where you live, a stationer, you will be able to order just what you want.

The point to remember is to start methodically. Get the Aden and Aden States sets first, and work right through the alphabet to Zanzibar. Do not forget the stamps of Great Britain and those overprinted, which perhaps might come first, though I would be rather anxious to complete the Commonwealth stamps as soon as possible, in case any went obsolete before I could buy them at current rates. I must not forget to add that when I say start at Aden, and go right through, I am referring to the current stamps. The obsolete ones can come later.

Next month I will deal with the KGVI stamps.

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SPECIAL. TO ALL APPROVAL APPLICANTS THIS MONTH. **FREE! George VI Set Catalogue Value 4/-.** 2½d. Postage.
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For other Stamp Advertisements see also pages 648 and xxii

Stamp Gossip

NOEL

Quite recently I was shown a collection of Christmas stamps and stickers. A few shillings would have bought the album and all its contents, yet I could not imagine anything in the stamp line that would have appealed more to a non-collector who did not know which were the postage stamps and which were the labels and stickers.

On the other hand, I am afraid that a philatelist would not have been greatly impressed. But in the album there was one real postage stamp that would have captivated anyone—the one from Austria that is illustrated. And this is a cue for me to wish all readers of these notes a happy Christmas.

"IN THE SPIRIT OF PAUL REVERE"

I was quite surprised by the interest that readers took in my comments, a few months ago, on postmarks and slogans. One of these sent me a real beauty from the U.S.A. and asked if it could be illustrated. Well, I am sure that our Editor will oblige, for he will be interested to hear how many *M.M* readers are now forming slogan collections.

Great Britain isn't very enterprising when it comes to bringing out new and attractive stamps but we bring out our share of slogan postmarks. So no one should find it difficult to get a little collection together. Don't forget how to mount these. Take this "Paul Revere" item, for example. You use three mounts and space them out along the length of the piece. Then you find out all you can about Paul Revere, if you don't already know, and print neatly underneath a short note. Make this snappy, for it is not an essay you are writing. Just a sentence or two on who this famous American was, and what he did.

And that is how you go on with slogan postmarks, picking out salient points and, if I dare mention it, you will thereby pick up all kinds of information.

STATE OF ISRAEL

I have more than once remarked what fine stamps Israel brings out from time to time. So fine indeed are these that in a very few years, relatively, these issues have become amongst the most sought after in the world. Some of the early ones are now quite out of the reach of those of us whose pockets could hold more cash than they do. Nevertheless one can still form a nice Israel collection for a modest sum, and no stamps lend themselves better to writing up.

Take the stamp illustrated, for example. It is an air stamp, and depicts the malarial swamps of the Hula Valley, which are gradually being drained and turned into agricultural land. Apparently nothing is being wasted in the process. The deposits of peat found are used for fuel, and the water drained off for irrigation.

Incidentally a very fine catalogue has been issued on Israel stamps. I don't know the price, but if interested readers write to Mosden Stamp Coy., 161 Strand, London, who are the publishers, if they have any left, they will no doubt be pleased to give details. Gibbons list Israel fully in their Simplified and Part 3 Catalogues.

A TEN POUNDER

A reader has been given a piece of a large envelope that had on it a New Zealand stamp of £10 face value, but could not find in his catalogues any New Zealand stamps of over £5 face value. He asks if the £10 stamp is a new issue.

The answer is that it is not. New Zealand issues stamps up to the face value of £50, for they are used for fiscal purposes as well as postal. When these high value stamps first appeared, it seemed obvious that none over a face value of £5 was ever likely to do postal duty, so that was the top limit imposed on stamps to be catalogued. But postal rates have gone up, like everything else, particularly air-mail charges, and quite a few of the £10 stamps are now used on air-mail postal packets. Nicely cancelled copies sell at anything up to £5 each, so my correspondent has got a nice stamp indeed.

PRE-CANCELS

A very young collector asks what is meant by a pre-cancel. It is a stamp that is cancelled before it is sold to the user. To save time in cancelling after posting, some post offices cancel stamps beforehand, and sell them to reputable firms who want them for circulars, etc. There is little risk of the stamps being used a second time, so the arrangement is a very convenient one for the post office concerned.

Canada has pre-cancelled stamps, one of which is illustrated. British collectors are so keen on these that they have been listed in the Commonwealth Catalogue.

THE MONTH'S TIP

I would like to mention, as a good stamp used, the K.G. VI $2.40 value of Barbados; but a copy would cost at least 10/–, which is beyond the reach of many young collectors. So to these I say look out for a used copy of the Cyprus K.G. VI 2½p. ultramarine, issued in 1938. If you can get it for about 1/6d. or 2/– buy it.

RoSPA House—*(Continued from page 607)*

In the position shown the second driver will find it very difficult indeed to avoid hitting the lorry that is emerging from the side road. In a further demonstration the lorry from the side road is seen halting, as it should, to allow that on the main road to pass by.

Almost every type of road incident is reproduced in the wonderful models to be seen in RoSPA House, which give graphically and even dramatically a wealth of carefully planned guidance that it is well for all road users to know. But even more is done in this wonderful building. Cyclists and car drivers can be tested on special trainers, reaction times are measured, and there are indeed training classes for various classes of road users, from children in their early cycling days to commercial drivers.

The Leeds and Selby Railway—*(Contd. from page 633)*

Still more changes and extensions came. A direct route to Goole from Thorpe Willoughby, avoiding Selby, was opened in 1910. Exchange sidings had existed near South Milford since 1839. These later became known as Gascoigne Wood Junction, and hump shunting has been carried on there many years.

Despite its years and the heavy traffic it carries, the Leeds and Selby is still a rural line in aspect, and the addition of a housing estate at Osmondthorpe on the outskirts of Leeds, where a wooden station was opened in the 1930's, has done little to detract from the entry into this city.

The day has long gone when Marsh Lane bank would stall a train on the climb out of Leeds. Even single-wheelers could fly up the grade with York-Scarborough Expresses, and many and varied have been the engines seen on the line, the London and North Western working their own trains through to Hull from Liverpool, and the Midland and the Lancashire and Yorkshire to the same destination, joining the Selby line at Milford Junction.

Selby had become a station on the main line to Newcastle and Edinburgh from King's Cross in 1871, when the North Eastern Railway line was opened from Chaloner's Whin, York, to Shaftholme near Doncaster. The old Hull and Selby lifting bridge then became a severe handicap to traffic, as it was hand operated. A large new power swing bridge a little to the east of it was accordingly planned, and this was completed in 1891 at a cost of £22,343. In 1898 another link in the shape of a light railway to Wistow and Cawood was opened, so from small beginnings, Selby, the focal point of the network of lines, enjoyed ever expanding trade along the Iron Way.

It went—and "Doynged" as well!—*(Cont. from p. 634)*

massive frame, the old (then new) blue Boiler with an 11½" Rod for piston, some cranks, etc., and a lovely governor that whirled splendidly. Some gears were added, a mighty built-up flywheel, some Sprockets and Chain, a worm device that slowly revolved a large drum, a line of Dredger Buckets mounting gaily to a high jib, thence to vanish under the frame, two small subsidiary cylinders that push-pulled at speed, and an Eccentric that actuated the cream of this mechanical nightmare—a weighted arm that at brief intervals beat strongly on a large, loose-hung plate to produce a gorgeous "doyng."

There was scarcely a Meccano movement of the period that was not included in the Thing's mystical operations. The entire weird process was powered by a clockwork motor, and not the least of its charms was its great operating platform, like a signal gantry raised over the whole whirling, buzzing, rolling, rattling, clicking, chattering, and joyously "doynging" mass.

I still think, with all due modesty, that this control system, exhibiting some nine or ten levers at least, was quite a feat for an 11-year old, for the motor, gear-box, and each separate operation of this mad monster of a Meccano model could be independently controlled. Mother viewed it with benign interest, and, from matronly experience, forbore to ask silly questions. A craptious adult brother, bookish pedant, demanded to know what it was? And I, its creator, did not know!

So I hid it from male eyes young or old, and gloated secretly over its many-toothed glories, like a collector of rare objects—till my Dad saw it. A man of no mechanical interests whatsoever, he viewed its performance for some time with the same mild astonishment with which I rather suspect he generally regarded his younger son, and observed briefly, "It goes."

Here, from one who knew not a Sprocket Wheel from an Angle Bracket, was yet the profoundest wisdom. Here was indeed the root of the matter, the purpose, the function, the be-all and end-all, the Alpha and Omega of this gorgeous "Thing!" It went, in every direction, at all speeds, in every variety of motion. And it "doynged" as well!!

I envy those whose fortune it has been to retain both their equipment and enthusiasm into adult life.

For Meccano, in a way, is better than life. In Meccano the pieces fit.

Gamages Book of Model Trains, Boats, Cars, Aircraft, etc.

The advent of the Gamage catalogue is something to which we all look forward. This year's edition has 132 pages of descriptions and illustrations of miniature trains, boats, road vehicles and aircraft. The miniature railway equipment shown includes Hornby-Dublo, while naturally Dinky Toys are well represented in the section dealing with road vehicles.

