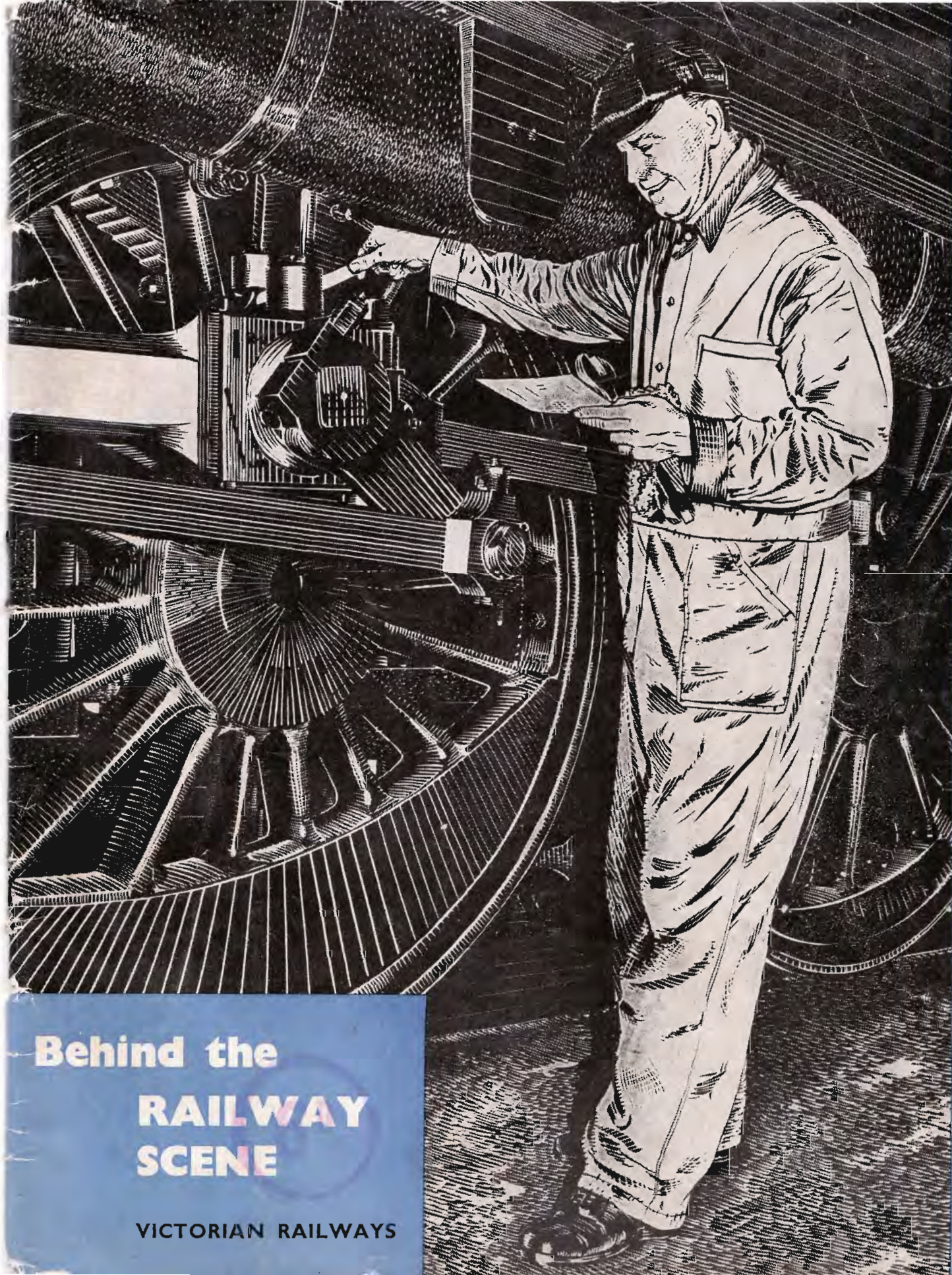




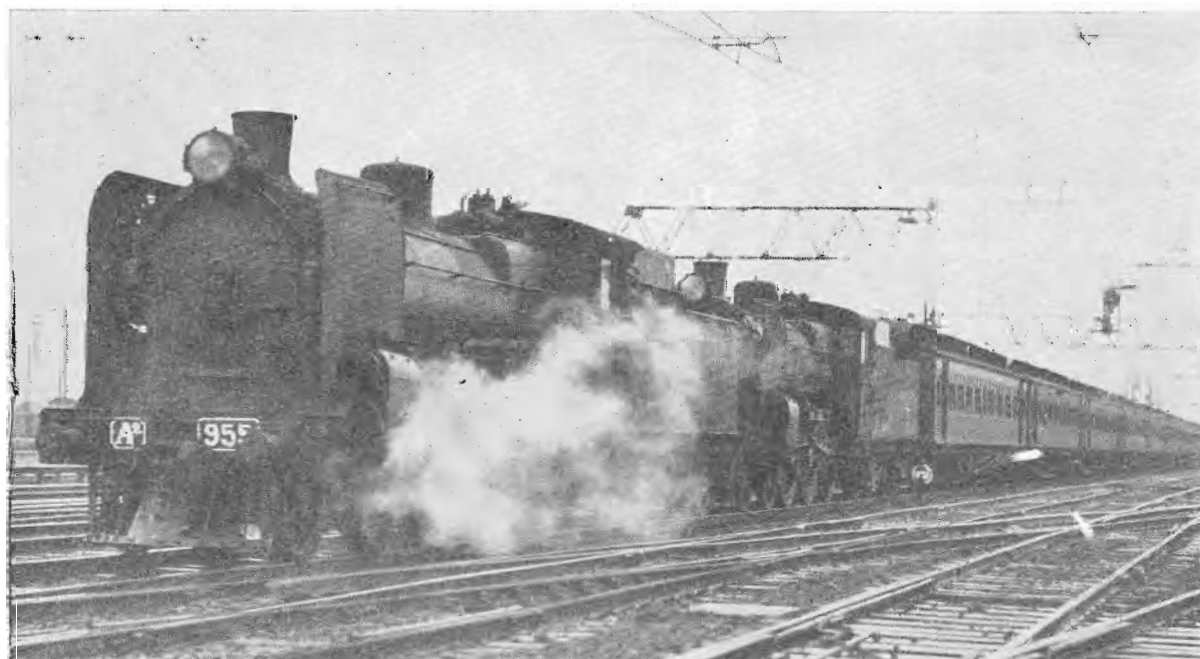
**Behind the
RAILWAY
SCENE**

VICTORIAN RAILWAYS

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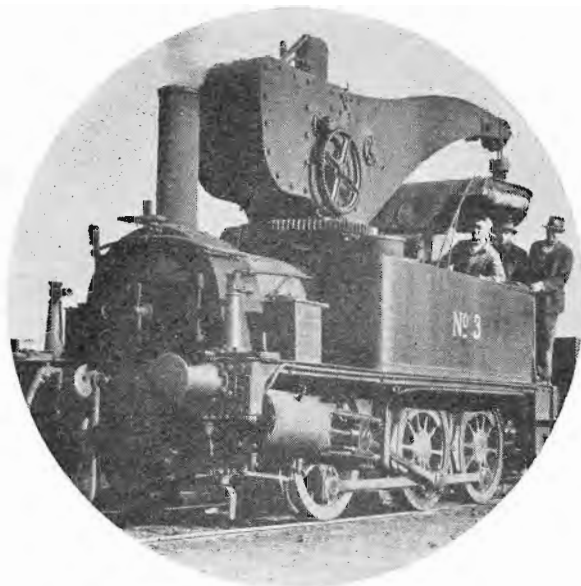
"The Overland" arriving at Spencer Street on time!



Making & Mending At Newport Workshops



Old 526Z—today No. 3 crane—the first locomotive built at Newport Workshops. It began running in 1893.



ALMOST anything connected with railway operation can be made or mended at Newport Workshops. A small army of skilled tradesmen produces nuts, bolts, screws, and railway carriages, electric trains and steam locomotives! "Spirit of Progress"—including engines and cars—was built at the 'Shops. So, too, was H 220, one of the largest locomotives in the Commonwealth. During the war years, a large-scale programme of munitions production was most successfully carried out at Newport. The materials supplied to the fighting forces ranged from Bren gun carriers and tugboats to fine screws and surgical instruments. Rear fuselages, tail assemblies, ailerons and elevators for Beaufort and Beaufighter aircraft were turned out, and so too were patterns for Diesel engines, components for gun howitzers, shells, torpedo parts and a host of other munitions.

The area covered by the Workshops is about 130 acres—the buildings alone occupy 22 acres, and the network of railway tracks in the works extends for 33 miles. Altogether about 2,700 men (and women) are employed there, in a remarkable variety of trades and professions covering Engineers, Patternmakers, Upholsterers, Painters, Copper-smiths, Blacksmiths, Research Chemists, Trained

Nurses, Carpenters, Plumbers, Springmakers, Clerks, Typistes and Labourers.