For aircraft and road vehicle construction there is a wide variety of both finished models and kits. The publication is a handbook rather than a mere catalogue, as it includes notes on prototype practice and performance, particularly dealing with the trains, aircraft and cars. The needs of the modeller are not forgotten and those who enjoy carving and fretwork and similar activities will find much to interest them.

The catalogue, price 1/4 post free, is obtainable from Gamages, Holborn, London E.C.1.

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From Our Readers

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

A SPANISH HOLIDAY

During my summer holidays I was in Malaga, Spain, and stayed in an hotel where the local narrow-gauge railway ran along the back, parallel to the sea. Later we moved to Algeciras. To the north of that port is one of the larger cork-tree forests.

An express from Algeciras to Madrid passing Almoraima. Photograph by J. Chorlton, Giggleswick.

Most of the cork is taken to Almoraima railway station, which is about 20 miles north of Algeciras on the main line to Madrid. While I was wandering round the sleepy station, without a platform ticket, the Station Master watched me with great interest, and from his gesticulations I understood that a train was due. This is seen in my picture. It was the Algeciras to Madrid express and was travelling at about 30 m.p.h.

Soon after leaving the railway station, I saw three bullock carts returning empty from the railway goods yard, and the leading driver kindly stopped to enable me to take another picture, this time showing an age-old mode of transport.

I thoroughly enjoyed my stay in Spain, which I can recommend as a holiday ground.

J. Chorlton (Giggleswick).

FLIGHT TO THE EAGLE'S NEST!

Some argument exists as to whether the English or Irish parish can lay claim to the famous Vicar of Bray, but the Irish town of that name, a pleasant seaside resort some 15 miles from Dublin, can definitely claim one unique possession—a "Chair Lift" that is the only passenger carrying aerial railway in Ireland.

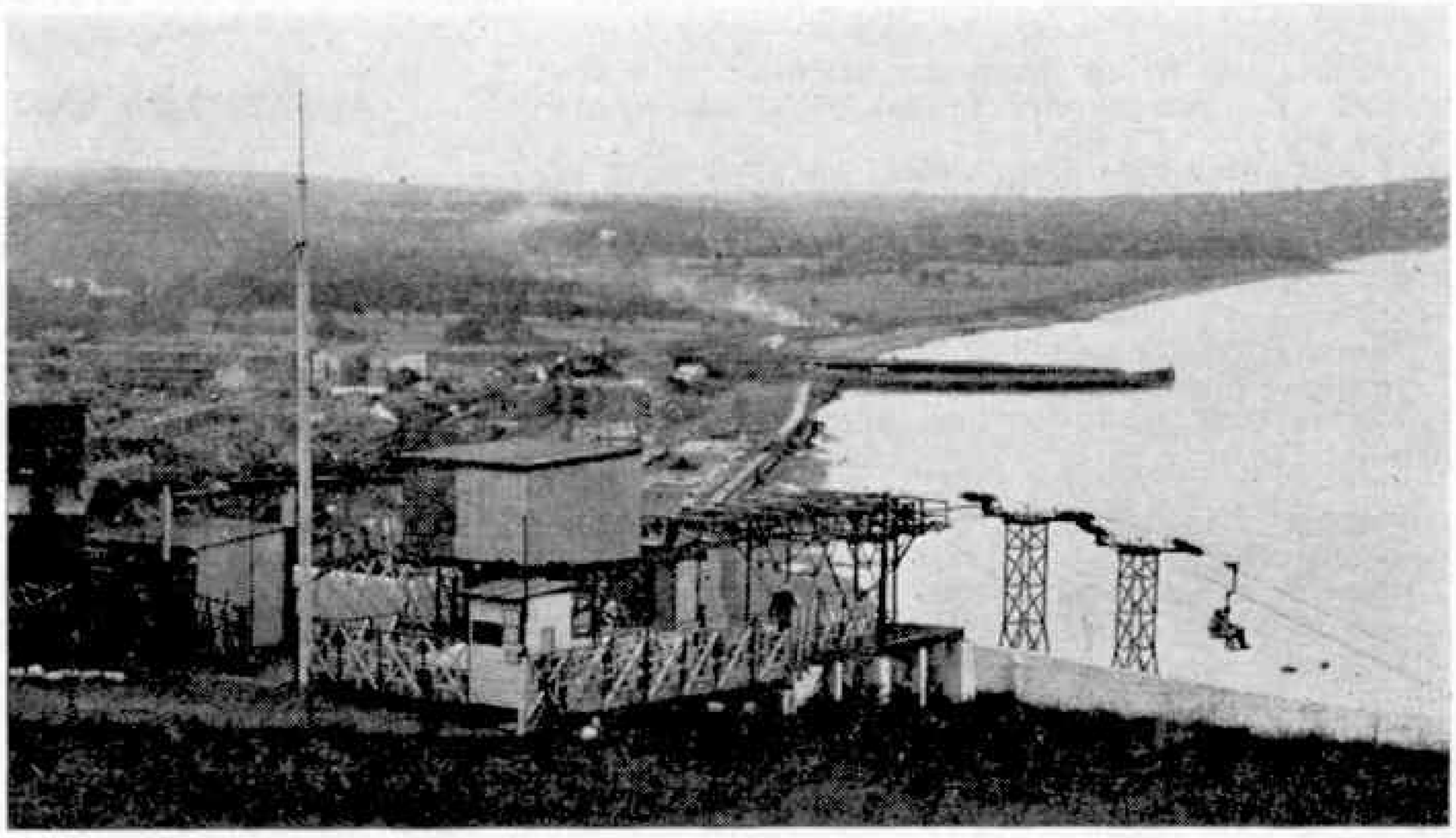
To the south of the town lies Bray Head, an 800 ft high headland, crowned by a huge granite cross, erected in Holy Year. It can be climbed quite easily, provided one is fairly sound in wind and pretty sure footed, for outcrops of granite and marble tend to be treacherous footholds for the unwary. Those less energetic use the lift, which runs from a spot on the cliff walk, via a series of steel supporting pillars, to the "Eagle's Nest," half-way house, now a pleasant Continental style cafe, from whose balcony fine views can be seen of Bray, Killiney Bay and the surrounding Wicklow mountains.

The lift, which is electrically operated, consists of launching and receiving platforms, each of which supports a huge wheel, around which a continuous steel cable runs between the termini, supported by pillars placed at strategic intervals, which in addition to holding the wire at the correct angle and height, provide roller bearing arms to assist smooth running.

The cable cars, each of which holds two persons, are tightly gripped to this cable, the right hand side providing upward movement, the left, of course, the reverse. The cars are slid into a siding by an attendant as the platform is reached, otherwise the traveller would be doomed to a life of perpetual motion and even the wonderful scenery would pall after a time!

After a passenger has been strapped in, his chair is connected to the moving rope and a vigorous push launches him into space. The bay below then looks to him like a picture from a child's fairy book.

J. B. Shilvock (Kidderminster).



The head of the chair lift at Bray, Co. Wicklow. Photograph by J. B. Shilvock, Kidderminster.

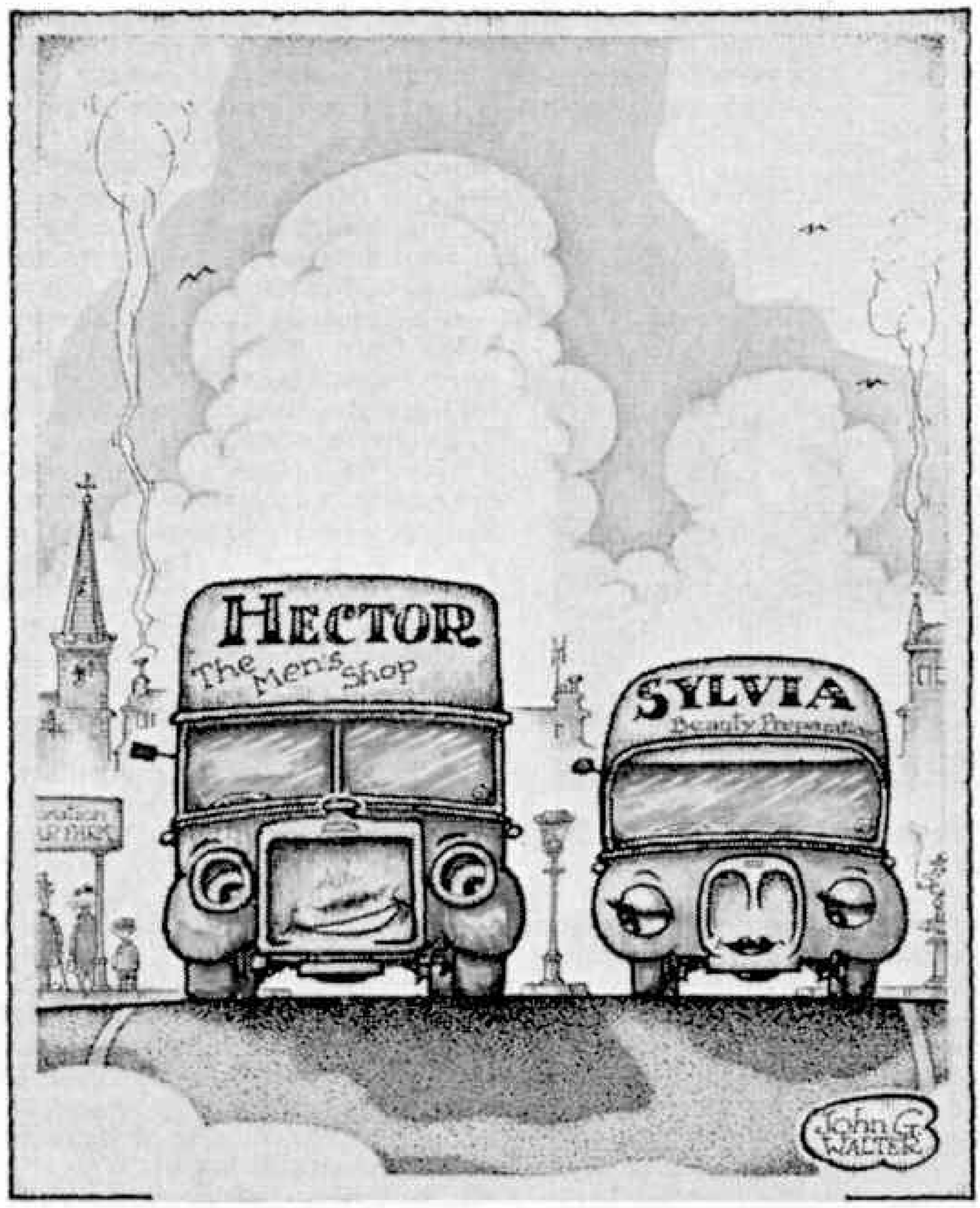
Fireside Fun

Cyclist: "Is that building over there a ruin?"
Old Man: "Ruin? No, it's all t'pieces."

* * * *

Paddy was showing some visitors over his new house. Arriving at the nursery he said "This, gentlemen, is the bawlroom."

* * * *



(Reproduced by courtesy of "The Leyland Journal").

* * * *

A Scot went to his doctor for attention to a head wound. He was careful to ask what the charge would be.

"I will stitch that scalp wound for 25/–" said the doctor.

"Nae, Nae, Doctor," replied the Scot, "I want just plain stitching, not embroidery."

* * * *

Tom: "Do fishes grow fast, Jimmy?"
Jimmy: "Some of them do. My father caught one last year that grows an inch every time he talks about it."

* * * *

Teacher: "Now Clarence, can you tell me how iron was discovered?"
Clarence: "Yes, teacher, they smelt it."

* * * *

Reginald: "Have you ever noticed that an ignorant person is often a very loud talker?"
Archibald: "Yes. Don't shout at me."

* * * *

Employer: "Now, Pat, I'm giving you this pig for a Christmas present."
Pat (joyfully): "Faith, it's just like ye, sorr!"

There was a young boy in the choir,
Whose voice rose higher and higher,
Till one Sunday night,
It went quite out of sight,
And they found it next day on the spire!

* * * *

Gilbert: "What has a tongue but cannot speak?"
Lawrence: "A boot."

* * * *

Martin: "Which kind of candle burns longer, a wax or a tallow one?"
Barnaby: "A wax candle, I should think."
Martin: "You're wrong, both kinds burn shorter!"

* * * *

The secretary of a firm had three trays on his office desk, marked IN, OUT and LBW.

"What does the LBW mean?" a visitor asked, looking at the great pile of papers in that tray.

"Let the blighters wait," he said.

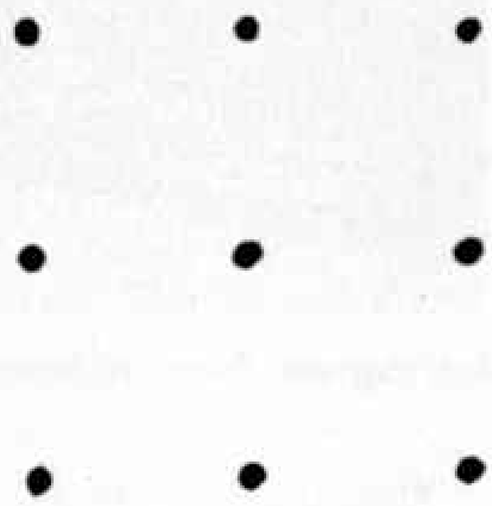
* * * *

Old gentleman (seeing Christmas Waits about to start up beneath his window): "How much will you take to go away?"
Leader: "Two bob".
Old gentleman: "It isn't worth it."
Leader: "No? Wait till you hear us sing."

* * * *

BRAIN TEASERS

Can you join the nine dots shown in the sketch herewith, using only four strokes of the pencil and without lifting the pencil from the paper?



* * *

WHATEVER IS IT?

Here is part of a verse of a well-known poem in which every alternate letter is incorrect. Can you write in the correct letters and so make the verse legible?

IS – WIS – O – SAMUEL – ELECIRG,
ALE – KISSAC'S – LOCK – SAW – DINT,
ADD – ME – MELODE – BIT – CATIARE – BOER
WYS – LISTONE – IF – TIE – DUE.

* * * *

ANSWERS TO LAST MONTH'S PUZZLES

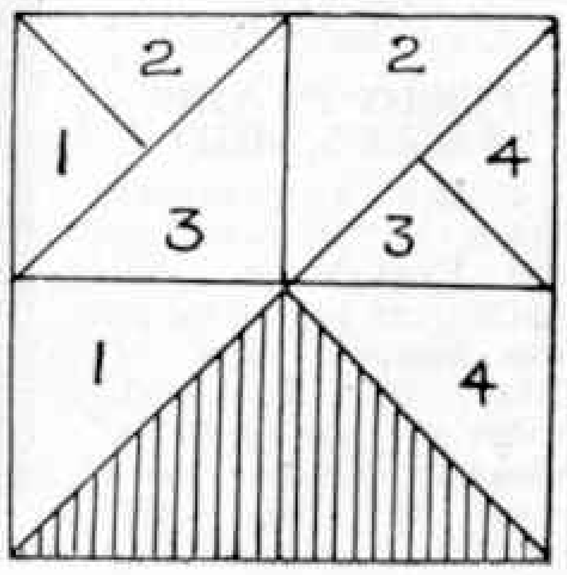
A Letter Series

The meaning of the seven-letter series is "One, Two, Three, Four, Five, Six, Seven." The two missing letters therefore are 'S's.'

* * * *

The Divided Field

The four sons divided up the field as shown in the accompanying sketch. One received the portions marked 1, another the portions marked 2, the third those marked 3, and the fourth those pieces marked 4. If you study the sketch you will see that the shape and size of each son's land are the same.



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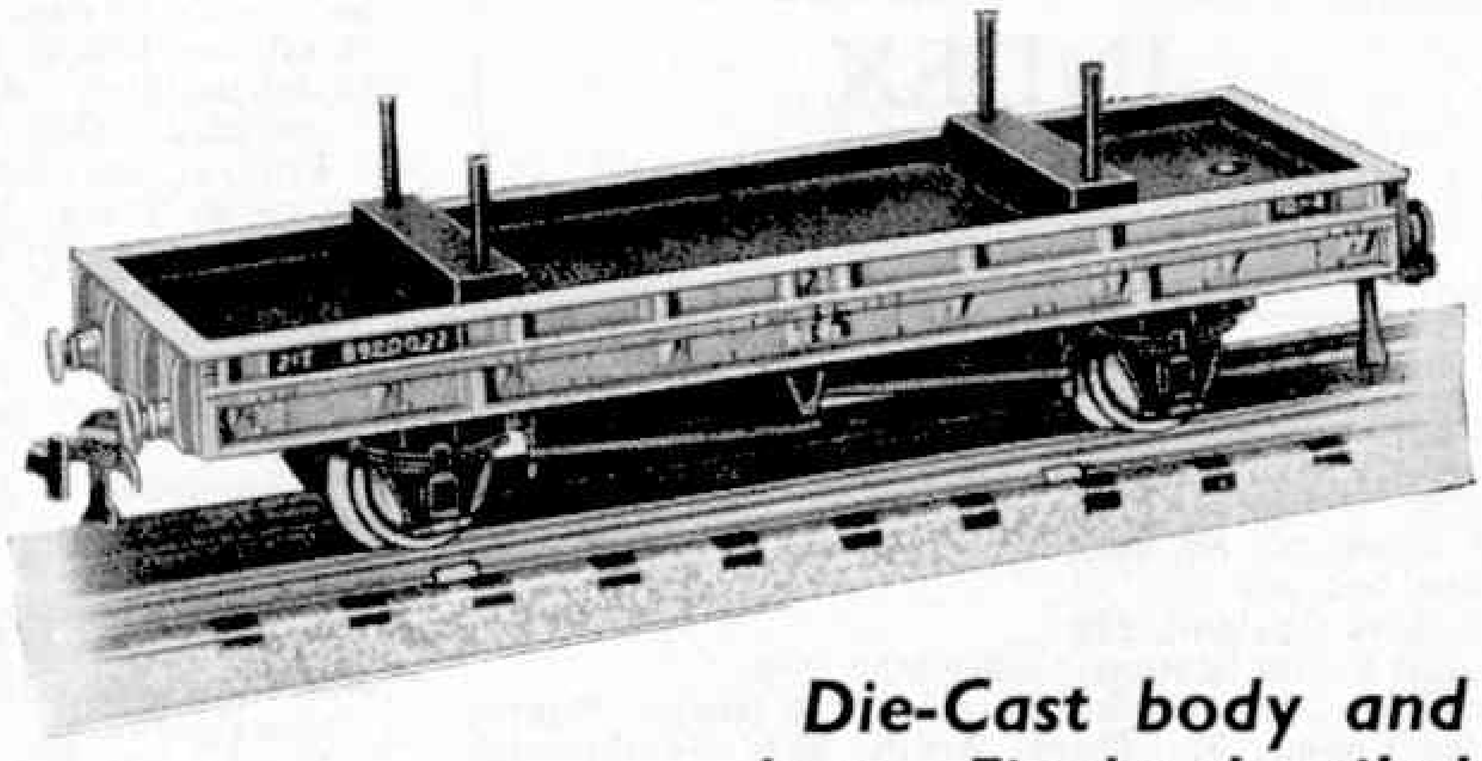