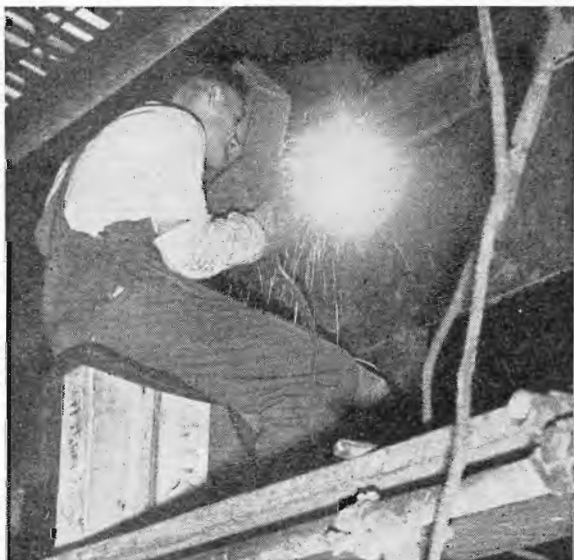
Perhaps the activity that appeals most to the average imagination is engine building. Newport built its first locomotive well over 50 years ago. It is still running!

Newport No. 1—originally 526Z in the Departmental register—made its initial journey on June 30, 1893. It was as pretty as a picture, painted green, with highly polished brass boiler mountings and a shining copper cap on its funnel.

Colloquially it was a "motor engine," designed to operate with a Driver only, without Fireman. A passage-way connected the Driver's cabin with the corridor through the carriages. Ready for the road, 526Z weighed 24 tons. Its tractive power was 7,542 lb.

For eleven years, it was used on passenger runs, and it was then converted to a combined steam crane and shunting engine—No. 3 Crane. It gave sterling service at North Melbourne Loco Depot for many years, and is now working solidly at Newport Workshops, the place of its birth.

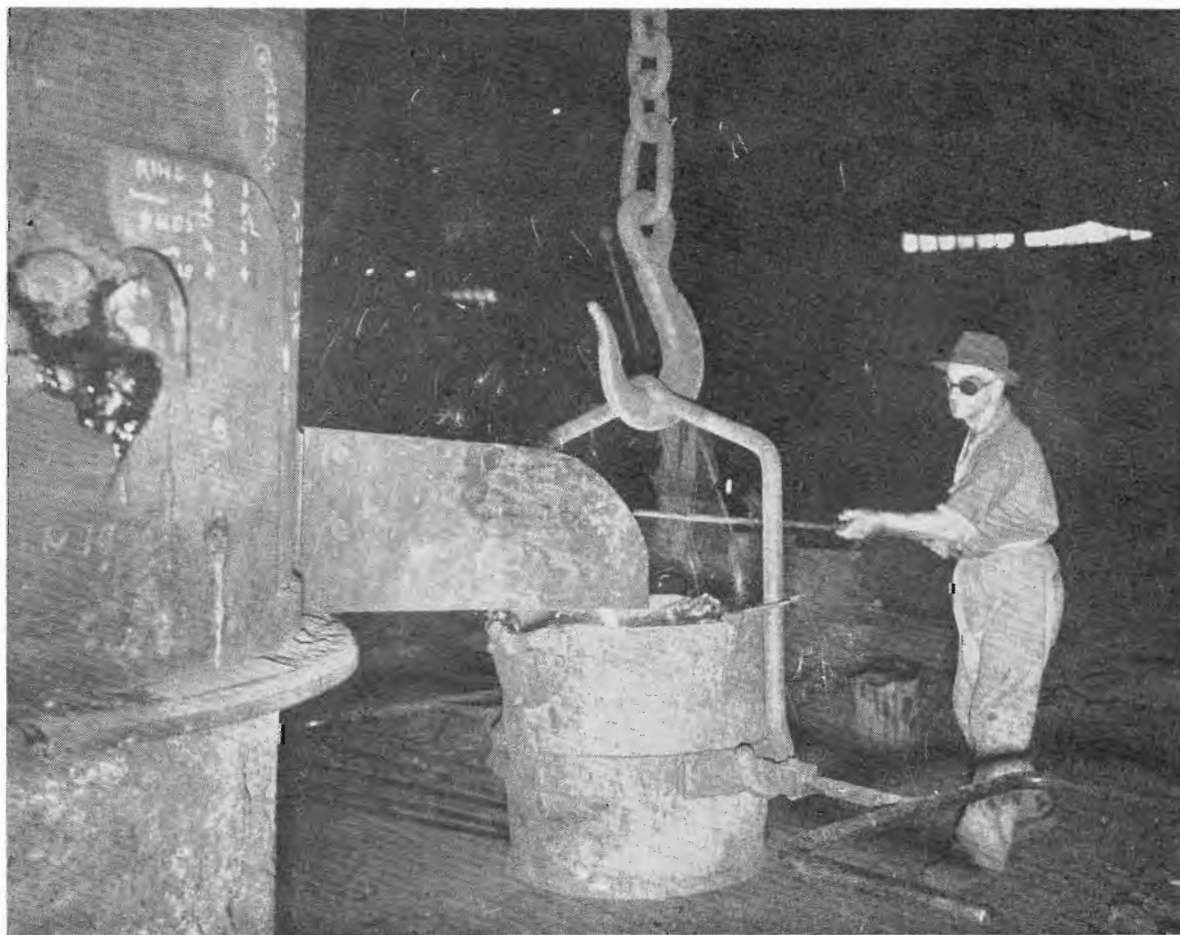
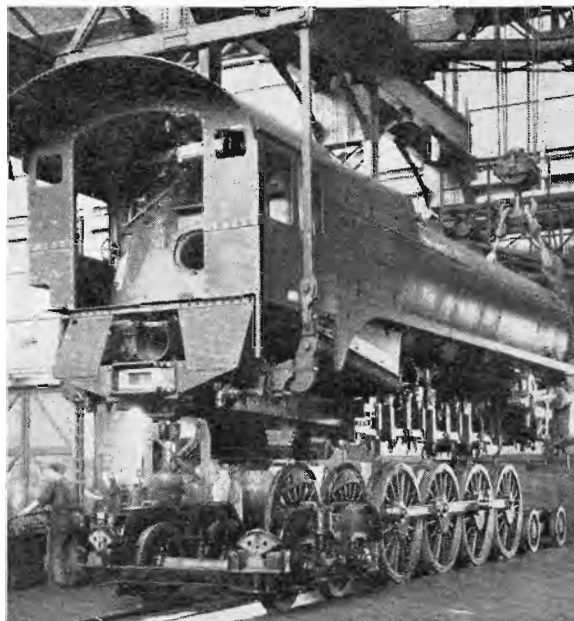
Since that day back in 1893, Newport has produced a further 541 engines. Other construction since Newport came into being covers 12 electric locomotives, 34 rail motor cars, 33 trailers, 1,435 carriages, 851 vans and sundry stock, and 13,366 trucks. Yes, the 'Shops are certainly a most important unit of Victorian Railways operation.



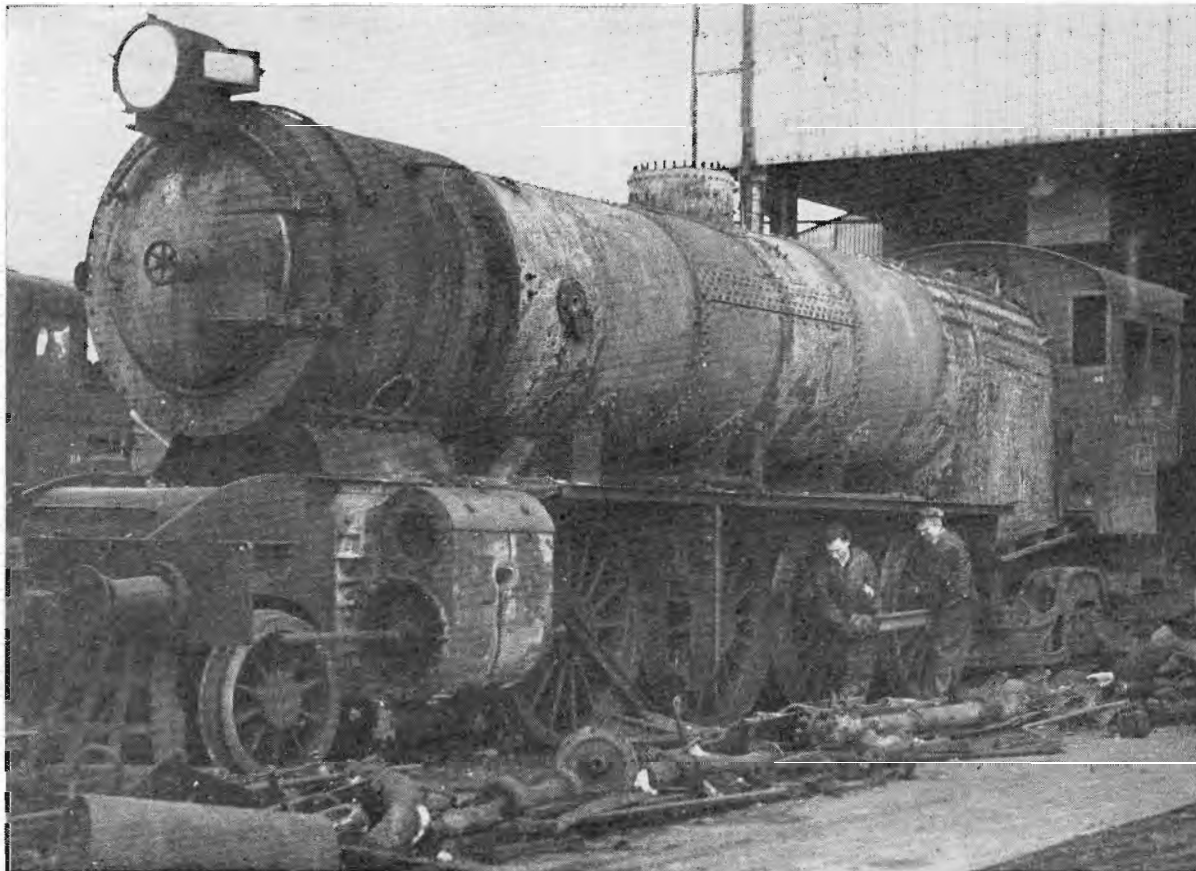
At work on an all-steel country passenger carriage of "Spirit of Progress" type