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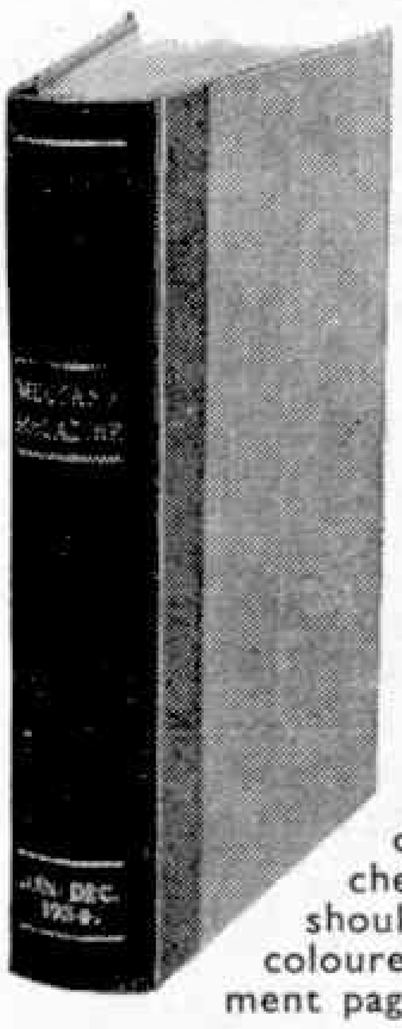

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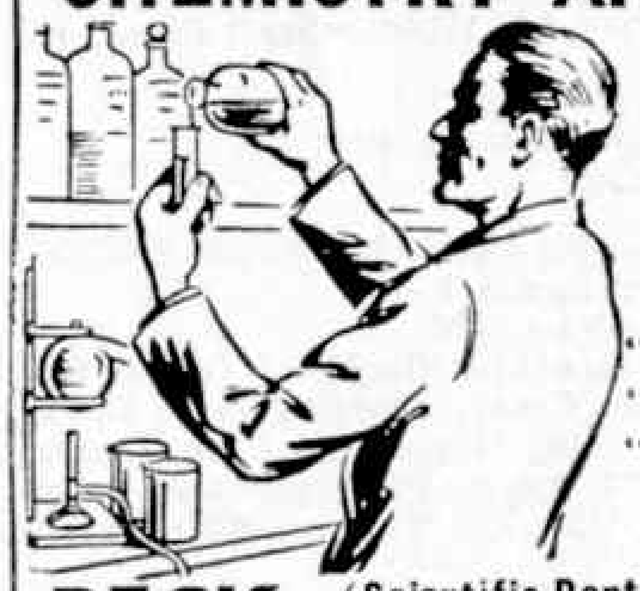

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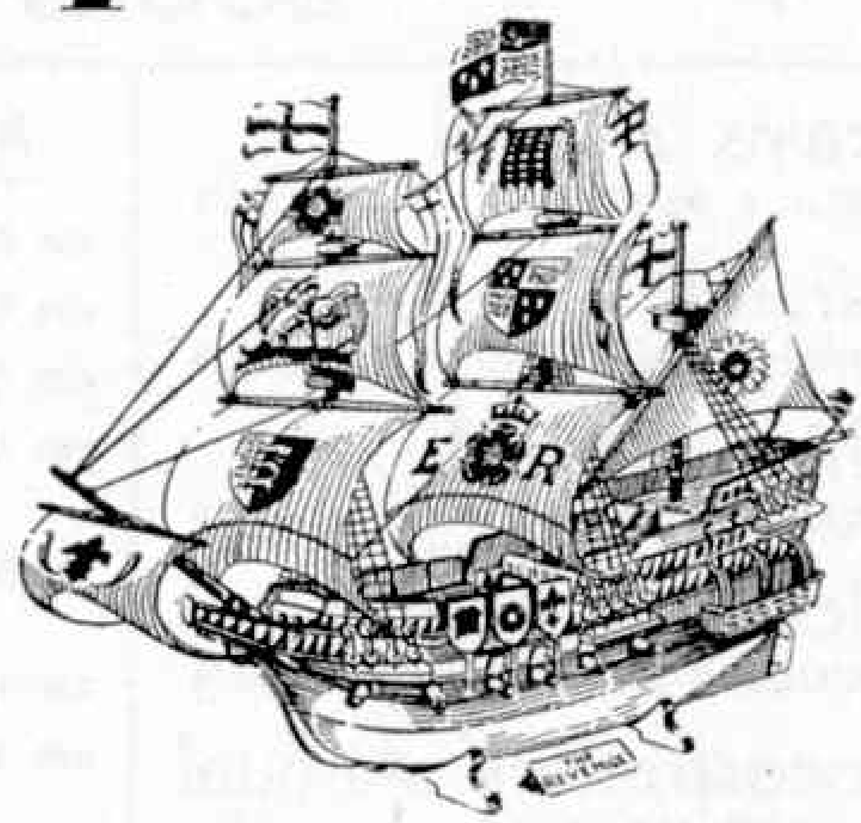

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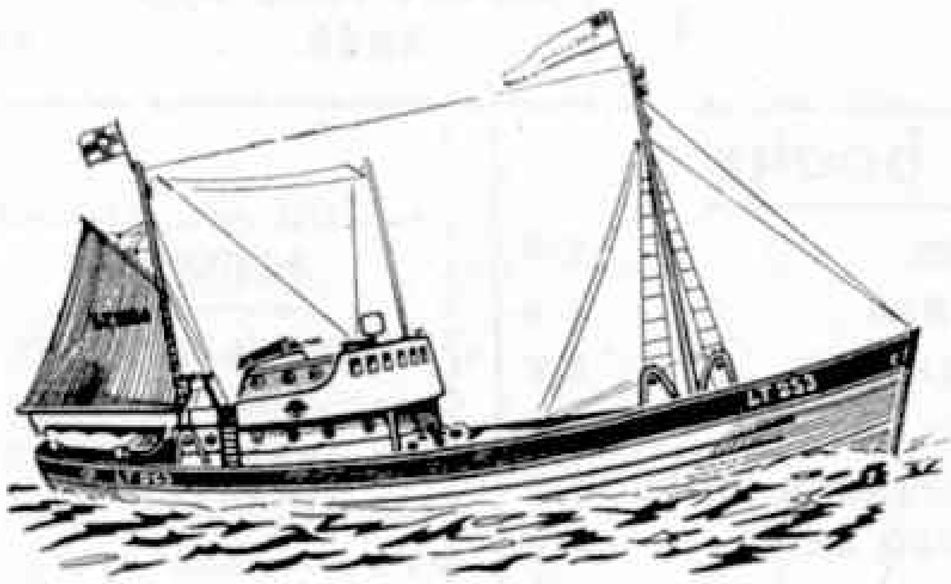

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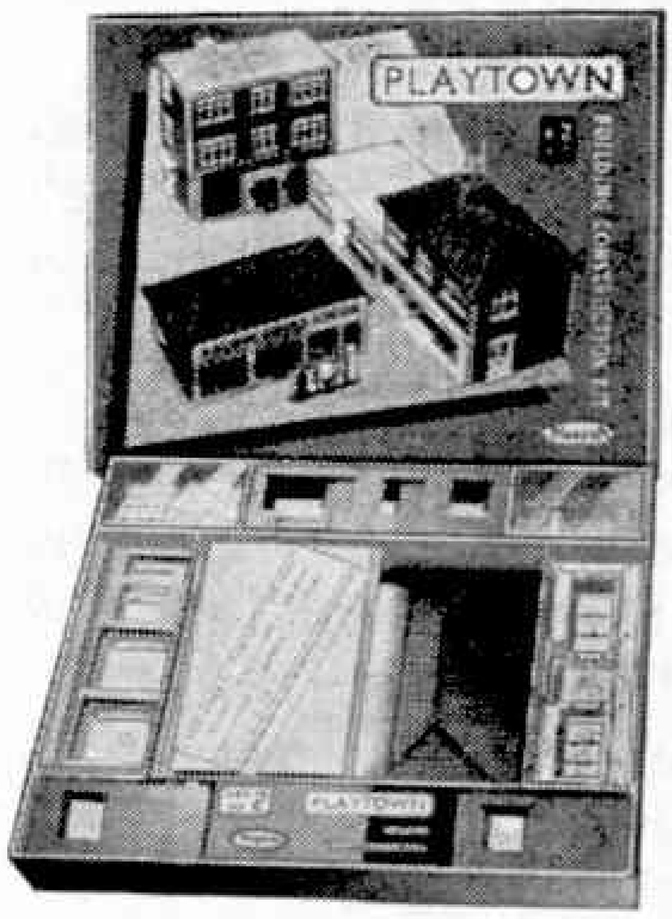

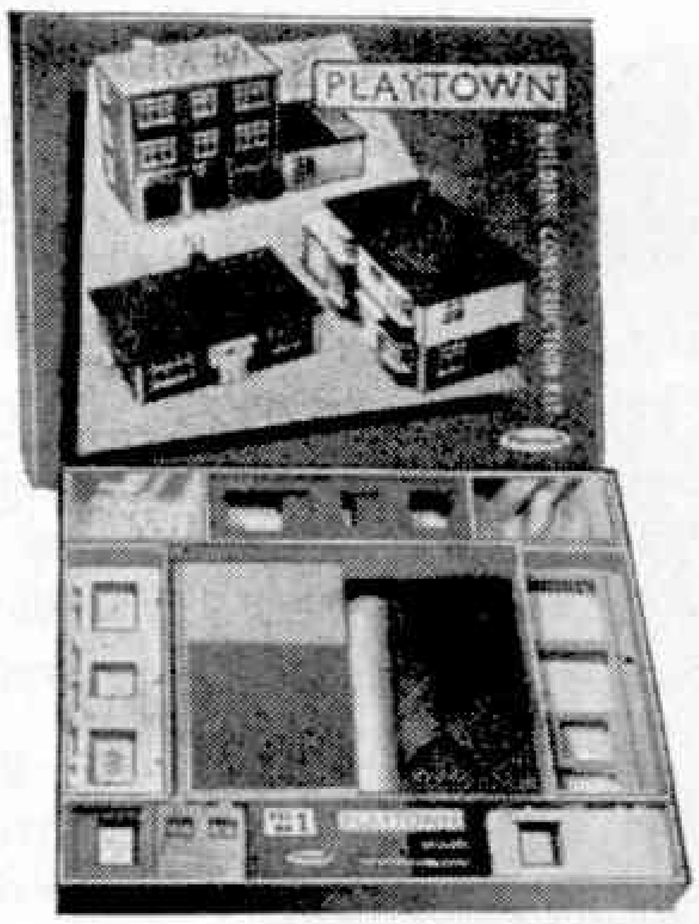

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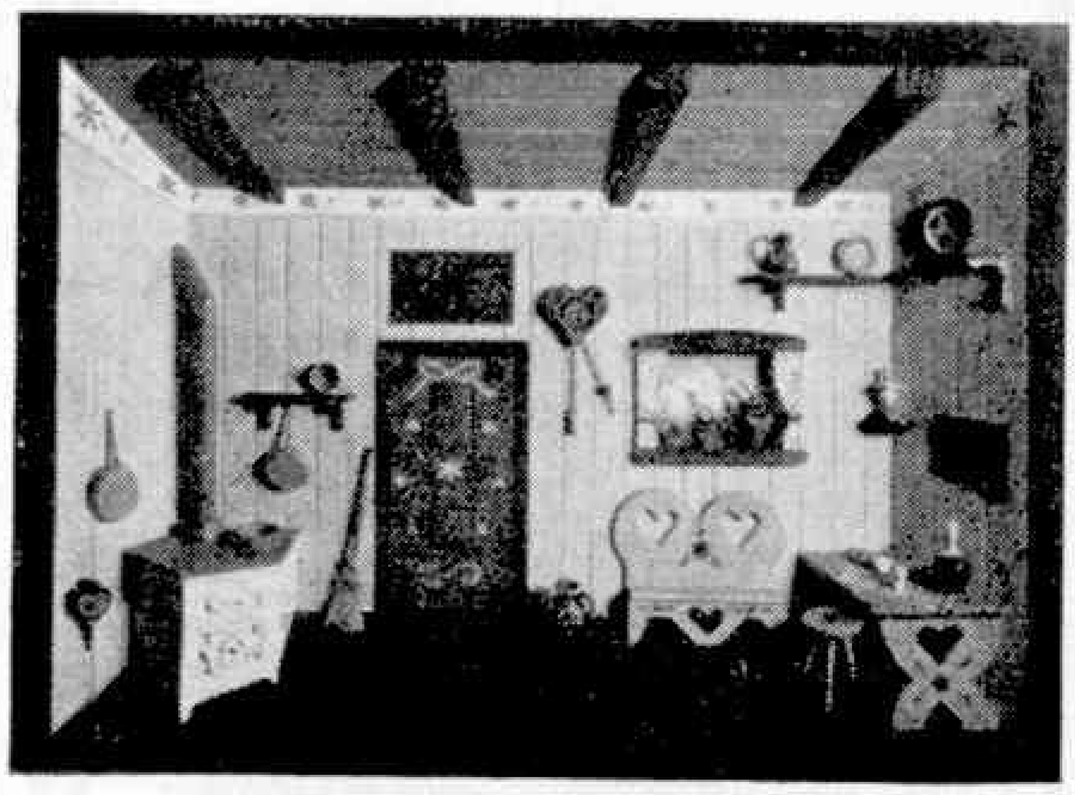

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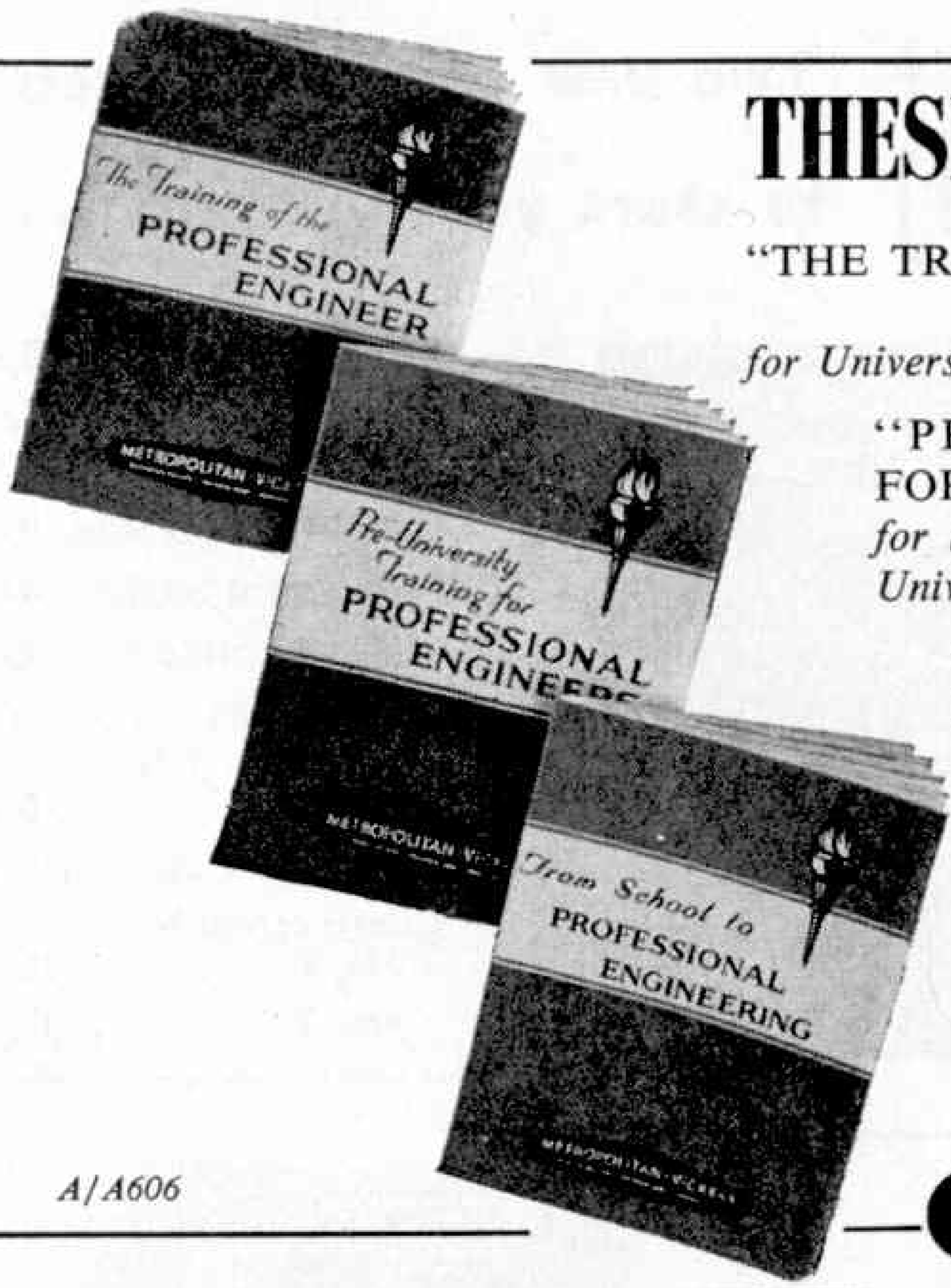