Roaming alone at Newport, you would soon become completely lost. The 'Shops comprise a little world of their own, with separate buildings and departments for the various phases of railway making and mending. There is the Erecting Shop, for example, where locomotives are pulled to pieces, repaired and overhauled, and put together again. Attached to it is a caustic boiling-down plant—where the steam hangs all day like a pea-souper fog—for cleaning the bits and pieces, which added together, make up an engine. There's a Boiler Shop (hot and noisy with a perpetual din and clang), a Foundry, a Patternmaking Shop, a Log Mill, a Saw Mill and a Woodworking Shop. There are Coppersmiths' and Blacksmiths' Shops too, and Tarpaulin, Westinghouse Brake, and Steel Construction Shops. (At present, steel cars of the famous "Spirit of Progress" type are being built in the Steel Construction Shop. They will be used on country lines.) And there's an up-to-date Laboratory, and a modern Ambulance Room. Add to all these the various offices necessary for administration and you have some idea of the size and versatility of the Newport Workshops.

But although you would get lost in this strange new world, there is a very clearly defined pattern underlying the activity of the various departments. All the sections dovetail perfectly—almost imperceptibly. You can't make or mend trains by any haphazard means: there must be keenly controlled activity and a highly organized system.



Upper right : H. 220, the largest locomotive on the system, as it neared completion. Lower : Heat and molten metal are typical of Newport Workshops' construction projects.



A thorough overhaul of an "X" class locomotive at Newport Workshops. During this operation all readily movable parts are dismantled by hand, and the rest with the aid of a crane.

You get an impression of restrained power at Newport. Stand beside the driving wheels of an "X" class loco, or watch a steam hammer pounding red hot metal inexorably into shape, and you will feel your own humility.

Everything is on a massive scale. The Boiler Shop is nearly 275 yards long and 70 yards wide. It is fitted with cranes and equipment capable of dealing with the heaviest type of boiler in the service. And there are hydraulic presses which can handle, cold, the heaviest plates likely to be required in any construction.

Or consider the Erecting Shop. Its two bays,

each 140 yards long and 22 yards wide, will accommodate 42 engines. Nearby is a Machine Shop where the machining of the heaviest repair parts of locomotives is effected. The Machine Shop is over 70 yards long and almost 25 yards wide.

In the Main Shop, there are four 75-ton electrically driven cranes which can travel 50 feet a minute. And there are three 10-ton cranes as well.

Yes, everything is on a massive scale. It needs to be. In single years, the 'Shops have turned out 52 locomotives, 212 carriages and vans and 937 trucks.

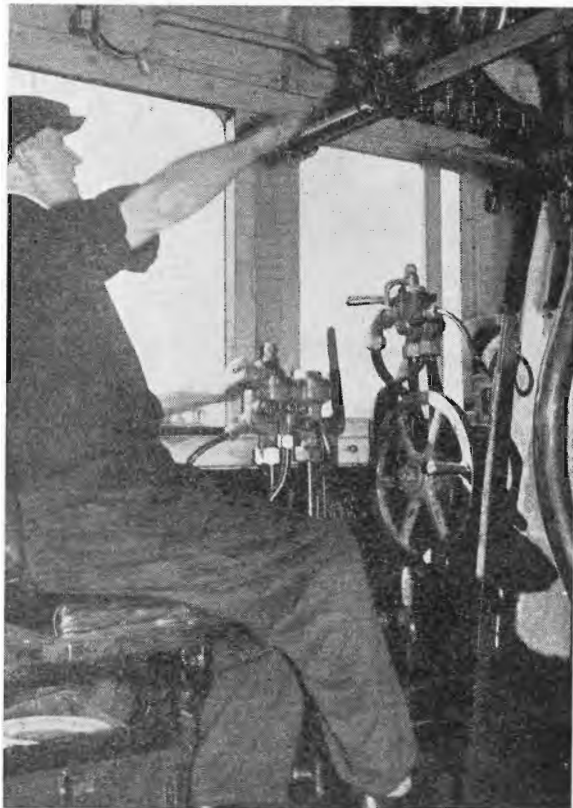
FLINDERS STREET STATION

The busiest passenger station on the Victorian Railways system, and one of the busiest railway stations in the world, is Flinders Street, which includes Princes Bridge.

According to the last tally taken in 1941, the daily average number of passengers passing through

the barriers was 310,761 compared with 282,426 in 1934.

Sixteen platforms, with a total face length of 1½ miles, are in constant use. For handling the daily peak period traffic, 112 trains, mainly of seven cars each, are used; at other times, 61 trains principally of four cars each are in service.



Board and Lodging For An Engine

●
In the cab of
"Spirit of Progress"
●

WHEN an engine comes back to town after making a trip to the country, it is given board and lodging at North Melbourne in the State's largest Locomotive Depot. This boarding-house for engines caters for 191 permanent lodgers, and a number of casuals. Service is high-grade. Over 450 Artisans, Technicians and Cleaners are engaged solely in looking after the guests, and there are 250 Drivers and 250 Firemen as well. The working lives of nearly 1,000 railwaymen, therefore, are centred around the North Melbourne Locomotive Depot—and its star boarders. Everything associated with locomotive running is attended to at the Loco Depot: washing out, oiling, watering and cleaning of engines, and the provision of train crews.

When an engine comes in after a job, it goes to the ash-pit. The Driver drops the dump-grate and his Fireman knocks all the cinders and ashes out of the fire-box. Although the engine now has no fire, there is quite a head of steam in the boiler, and it can still be "driven under its own steam." Normally the engine comes over the pit with about 150 lb. of steam in the boiler. The Fireman closes the dump-bar and the ash-pan slides, and the engine moves off to collect firewood for lighting its next fire, as well as to replenish the coal and water supplies.

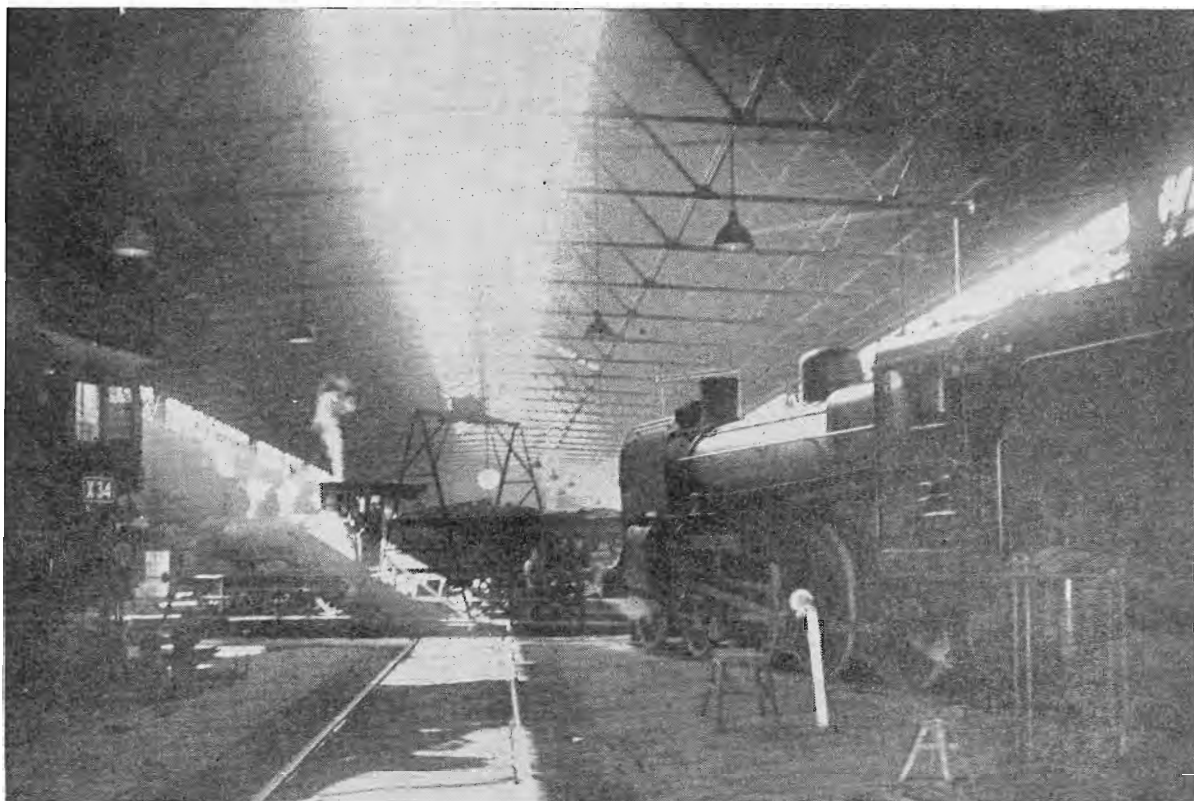
The coal is loaded by a mechanical coal-handling plant which puts the supplies aboard in a few minutes. The plant is of a bucket-elevator type, which can elevate 50 tons an hour, and store 250 tons in its two timber bunkers. It is driven by a 20 h.p. electric motor. The actual loading of the coal is done through balanced chutes equipped with rapid cut-off undercut gates. About 300 tons of coal a day is used by the engines attached to the Depot.

Oil fuel

Oil is now used extensively as a locomotive fuel. The oil-storage tanks at North Melbourne Loco Depot hold 48,000 gallons altogether. About 20,000 gallons of oil is used each day for fuelling engines.

After coal (or oil), firewood and water have been taken, the Driver brings his engine into the main shed. He makes a thorough inspection, lists any defects—and his job is over. Sometimes he hands over immediately on arrival to a Hostler who attends to the ash-dumping, re-fuelling and examination.

The Driver has finished work for the day, but there is no rest for the engine, if it is needed for an evening trip. The mechanics set to work on it and make any adjustments necessary. A new fire is set, and soon the locomotive is ready to go out on another task.



Light and shade - a study in power.
Locomotives being prepared for
their journeys at North Melbourne
Locomotive Depot.

As in so many railway establishments, maintenance is the key-note of loco depot activity. The maintenance is no haphazard affair, but follows a clearly defined pattern. Every locomotive has its own history sheet on which a detailed record is preserved, during its lifetime, of examinations made. There are six main overhauls to an engine. The "A" examination is carried out every 1,500 miles, or every month—whichever is the sooner. It covers inspection of wheels, tires, axles, engine frames, the oiling of flange lubricators and intermediate buffers, and a check of the turbo-generator voltage and lamps. Every 3,000 miles an "AB" examination is given—a comprehensive check over the engine which takes a man about eight hours. The boiler is examined thoroughly by a Boilermaker, too. Every 12,000 miles there is an "ABC" examination which takes four days; at 24,000 miles an "ABCD" examination; at 36,000 miles an "ABCE"; and at 72,000 miles a very comprehensive "ABCDE" examination which occupies some 14 days. "S" class and "Garratt" engines have inspections even more frequently.

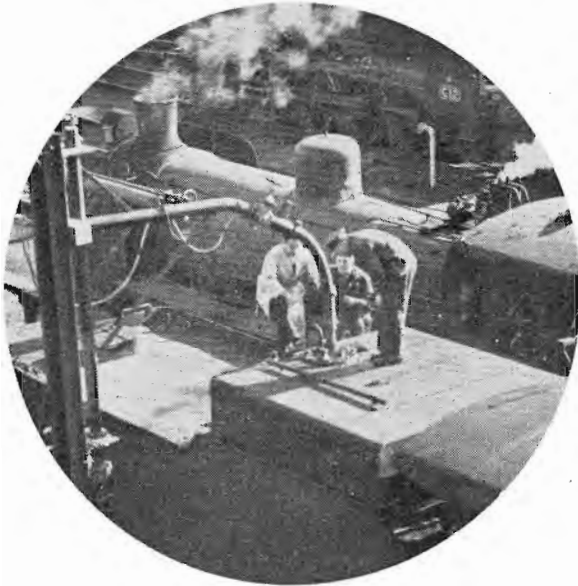
The date of inspection and the names of the examiners are recorded, and the examination sheet itself is checked over by the Depot Foreman and the District Rolling Stock Superintendent.

Equally detailed lists are kept of engines due for examination and steps must be taken to see they are back at North Melbourne by the time their turn arrives. This is no small task, for locomotives are inveterate wanderers and liable to be found anywhere from the Upper Murray to Orbost.

In addition to these regular overhauls, an engine is inspected after every run. The out-going Driver fills in a card with any defects he has noticed and the adjustments must be made before the loco can go out on the rounds again. It is one of the first tasks of an in-coming Driver to check over the faults found by his predecessor and make sure they have been fixed.

Maintenance, maintenance and more maintenance—that's the secret of good locomotive performance. The eternal round of cleaning, polishing, adjusting and mending cannot be relaxed for a single moment. Although an engine is massive and powerful, it is a delicate piece of mechanism calling for careful attention. "Heavy Harry" (H220) hauls an average load of 800 tons each trip, and has covered 7,680 miles in a month. The locomotives lodged at North Melbourne travel, between them, about 400,000 miles monthly. The design and construction of Victorian Railways engines are both first-rate, but it is only skilled maintenance which allows such consistent demands to be made on them.

At North Melbourne Loco Depot about nine major overhauls are carried out each week. In that time, too, a couple of hundred engines are given minor overhauls.



A locomotive being fuelled with oil at North Melbourne Loco Depot.

A large proportion of this work is carried out in the huge glass-roofed building which is the hub of the Depot. There are three electrically-operated turntables in the building, leading to a multitude of roads where the engines are lodged. "A" and "B" tables are used for engines which are to be prepared for a run. "C" table takes locomotives to the area where major examinations and substantial repairs are effected.

With so many locomotives lodged in the main building and on the outside roads, it would be a long job for the incoming Driver and Fireman to find their engine unless given some guide. For the convenience of all concerned, a roster board is posted in the depot. It lists all locomotives by number, the times they are due to depart, their destination, and at what table or road they can be found.

Other useful information is given by a board which shows the home depot of every engine in Victoria. It is an interesting point that "S" class locomotives, used to haul "Spirit of Progress," are stabled not at North Melbourne but at Seymour. Seymour Loco Depot is fully equipped and quite capable of looking after them. "Spirit of Progress" engine crews all live at Seymour or Wodonga.

A Foreman Mechanic's board, side by side with the location and roster board, shows any defects or limitations in the use of engines. Certain test engines, for example, must only be used on specified lines. Others are kept on local runs because the time for a major overhaul is drawing near.

As soon as they come on duty, the Driver and Fireman inspect these boards, and they have all the information they need at their fingertips. They join their engine. The Driver makes a painstaking examination, tests the brakes, oils movable parts, and satisfies himself that his charge is in perfect running order. The Fireman makes sure the fire is burning properly, that the level of water is correct, and that all his equipment is sound.

Everything is ready now. Slowly the engine leaves the Depot on its way to pick up the passenger carriages or goods trucks it is to haul to Ararat, or Traralgon, Bendigo or Seymour, or anywhere and everywhere, north, south, east or west. It is one of some 160 engines leaving the Depot during the day. All get the same skilled attention, from "Heavy Harry" right down to an insignificant "E" type loco. The boarding-house for engines at North Melbourne Loco Depot is first class.

Overhaul of a locomotive in the depot "roundhouse."



RAILWAY service to Adelaide has been operating for over sixty years. On January 19, 1887, the first through train left Melbourne at 4.5 p.m. Made up of "an American boudoir car," a composite first and second class carriage, a luggage van and a terminal brake van, it provided sleeping accommodation for twenty passengers. However, only thirteen of the berths were

booked. The journey took nineteen hours.

Very little ceremony attended the opening of the service although it is recorded that "when the whistle sounded a hearty cheer was given and the train sped out of the station."

Simultaneously a train left Adelaide for the trip to Melbourne.

Hospital For Country Trains ♦ ♦ ♦



Trucks awaiting repair in North Melbourne Workshops.

NEXT door to the North Melbourne Locomotive Depot stand the buildings of the North Melbourne Workshops. Many railwaymen still refer to them by their old title the "Car & Waggon Shops." The Workshops comprise a railway hospital for country trains, where passenger carriages, trucks and vans are given attention. Some rolling stock comes here for routine overhaul, the rest comes in through the "casualty" entrance seeking treatment for ills and ailments contracted in service. Every carriage, truck and van in the department is lifted off its wheels and overhauled regularly. Trucks are lifted every five years, carriages more frequently. The Mildura cars are lifted every 12 months, because of the effects of sand on the undergear. "Spirit of Progress" is given attention every two years. Typical repairs are the fitting of new "W" guards, new axle boxes, and new brakes. In running, wheels and flanges lose their contours, and in a section of the workshops a wheel lathe shaves the tires until the original contours are restored. After several treatments, during 20 years or so, the wheels must be sent to Newport Workshops for the fitting of new tires.