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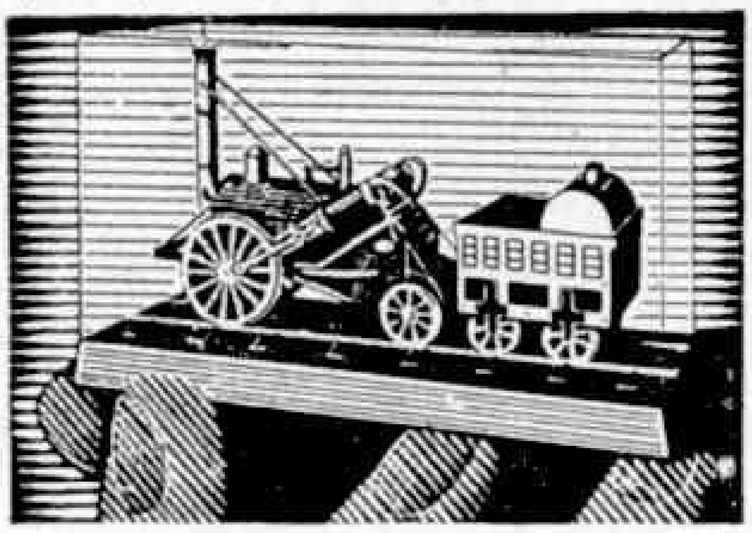

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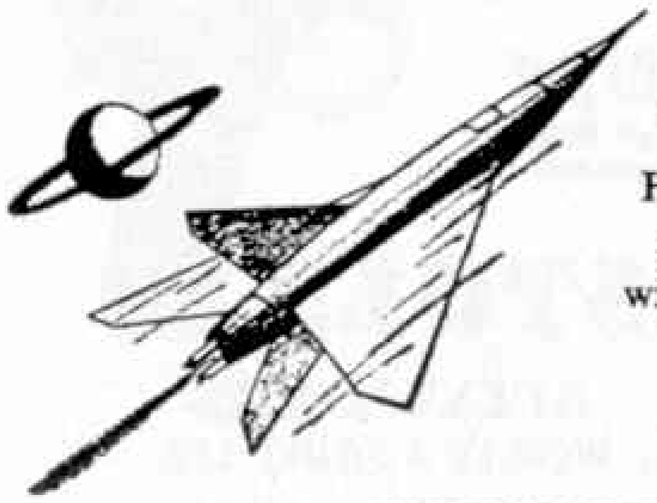

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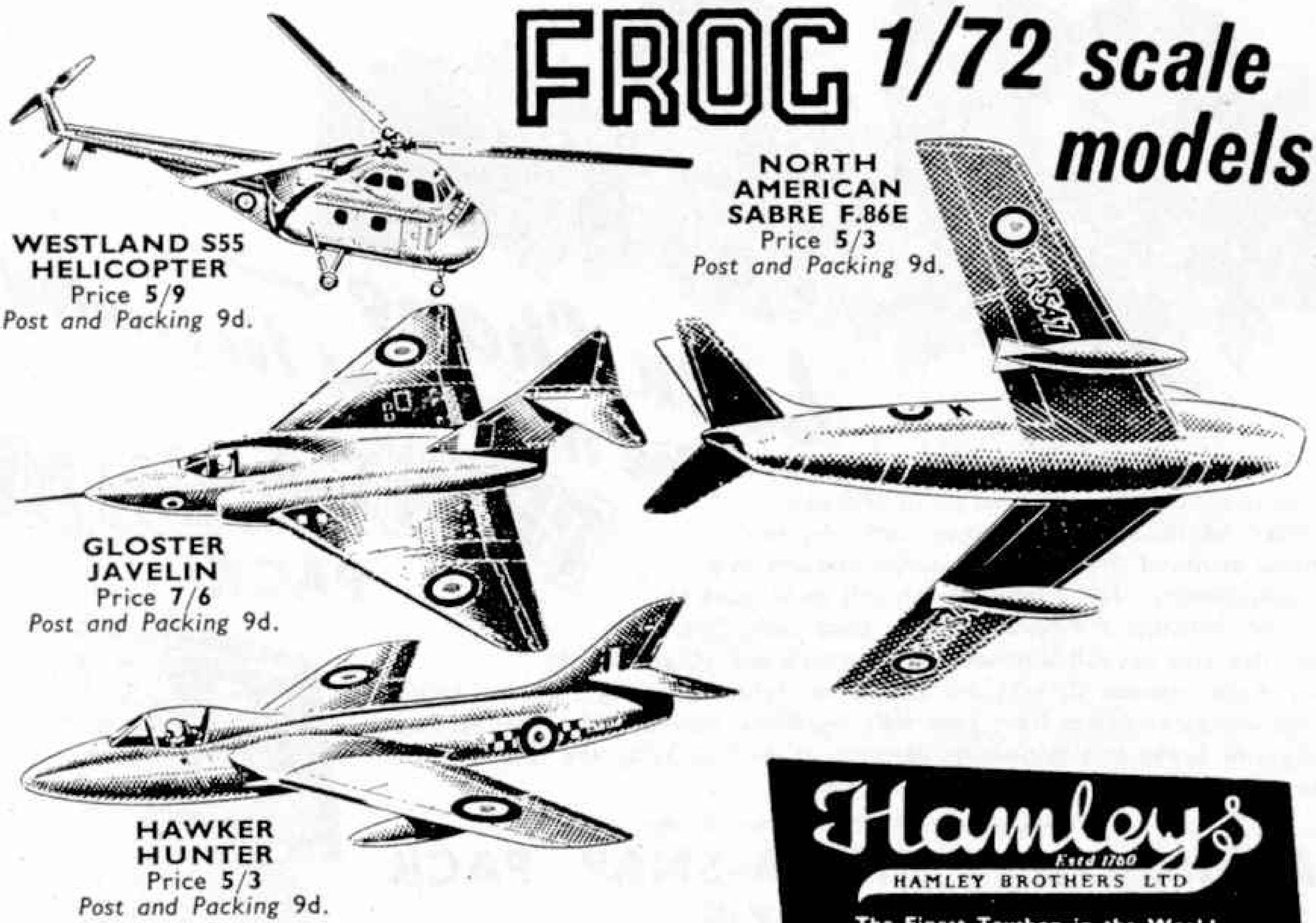

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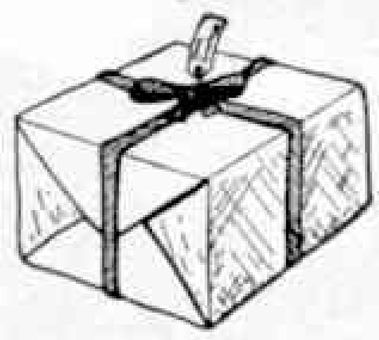

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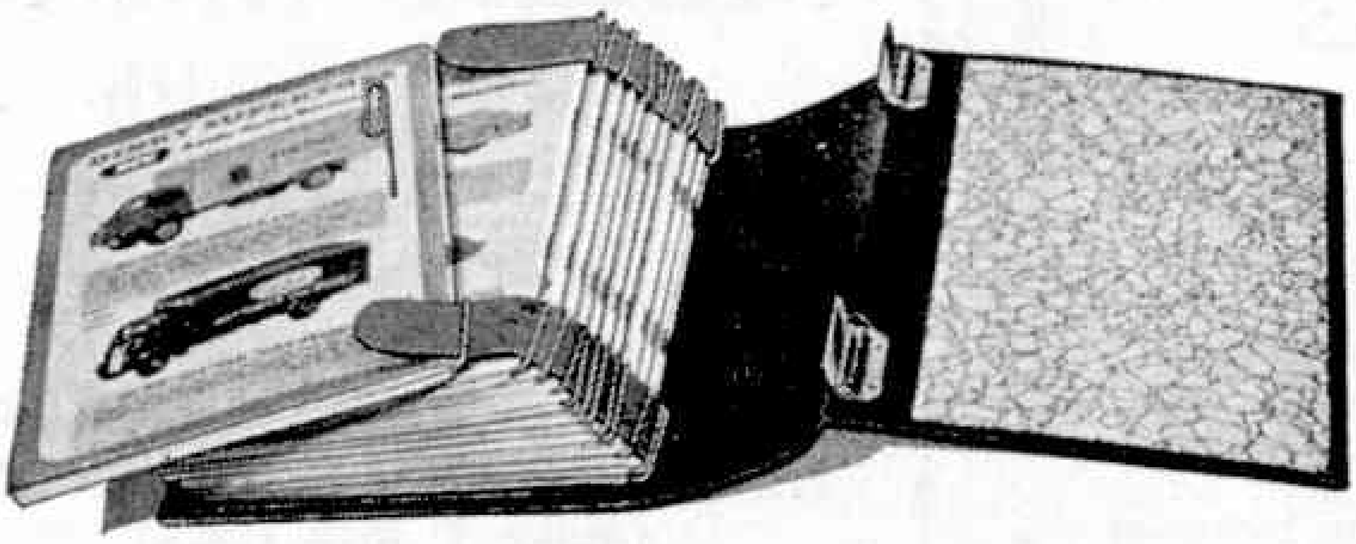