During the routine examinations, damaged panels are beaten straight again, bodywork attended to, hinges repaired, and the car, truck or van restored to its original perfection. Frequently painting is necessary.

The preliminary diagnosis that sends rolling stock to hospital for emergency treatment is made by the Train Examiner. At the Workshops a thorough examination is carried out and the casualty which comes in for one operation may undergo a dozen before being declared fit for duty. North Melbourne works in close co-operation with Newport Workshops and often sends patients there for further attention.

There are many wards and theatres at the "hospital" of North Melbourne Workshops. They include the Lifting Shop, and Lifting Yards,

Upholstery and Blacksmiths' Shops, the Car Paint Shop, the Brake Testing Room and several outside yards.

It is in the Lifting Shop and Yards that stock is lifted off its wheels. A crane lifts one end of the car or truck and the wheels and axle are run clear. A trestle is then inserted in their stead. Then the other end is lifted and the process repeated.

Looking after carriage seats is the main job of the Upholstery Shop, where seats are stripped down and completely re-built. New leather, new hessian, and new springs are used. When the leather has been lacquered, the seats are exposed to a battery of infra-red ray lamps. The moment the lamps are switched on, innumerable cats appear to bask in the lazy warmth.



Typical activity in the lifting yard.

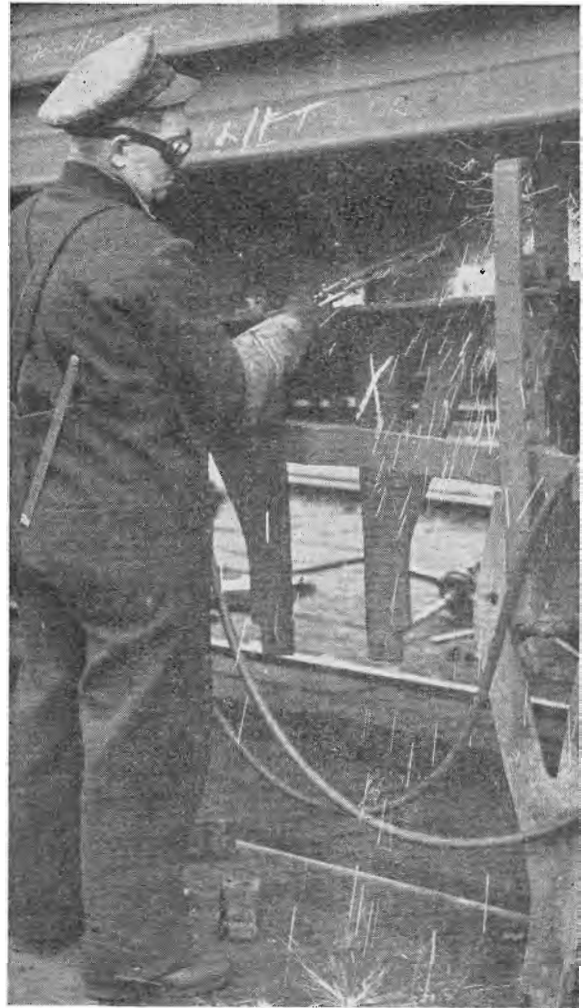
There is warmth in the Blacksmiths' Shop, too, but of quite a different nature. It is the livid heat of forges and furnaces and charcoal burners. The Blacksmiths, Welders and Coppersmiths run a very hot and noisy operating theatre—but a very important one. Under the same roof the Sawyers have a complete Saw Mill. Jobbing machines occupy other parts of the shops.

On the floor above them is the Brake Shop where brake valves are repaired and tested. The numbers of all valves and the trucks they belong to are recorded carefully.

In the yards outside the Blacksmiths' Shop, repairs of every description are made to trucks and vans. Panels are beaten, doors straightened, roofs mended, floors put in order and wheat trucks made almost water-tight.

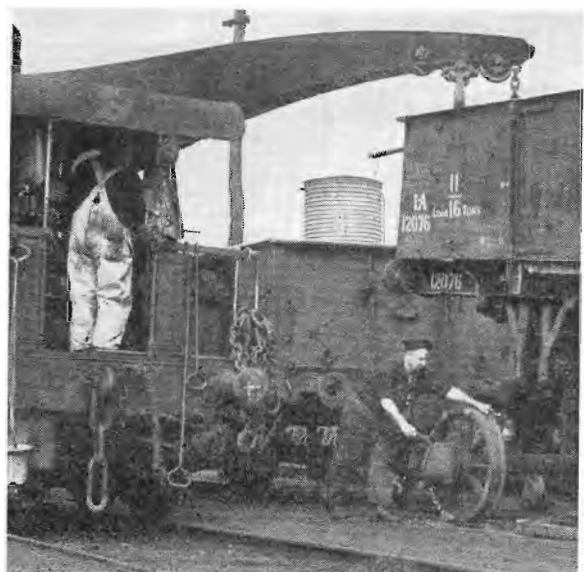
Before going into service again many carriages are painted. This is a job for the Car Paint Shop. Carriages are stripped down to a husk, the old paint scraped off to the original woodwork, and interior and exterior re-painted. The scene is colourful, inside the shop, with the blue and gold of a "Spirit of Progress" car, green of an "Overland" car and dull red of the country cars.

Every week about 50 cars and vans and 500 trucks pass through the North Melbourne Workshops. They are attended to by a team of over 500 railwaymen, including Blacksmiths, Boiler-makers, Car Builders, Fitters, Iron Machinists, Padders, Painters, Running Gear Repairers, Shunters, Undergear Repairers and Upholsterers. Many men of many skills are needed to keep the rolling stock rolling.



Heat treatment for a "patient."

Truck lifting by crane at North Melbourne Workshops.





Dressing A Train In Clean Clothes

Comfortable travelling calls for clean carriages. Railwaymen at the Shelter Shed play a big part in making patrons satisfied.

BY the time a country train has finished a journey, it needs a cleaning and brushing-up. Giving the train a bath and dressing it in clean clothes are tasks of the staff at the Shelter Shed, West Melbourne. Before the train is ready to go back into service, too, arrangements must be made for its lighting. The men of the Train Lighting Depot look after that. If it has a dining car or a buffet car in its make-up, it must be provisioned—which means work for the staff of the Dining Car Depot. The Shelter Shed, Train Lighting Depot and the Dining Car Depot stand side by side at West Melbourne. Behind the railway scene, their staffs work busily and skilfully to bring travelling comfort to rail patrons.

When all passengers have alighted from the train, members of the platform staff at Spencer Street make a quick search for articles left behind. A few more cases, umbrellas, wallets, coats and hats find their way to the Lost Property Office. As soon as the search is over, a shunting engine takes the carriages off to the Shelter Shed. There, a team of Examiners, Repairers, and Cleaners promptly converges upon them and the important business of renovation begins.

Making the dirty-faced urchin clean again looks a Herculean task, but the Shelter Shed men are undismayed. The scrubbing, polishing and pants-patching is all in a day's work.

First, the train is stripped of movable fittings: carpets, ash trays, soiled towels, water bottles, glasses and (if it has a sleeping car attached) bed linen and mattresses. Then the "sweepers" go

through, followed by the "dusters" and the "moppers." (They are all "Car Cleaners" in railway language.) The window cleaner is on the job, too, polishing mirrors, photos, and train windows. Outside, the carriages are washed down with soap and water, then hosed thoroughly. Once in a while an acid wash is needed to get rid of any grime or grease, but usually plain soap and water are sufficient.

The Train Examiners make sure the wheels, brakes and undergear generally are free from faults. Any defects must be put right before a carriage goes back into running. The Car Builders make their inspections, seeing that broken windows are mended, and splintered woodwork repaired. Upholsterers patch seats that are torn. Door locks and window catches receive close attention, for if faulty they can be responsible for injury to passengers.



Vandalism, unfortunately all too common, takes up valuable time in repairs.

For repairs, there is a maintenance workshop attached to the Shelter Shed. When extensive or lengthy jobs are involved, the carriage is sent to one of the Workshops, but normal mending is done in the maintenance shop. Here, among a hundred other things, dented ash trays are straightened, twisted towel-racks renewed and the holes burnt in carpets by cigarette butts darned-up. Chewing gum in the carpets provides its own special headache. All carpets, incidentally, are beaten clean at the Shelter Shed.

Running repairs to the undergear are carried out at the Car Lifting Shops where, every year, about 400 carriages undergo minor operations for broken springs and a variety of other ailments to which all rolling stock is subject.

The work at the Shelter Shed is a non-stop performance with no time wasted. "Spirit of Progress," for example, reaches Spencer Street at 11.30 a.m., and is on its way out again at 6.30 p.m. In addition to the cleaning of trains, the oiling of wool pads in axle boxes, filling of the tanks with drinking and washing water, and (in some cases) provision of ice, are routine jobs of the Shelter Shed staff.

Over 170 men are employed at the Shelter Shed and they care for about 53,000 carriages each year, usually reaching their peak on the Thursday before the Easter holidays. As many as 600 cars have been cleaned during that one day. Dressing trains in clean clothes is a big business.