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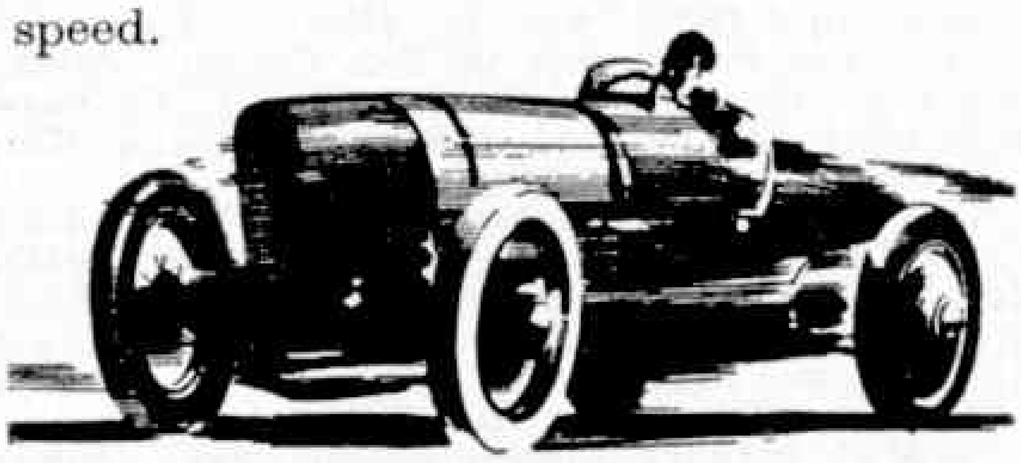

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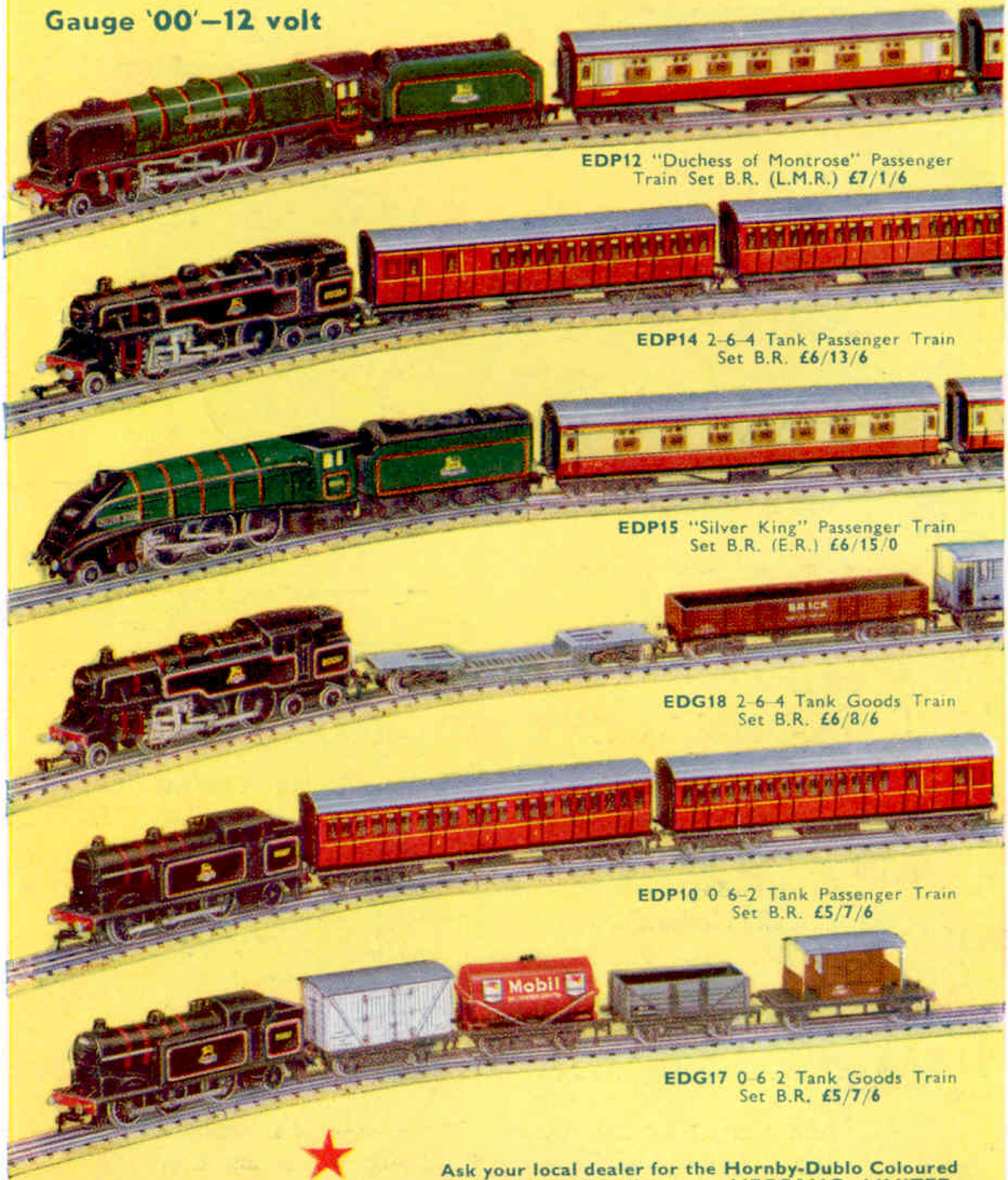

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MODEL OF THE MONTH

OIL TANKER

Illustrated in the December 1956 issue of the "Meccano Magazine"

Construction of the Hull

Each side of the hull is made by bolting together four $12\frac{1}{2}$" x $2\frac{1}{2}$" Strip Plates and a $9\frac{1}{2}$" x $2\frac{1}{2}$" Strip Plate as shown in Fig. 1. Two of the joins between these Plates are made by overlapping the Plates by two holes, and for the remaining two joins the Plates are overlapped three holes. The sides are connected at the bow by a $2\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate 1 curved to U-shape, and at the stern by two curved $4\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plates.

At the bow each side is extended upward by two $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plates overlapped six holes, and by a $2\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plate 2. These Plates are extended by a $3\frac{1}{2}$" x 2" Triangular Flexible Plate 3, a $2\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate and a $2\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plate. The Plates 3 are connected by a $2\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate 4 curved to U-shape. At the stern the sides are extended upward by two $2\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plates, and six $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plates, two of which are curved to the shape of the rounded stern.

The lower edge of each side of the hull is strengthened by five $12\frac{1}{2}$" Strips, and the lower edges of the stern Plates are braced by curved $4\frac{1}{2}$" Strips. The upper edge of each side is strengthened by three $12\frac{1}{2}$" Strips.

The sides are connected by two $7\frac{1}{2}$" Angle Girders 5 attached by 1" x $\frac{1}{2}$" Angle Brackets, and by three similar Girders 6, 7 and 8 bolted to $\frac{1}{2}$" x $\frac{1}{2}$" Angle Brackets. In addition a series of $7\frac{1}{2}$" Strips 9 is fixed to Angle Brackets bolted to the upper edges of the hull, and a made-up strip 10 is attached similarly. Strip 10 consists of two $4\frac{1}{2}$" Strips overlapped five holes.

The Decks and Deck Fittings

The foredeck consists of a number of Plates bolted between a triangle of made-up strips. The two longer sides of this triangle are each formed by a 3" and two $3\frac{1}{2}$" Strips and the shorter side is made from two $4\frac{1}{2}$" Strips overlapped five holes. The space between the Strips is plated by a $5\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plate, two $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plates and two $3\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plates. The assembly is connected to the sides of the hull by Angle Brackets. Two 3" Flat Girders 11 are attached to the rear edge of the foredeck by Angle Brackets. A winch on this deck is represented by $\frac{1}{2}$" Pinions on a $2\frac{1}{2}$" Rod supported in a $1\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip, which is spaced from the deck by Washers on $\frac{3}{8}$" Bolts. A hatch cover is formed by a 1 11/16" radius Curved Plate edged by $2\frac{1}{2}$" Strips and Formed Slotted Strips, and this also is spaced from the deck by Washers on long Bolts.

A $3\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip is bolted to the Flat Girders 11 and to each lug of the Double Angle Strip two face to face $5\frac{1}{2}$" Strips are fixed, with a $5\frac{1}{2}$" Curved Strip between them. These Strips are connected at their upper ends by a further $3\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip that supports two $4\frac{1}{2}$" Angle Girders. To each pair of Strips a Rod and Strip Connector is attached, and $3\frac{1}{2}$" Rods in these represent the derricks.

The main deck is plated by eight $12\frac{1}{2}$" x $2\frac{1}{2}$" Strip Plates and

a $9\frac{1}{2}$" x $2\frac{1}{2}$" Strip Plate 12, bolted to the Angle Girders 6, 7 and 8 and to the Strips 9 and 10. Two $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plates 13 are arranged on each side towards the bow.