If the train will be travelling after dusk, arrangements are made for its lighting by the men of the Train Lighting Depot. Putting the lights on is easy—it is merely a matter of throwing a switch or applying a torch to the gas mantles. The real work of the Train Lighting staff lies in a non-stop round of maintenance. Globes and mantles must be replaced, wiring and conduits kept in good order, generators and batteries repaired and charged, and gas cylinders filled. Looking after the stoves and hot water systems in dining and buffet car kitchens is another job handled at the Depot.

Buffet car refrigeration is a further task, while one of the biggest responsibilities of all is the maintenance of the complete self-contained units installed on all air-conditioned cars. This is an immense task calling for a high standard of electrical and mechanical skill. There is a full-time job at the Depot for 105 men.



Battery charging is big business.

On the Victorian system about 550 country passenger cars are electrically lighted, and the remainder burn Pintsch gas. The Pintsch gas is carried in cylinders under the carriages and it is a job of the Train Lighting staff to fill the tanks before a train leaves. Pintsch gas is manufactured at North Melbourne (by the Department's own plant) from crude oil. It has a greater calorific value than coal gas and has the added advantage of being compressible to 120 lb. per square inch. Travelling gas holders—special railway trucks with cylinders and compressor engine—take supplies to country centres.

On electrically lighted country passenger cars, batteries are carried on an underslung unit. A generator, belt-driven from the axle, supplies power and charges the batteries while the train is in motion. When the train stops, the batteries take over.

The first Victorian train to be equipped with electric lighting was the Sydney express in 1922. The Adelaide express followed and then other important trains. The weight of electric lighting plant, dynamo and batteries, makes it economically impossible for all carriages to be converted from Pintsch gas to electricity. All newly constructed cars are, of course, electrically lighted and air-conditioned.

Looking after the batteries is a major activity of the Train Lighting Depot. Batteries are removed for overhaul about every two years. They are stripped, renovated, filled with fresh acid, recharged—and put to work again. For air-conditioned cars, special heavy duty batteries are employed, a modification of the batteries used by British submarines during the Second World War.

The "Inner Man"

To meet the demands of travellers, a skilled staff at the Dining Car Depot, North Melbourne, is kept busy every day in the year. Those snowy white tablecloths on "Spirit of Progress," and the highly polished cutlery, gleaming glassware, bright crockery and tempting menus for diner and buffet patrons are part of the service supplied by the



The famous railway pies are baked at the Dining Car Depot.

Depot. So, too, are the freshly laundered sheets and pillow slips in sleeping cars, and the clean towels in the wash rooms.

Behind the scenes, the men and women stationed at the Dining Car Depot carry out their various duties quietly and unobtrusively but their efforts

Cooked to a turn, and as succulent as it looks The kitchen is the hub of Dining Car Depot activities.



contribute in no small measure to the railway reputation for comfort on long-distance travel.

Hub of the Depot is the Kitchen. A huge square oven in the middle of the spotlessly clean room is used for boiling, baking and roasting. The air is redolent with the appetizing odour of cooking food. There are huge brown turkeys here, crisp and oozing juice, roasts of beef, legs of lamb, pots of soup and trays of steak and kidney pie. Stock pots bubble merrily, sending up clouds of steam. Trimming meats and vegetables, are the Chef and his staff of Cooks. Most of the dinners served on the journey are pre-cooked in this kitchen and kept hot in a steam-heated Bain Marie before being transferred to another Bain Marie aboard the train. Breakfast dishes are cooked to order on the trains.

On an average return trip between Melbourne and Albury, "Spirit of Progress" passengers consume some 129 lb. of cooked meats, 45 lb. of turkey, 24 lb. of ham and bacon, 60 portions of fish, 120 lb. of vegetables, 350 serves of sweets, 320 pieces of fruit, 25 large loaves of bread, 30 dozen eggs, 18 lb. of sugar, 5 lb. of coffee, as well as gallons of soup, pounds of biscuits, cake, jam, oatmeal, butter, sauce, salt, pepper, and quarts of ice cream.

Railway Pies

The steak and kidney pies are made in the Depot Kitchen, but the famous "Railway pies" come from the Bakery, where a Foreman Baker (who holds the D.C.M., M.M. and Bar from the First World War) and a team of Pastrycooks work busily, looking most professional in their white hats and white suits. Pies baked here are distributed to Refreshment Rooms all over the State. The Bakery works three shifts in the 24 hours, and has turned out as many as 830 dozen pies, 210 lb. of fruit cake and 350 dozen small cakes in a single day. The huge "Scotch" oven cooks 50 dozen pies in a batch.

Beyond the Bakery is the Butchery where, on hooks around the cutting room, hang rows of prime carcasses. In the adjoining room the sausage-making plant churns out about 1½ miles of sausages a day for use in the various Refreshment Rooms. Over in the corner, beef floats in brine tubs, being transformed to corned beef. The freezing chambers behind the shop hold bulk meat supplies and dishes of "smalls"—tripe, ox-cheek, kidneys, fries and brains.

The Butchery is busy with the clatter of choppers and the whirr of the sausage machine, but in the Store everything is quiet and orderly. Here, laid out systematically on shelves, are supplies of every description from tinned fruit to cereals, enough to ration a small army. A few packets of cigarettes for travellers are cared for like the Crown Jewels. In the bulk section of the Store are sugar, eggs, fruit and piles of crockery.



The Butcher is a busy man, and the rasp of his saw, clatter of chopper, and whirr of sausage machine typifies the Butchery.

Responsibilities of the Dining Car Depot extend beyond the preparation and issue of provisions. The snowy tablecloths, towels, sheets, pillow-slips, and spotless staff uniforms are turned out by the Laundry. About 120 thousand articles a month pass through the capable hands of the laundry staff. Keeping the linen repaired is a big job in itself and Seamstresses are always fully occupied at their machines ensuring that nine stitches later are avoided by one neat stitch in time.

In another corner of the Depot, glasses and dishes are cleaned thoroughly, and in the Fumigator Room blankets and mattresses are treated with formalin gas after every trip.

The courteous and efficient "Spirit of Progress" dining car staffs and the trim Buffet Car Attendants are all attached to the Dining Car Depot. Some of the men received their early training at sea and the experience proves invaluable in the necessarily cramped conditions of a railway car.

On the Buffet Cars all duties are performed by a female staff, most of whom have been on the job for several years, and a few since the inception of the service. It is not easy work, but the efficiency and courtesy of the girls are famous.

Life at the Dining Car Depot never relaxes its tempo, and the air is eternally filled with the whine of machines, the rich odour of food, and the clatter of knives and choppers as the men and women of the Refreshment Services work busily and skillfully—behind the railway scene.

Controlling The Trains



A Main Line Control Panel.

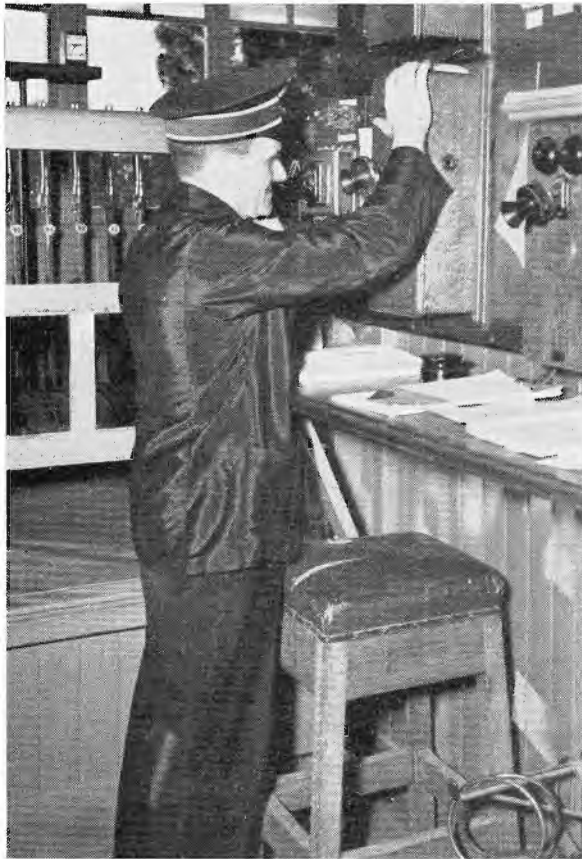
WELL behind the railway scene—in fact, sitting in separate air-conditioned and sound-proofed rooms—are the Train Controllers, whose job it is to control and record the movements of all trains and see that they reach their destinations safely and on time.

Train Control operates in six divisions, with offices at Melbourne, Seymour, Geelong, Ararat, Ballarat and Bendigo. Train Control at Melbourne is by far the largest; covering 800 miles and 440 control points. It is conducted from six panels: Melbourne to Bendigo and Melbourne to Ballarat; Melbourne to Geelong and

Melbourne to Seymour; Eastern District; South-eastern District; and Metropolitan and Suburban (which is divided into two sections during peak periods).