The deck at the stern consists of a $9\frac{1}{2}$" x $2\frac{1}{2}$" Strip Plate 14 on each side and a 6" Circular Plate. The Strip Plates are supported by a $7\frac{1}{2}$" Angle Girder bolted to the Girder 6, and by two 1" x $\frac{1}{2}$" Angle Brackets, one of which is indicated at 15. The Circular Plate is bolted to the Strip Plates and is clamped between them and the lugs of the Angle Brackets.

Nine $6\frac{1}{2}$" Rods are attached across the deckas shown by two Right Angle Rod and Strip Connectors each. The Rods 16 and 17 also are held at each end in pairs of Right Angle Rod and Strip Connectors. These are attached to the deck by $\frac{1}{2}$" Bolts, but are spaced from the deck and from each other by Washers on the Bolts. Rods 16 are $6\frac{1}{2}$" long and Rods 17 are made from $11\frac{1}{2}$" and $1\frac{1}{2}$" Rods joined by Rod Connectors.

The derrick supports 18 are pairs of $5\frac{1}{2}$" Strips and a $5\frac{1}{2}$" Curved Strip, and each is attached to the deck by a 1" x 1" Angle Bracket. The derricks are made from Rod and Strip Connectors and $3\frac{1}{2}$" Rods as described previously.

Assembly of the Bridge Structure

The complete bridge structure should be built as a unit and attached to the hull when completed. The lower part of each side is a $5\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plate, and this is extended upward by a $4\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plate 19. A $4\frac{1}{2}$" Angle Girder 20 is attached to Plate 19 by a Fishplate and is bolted to the upper end of a $2\frac{1}{2}$" Angle Girder 21. A $4\frac{1}{2}$" Strip is fixed between the Girder 20 and a 1" Corner Bracket 22. The sides are connected at the rear by a $4\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plate bolted to $2\frac{1}{2}$" Angle Girders, and at the front by two $4\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plates arranged vertically and attached to the sides by Angle Brackets. A $4\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plate 23 is bolted to the Girders 21 and its upper edge is fitted with a $4\frac{1}{2}$" Angle Girder. The roof of the bridge is formed by two $4\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plates bolted to this Girder and to the Girders 20. A $4\frac{1}{2}$" Flat Girder 24 is attached to Angle Brackets.

The rounded front of the bridge is made by bolting two vertical $5\frac{1}{2}$" Strips to Angle Brackets fixed to the Corner Brackets 22. These Strips support a $9\frac{1}{2}$" Strip 25 and a $7\frac{1}{2}$" Strip 26, and four $4\frac{1}{2}$" Strips are bolted between the vertical $5\frac{1}{2}$" Strips as shown. A vertical $5\frac{1}{2}$" Strip 27, a $2\frac{1}{2}$" Flat Girder, two $1\frac{1}{2}$" Strips, two $2\frac{1}{2}$" Strips 28 and two $2\frac{1}{2}$" Stepped Curved Strips complete the front of the bridge. Two $2\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plates attached to the upper end of Strip 27 by an Angle Bracket fill in the front of the roof of the bridge.

A platform 29 on each side is formed by a $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate bolted to a $1\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip 30. The Flexible Plate is edged by a $5\frac{1}{2}$" Strip, and three $2\frac{1}{2}$" Strips 31 and a $2\frac{1}{2}$" Curved Strip are attached to it, two 1" x $\frac{1}{2}$" Angle Brackets and the outer lug of Double Angle Strip 30 being used for this purpose. Strips 31 support a $5\frac{1}{2}$" Strip and this is connected to Strips 26 by a 1" x $\frac{1}{2}$" Angle Bracket. A $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate is attached to the $5\frac{1}{2}$" Strip by Angle Brackets. Each lifeboat is made from two $2\frac{1}{2}$" Strips and a $2\frac{1}{2}$" Curved Strip, and it is attached by Angle Brackets to $1\frac{1}{2}$" Strips, which are fixed to Angle Brackets bolted to the platform 29.

A platform 32 is made from a $4\frac{1}{2}$" Flat Girder supported by a 1" Reversed Angle Bracket and by a $2\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip 33. A $4\frac{1}{2}$" Strip is attached to the edge of the platform by an Angle Bracket and the lug of the Reversed Angle Bracket, and a 1" x $\frac{1}{2}$" Angle Bracket is fixed to the outer lug of the Double Angle Strip 33.

The mast is a $6\frac{1}{2}$" Rod fixed in a Double Arm Crank bolted to the roof of the bridge. Two $3\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plates are curved as shown and are fixed by bolts screwed into two Collars on the mast.

The complete structure is attached to the hull by bolting in place the Strips 31.

The Stern Superstructure

This section also can be built as a unit and fitted in place when completed. The sides of the central structure are each formed by two $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plates edged at the top by a $9\frac{1}{2}$" Angle Girder and at the bottom by a $9\frac{1}{2}$" Strip. The sides are connected at each end by a $2\frac{1}{2}$" x $1\frac{1}{2}$" Flanged Plate. Each side of the boat deck consists of a $2\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plate 34, a $2\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate, a $4\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plate, a $2\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plate and a $4\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plate 35. These Plates are fixed to the $9\frac{1}{2}$" Angle Girder and they are edged on the outside by a $2\frac{1}{2}$" and two $4\frac{1}{2}$" Strips. Six $1\frac{1}{2}$" Strips and a $2\frac{1}{2}$" Curved Strip are attached to the outer edges of the Plates by Angle Brackets. The rear ends of the Plates 35 are connected by a $5\frac{1}{2}$" Strip and a $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plate, and these support a $2\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plate 36.

Two $9\frac{1}{2}$" Flat Girders are connected at the front by a $2\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip and a similar Double Angle Strip 37 is attached to $1\frac{1}{2}$" Strips bolted vertically to the Flat Girders. A $4\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plate is bolted to a $2\frac{1}{2}$" Angle Girder fixed to Double Angle Strip 37, and to a $5\frac{1}{2}$" x $2\frac{1}{2}$" Flat Plate 38 attached to $7\frac{1}{2}$" Angle Girders bolted to the $9\frac{1}{2}$" Flat Girders. A $2\frac{1}{2}$" x $\frac{1}{2}$" Double Angle Strip 39 is fixed between the rear ends of the $9\frac{1}{2}$" Flat Girders and is used to attach them to the boat deck. The lifeboats are made in the same way as those described previously.

Two vertical $3\frac{1}{2}$" Strips 40 are bolted to Double Angle Strip 37 and to them are fixed three $7\frac{1}{2}$" Strips indicated at 41. Two of these Strips are fitted with 1" x $\frac{1}{2}$" Angle Brackets, and these are bolted to the sides of the hull and to 1" Corner Brackets fixed to the sides. The $1\frac{1}{2}$" Strips connected to the boat deck also are attached to the hull and serve to fix the stern superstructure in place.

The funnel is made from two curved $3\frac{1}{2}$" x $2\frac{1}{2}$" Flexible Plates, a 1 11/16" radius Curved Plate and two $3\frac{1}{2}$" x $1\frac{1}{2}$" Triangular Flexible Plates. It is attached to Flat Plate 38 by Angle Brackets. The ventilators are Collars fixed on Threaded Pins.

The catwalk between the bridge and the stern superstructure consists of two $18\frac{1}{2}$" Angle Girders connected by four $5\frac{1}{2}$" x $1\frac{1}{2}$" Flexible Plates. It is connected to the bridge and to one of the Strips 41 by $1\frac{1}{2}$" Angle Girders. A $2\frac{1}{2}$" Angle Girder bolted to the catwalk supports a Girder Bracket 42 on each side.

The model is completed by adding Cord for rigging, and anchors made from 1" Rods and $\frac{3}{8}$" Bolts held in the "spiders" from Swivel Bearings. The "spiders" are screwed on to bolts passed through the sides of the hull.

Parts Required: 16 of No. 1; 3 of No. 1a; 11 of No. 1b; 18 of No. 2; 29 of No. 2a; 8 of No. 3; 2 of No. 4; 23 of No. 5; 24 of No. 6a; 2 of No. 7a; 2 of No. 8a; 8 of No. 8b; 5 of No. 9a; 6 of No. 9d; 2 of No. 9f; 2 of No. 10; 52 of No. 12; 2 of No. 12a; 30 of No. 12b; 4 of No. 13; 14 of No. 13a; 6 of No. 16; 1 of No. 16a; 2 of No. 26; 496 of No. 37a; 475 of No. 37b; 78 of No. 38; 1 of No. 40; 3 of No. 48; 6 of No. 48a; 2 of No. 48b; 2 of No. 51; 6 of No. 53a; 8 of No. 59; 1 of No. 62b; 4 of No. 7D; 4 of No. 89; 8 of No. 90; 2 of No. 90a; 2 of No. 103a; 3 of No. 103d 2 of No. 103e; 1 of No. 103f; 8 of No. 111a; 10 of No. 111c; 6 of No. 115; 2 of No. 124; 4 of No. 125; 4 of No. 133a; 1 of No. 146; 2 of No. 161; 2 of No. 165; 12 of No. 176; 6 of No. 188; 25 of No. 189; 3 of No. 190; 2 of No. 190a; 9 of No. 191; 5 of No. 196; 16 of No. 197; 2 of No. 200; 6 of No.212; 34 of No.212a; 4 of No.215; 8 of No.221; 6 of No.224; 2 of No.225.