Provision is also made to switch over to another panel either the Melbourne-Seymour or the Melbourne-Geelong sections. This means that, in the event of a serious breakdown on either line, the Train Controller would be able to concentrate on the emergency work, whilst another could supervise the normal running on the other section.

Let us take a quick look at one of the panels. Entering one of the tightly-shut doors in the Train Control section, we see the Train Controller at work.



Stationmaster reporting to Controller.

He is seated at a sloping table, in front of a huge and complicated looking switchboard. This switchboard, which is equipped with a microphone and loud-speaker, is controlled by an intricate mechanism connected to every station, signal-box and depot on the section.

To speak to any one of these, he merely operates the appropriate switch and gets through immediately. It is a direct call and not put through like an ordinary telephone call.

"Herne's Oak speaking," suddenly comes a voice through the loud-speaker.

"How's 52 going?" asks the Controller.

"Still here, but won't be long."

"Right, Herne's Oak, finished."

Then comes another voice :

"Warragul Loco speaking."

"Speak, Warragul Loco," replies the Controller.

"I've got the changeovers for you"—

and then follows a string of train times, giving the Controller details of the changeovers of engine crews.

Conversations like this go on through the day—and night. Sometimes they are in such rapid sequence that it seems hardly possible for the Train Controller to assimilate all the information ; at other times there are short periods of silence between calls.

And what does it all mean ? Well, just that the Train Controller is getting information all the time about train arrivals and departures, engine numbers, train loads, passengers joining and alighting, trucks shunted, train crews, etc.

On the chart spread on his desk he marks the arrival and departure times and loads of each train, and plots the train's progress between the various stations. This enables him to see at a glance where each train is, and whether it can pick up any more loading or not. He must ensure that the capacity of the line is not over-taxed at any time, and that trains are not held up unduly. Consequently all the information he receives is used to this end.

The engine and crews, once they have left their Depot, are under the orders of the Train Controller, and he arranges for the relief of the crews to prevent excessive hours on duty.

On the wall in front of him are a series of diagrams showing the track layout at each station, and the gradients and curves of the line. Generally, however, the Controller knows these details without reference to the diagrams.

Siding accommodation at some of the stations is very limited, and he must take care that a train being crossed there does not consist of more vehicles than the siding can accommodate. Trucks, by the way, are calculated on the basis of 4-wheeled vehicles for this purpose—a bogie truck being counted as two vehicles.

Each station reports daily the particulars of trucks on hand, trucks received—loaded and empty—and trucks dispatched—loaded and empty ; for the Controller must have the full story.

The whole progress of a train is watched from the minute the engine leaves the Depot. For example, a train from Melbourne to Swan Hill is handled by the Melbourne Train Controller as far as Bendigo, when it is handed over to the Bendigo Controller who then controls it to its destination.

Stated briefly, the objects of the Train Control System are to move traffic from point to point as quickly as possible at the time required, to obtain the maximum amount of work from the locomotive power available, to prevent congestion and standing time of trains by regulating the streams of traffic, and to make arrangements for the distribution of trucks and the clearance of loading.

Food, Furs . . . And Farm Machinery



Every day about 500 trucks leave the Melbourne Goods Depot, with consignments for the four corners of the State, and beyond.

SEVEN million tons of goods a year are carried over the Victorian Railways system. Food and furs and farm machinery travel by train, along with tobacco, bananas, felt hats, fertilizer, wheat, wool and babies' rattles. For receipt and dispatch of these and every imaginable commodity, goods depots are scattered all over the State. Melbourne Goods Depot, on the fringe of the city near the Victoria Dock and river wharves, is the largest of them all. An average of 500 trucks arrives here every day, and 500 leave with consignments. Melbourne Goods never stops work. Something is always happening at one of its many Sheds and Platforms. There are Outwards Sheds, a Grain Shed, Perishable Shed, Montague Shipping Shed, Outside Platforms, a Banana Platform, and a Potato Platform, as well as an Iceworks for refrigerating louvre trucks, and a gantry crane area.

The gantry cranes are electrically powered and capable of a 15-ton lift. Awkward and weighty articles by the thousand yield to their strong persuasion. Motor cars, steel rails, chaff cutters, stone crushers, logs, metal shop fronts, merry-go-rounds, circus crates, transports of furniture, scrap iron, road rollers, shovels and an almost unlimited category of goods and chattels have felt the cold embrace of the gantries. For yet heavier loads a 30-ton gantry crane is located at Kirwan's siding. There are little portable cranes, too, that run around the area helping to lift consignments in and out of railway trucks.

Shifting the trucks was once the task of horses, but now special tractors place the empties into the Outward Goods Sheds and in some cases clear the loaded trucks into Melbourne Yard. They also place loaded trucks into position for discharging at cranes, sheds and platforms. There are 44 lines, or "roads," from the Yards leading into the goods area, as well as 12 roads at Cowper Street and nine roads on what is called the "high level."

Perhaps the most interesting section of the Depot is the Perishable Shed where foods arrive to feed the million of Melbourne. The Perishable Shed



Boxes of butter are wheeled from the coolness of a louver truck - an everyday scene in the Perishable Shed.

works right round the clock and is busiest while the rest of the city is dreaming peacefully. To visit the Shed in the early hours of the morning is to appreciate what railwaymen do, behind the railway scene, towards making life comfortable for everybody. Come now and see for yourself.

Melbourne is sleeping. A fine web of lights stretches across the suburbs, and the sky glows yellow-red. You can almost see the stillness, broken only as the city stirs restlessly to the metallic clang of an all-night tram or the whirr of a passing motor. In a few hours Melbourne will wake up hungry. The million will be demanding meals and to supply them, this tiny corner of the city is wide awake and very much on duty.

It is 3 a.m. in the Perishable Shed of the Melbourne Goods. Already platforms are stacked high with foodstuffs: butter and eggs, cheese and bacon, honey and fruit, beans and celery. Since midnight, men have been unloading, for perishable goods brook no delay. This is market-day, too, and motors are drawn up outside waiting to collect goods as soon as they are discharged. Many of the consignments lying in the trucks at the moment will be unloaded, collected and sold in the market-place before dawn.

Tonight—or, rather, this morning—there is a large arrival of poultry and the noise in the Shed is deafening. An indignant rooster can make an infernal racket, and all these roosters are indignant. Many of the crates have been placed on the outside loading ramps, but the row goes on deadening even the noise of the shunting trucks.

In a month anything from 20,000 to 30,000 tons are taken from the trucks by a staff which fluctuates in number depending on the work to be done, but which aggregates about 450 man days a week.

One portion of the Shed smells very sweet. That's because of the oranges. Hundreds of boxes are piled around, the yellow skins showing through the slats in the cases. But the scent of the oranges goes unheeded by the Sorters who are busy men with work to do.

They inspect the contents of the trucks in their particular area and direct where the various commodities are to be stacked. The men who do the unloading are winding in and out of the piles of goods like so many ants. The Tally Checker flutters from spot to spot. Tally Checkers are a worried race, who never cease mumbling "fifty-six, fifty-seven, fifty-eight . . ." with intense concentration. To speak to a Tally Checker in the middle of his count is a dangerous proceeding. A grubby notebook bent back in the middle and a stub of pencil, with which he regularly scratches his ear, are the indispensable equipment of the Tally Checker. The smooth functioning of the whole system depends on his speed and accuracy.

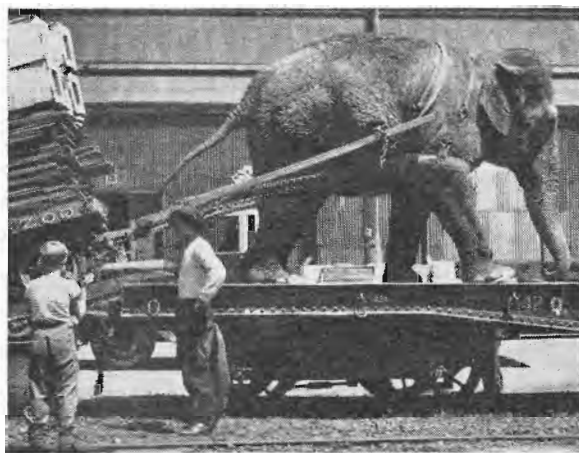
Like the Sorter, who is oblivious to the scent of the oranges, the Tally Checker apparently finds no beauty in the array of smoked hams. They look fine though, lying there in golden rows, very firm and

Of course, everything must be tallied!



very tempting. Next to them are a dozen cases of eggs from Lancefield, and a box of ripe tomatoes. The morning air has a hungry nip and visions of a Gargantuan breakfast are inevitable . . . perhaps topped off with some of those huge amber cheeses over in the corner.

At the moment some of the men are unloading pineapples from Queensland. A lot of fruits come here from other States, over 90 tons every week from South Australia, about 750 tons from New South Wales, and 700 tons from Queensland.



Yes - even elephants travel by train !

A lot of market-garden produce is carted direct to the Victoria Market by the growers themselves, but in the Shed now are hundreds of bags of beans, consignments of peas, and a stack of pumpkins. By midday some of them will be cooking on the stoves of Melbourne housewives. Cases of celery and crates of lettuces will help to make a tasty salad, with maybe some of the rock melons there for dessert.

The Goods Foreman, though, does not seem to be thinking of lunch just yet. As he walks down the platform, everybody—unconsciously—works a trifle faster. He stops here and there to inspect a truck, gives a brief direction to a Tally Checker. The work is coming along very well and the rake should be cleared any minute from now.

Outside in the Yard another batch of trucks is waiting to replace the empties. Soon they will be run in, doors thrown open, light globes on flexible leads taken into the dimness of the louvres, and ramps run across from truck edges to the platform. From their depths will come more food . . . from every part of Victoria, and from Queensland, New South Wales and South Australia.

There will be fruits and dairy produce, vegetables and poultry, all for "Perishable Shed, Melbourne Goods" . . . meals for the million coming to town on the railway network.



Bales of wool arrive from distant places.

In addition to being received at the Perishable Shed, consignments of potatoes and bananas are received at their own special platforms, while general inwards goods come to the Grain Shed and Montague Shipping Shed. Were it able to speak, the Grain Shed could tell the history of primary production in Victoria: the lean years and the rich years, the drought years and the flood years,

Merchandise of every description awaits the carriers who will soon arrive to pick it up.





One of the huge gantry cranes unloads timber at Spencer Street.

the gay years and the war years. Tragedy and romance, prosperity and poverty, have all told their tales to the eaves and rafters in the Grain Shed, Melbourne Goods Depot.

Goods are dispatched from both "A" Shed and "No. 4" Shed. Marshalling consignments for trucking is an art in itself, for truck space is precious



While the city sleeps, the Melbourne Goods Depot works steadily.

and time the essence of the contract, especially at the discharging end of the journey. Often consignments for several stations are loaded in the one truck and they must be grouped so that goods for the nearer stations will be placed close to the door of the truck.

Stowing is another gentle art. The railway reputation for delivery of goods with the minimum possible damage has grown up only because care is a Departmental fetish. Furniture and fragile goods are packed with especial attention, and stowed so that the shunting operations and truck movements will not cause harm.

All day and all night trucks enter and leave the Melbourne Goods Depot. Through the portals of the capital and to every corner of the State, go food and furs and farm machinery and a thousand other things to make life more comfortable for the whole community.



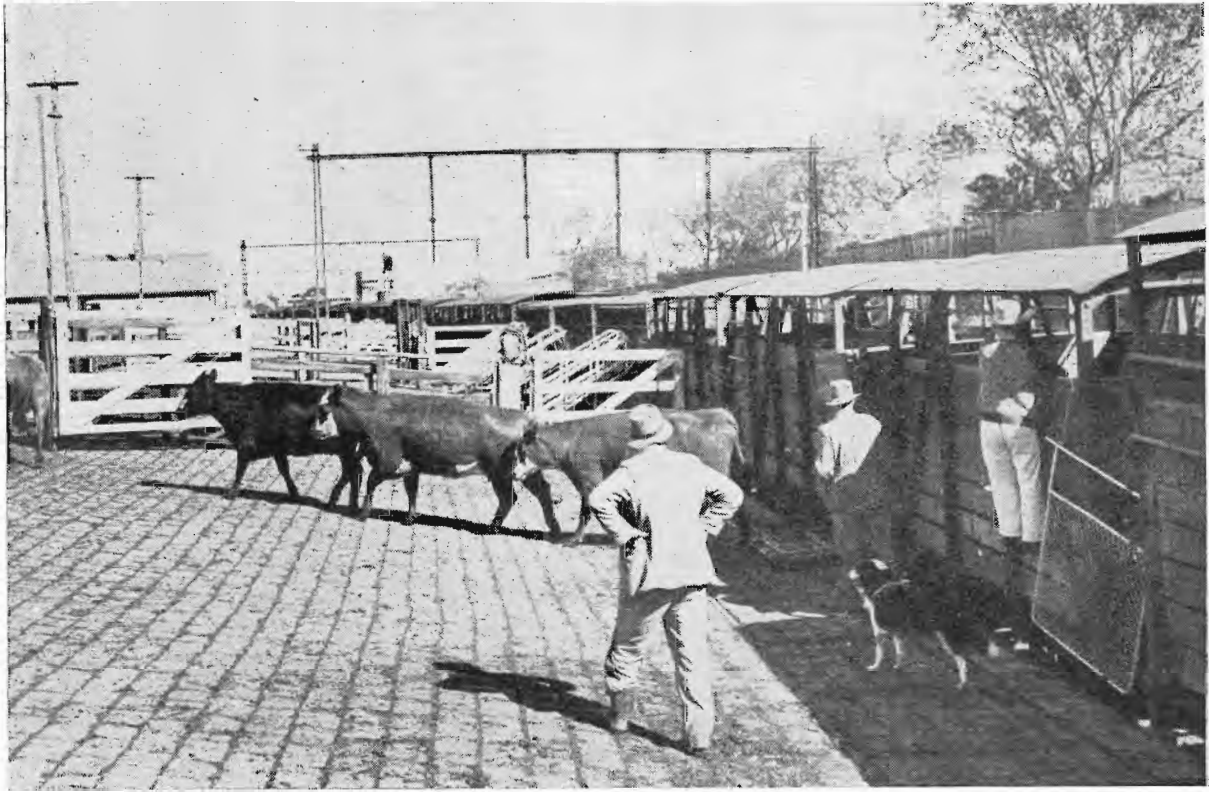
Do You Know What a Railway Is?

PERHAPS you think you know what a railway is? You don't. We thought we did . . . until we read this learned definition by the Supreme Court of a European Country. Take a deep breath, hold your hat on . . . and read briskly :

"A railway is an undertaking suited for repeated movement of persons or things over not entirely inappreciable distances on a metal basis which, through its consistency, construction and smoothness, is arranged to make possible transportation of heavy weights or the attainment of a relatively high speed of transportation, and through this characteristic, together with the natural forces further utilized to attain the transportative movement (steam, electricity, muscular activity of animals or humans, and also with appropriate lie of the roadbed, the own weight of the transporting container or its contents) is capable of producing an effect in connexion with the operation of the undertaking on the same."

Whew !

The Railway Stockmen



Unloading cattle at Newmarket Live-stock Siding.

THE pistol-like crack of the stock-whip and the coaxing cries of the drovers can be heard long before you get to the Newmarket Railway Live-stock Siding.

A rake of 40 trucks has been shunted into the siding. They have brought cattle from the Riverina for the Newmarket sales. After the long journey the beasts are obviously anxious to get their land legs again. They bellow and plunge about in the trucks. It looks as if they might be prepared to give a little trouble. But they are soon quietened.

A railway Foreman—experienced as any cattle-man in the handling of live-stock—is there to superintend the discharging of trucks. The equipment used ensures safe handling. There is no danger of cattle stumbling and falling into the pit. Once the first beast is out, the others follow fairly quietly and in no time they are all in the pens.

Years of experience have taught railway stockmen all the tricks of the trade in cattle handling. They don't believe in the use of the whip or the stick. They know the strange habits of cattle and sheep. It's skill, not brute force, that gets the best results and speeds up the discharging of trucks.

It won't be long before drovers arrive and, with a flourish of stock-whips and piercing cries reminiscent of a Hollywood Wild West film, bustle the cattle along the stock routes to the Newmarket saleyards. One has the impression that the whips and shouting are so much bluff. It's the smart and nimble cattle dog that appears to keep the cattle on the move and in some semblance of order.

The little animated scene we have described is re-enacted daily at the Live-stock Siding. It's well worth a visit as it provides indisputable evidence that the Railways are the backbone of the State. If any proof is needed that the primary producer is dependent on the Railways for his prosperity it is to be found at the Newmarket siding. Cattle and sheep for the market... meat to help feed a city of more than one million people. There's no doubt about it we live largely out of the humble cattle truck. But how few of us realize it!

The Officer-in-charge of the Newmarket Live-stock Office has his fingers on the pulse of the stock transportation business. He sits in his neat little office overlooking the railway tracks and handles live-stock traffic converging on Newmarket from all parts of the State. Ask him how much live-stock the railways carry annually

and he'll tell you it runs into millions. He does not have to read the papers to learn where rain has fallen. One glance at the live-stock and he knows whether grazing conditions have been good or bad in the districts from which they were dispatched. Thin and emaciated animals tell the tragic story of drought. The fat, sleek cattle tell of good rains and lush pastures.



Driving sheep to the rail-head.

The cattle and sheep arriving from the primary producing centres underline the ramifications of the railway system. There are truck loads from Tocumwal in the Riverina, the Victorian border town of Serviceton and Mt. Gambier, Wolseley and Naracoorte in South Australia. Isolated consignments are carried from Queensland and Western Australia.

It's a continuous two-way traffic. Sheep and cattle are brought to the Newmarket saleyards and, when the sales are over, are sent by the

buyers to various parts of Victoria.

Newmarket is also a live-stock "refreshment station." Cattle and sheep coming long distances and obliged to pass through Melbourne to their destinations are detrucked, fed and watered. It's a humane service. They get a new lease of life for the continuation of the journey.

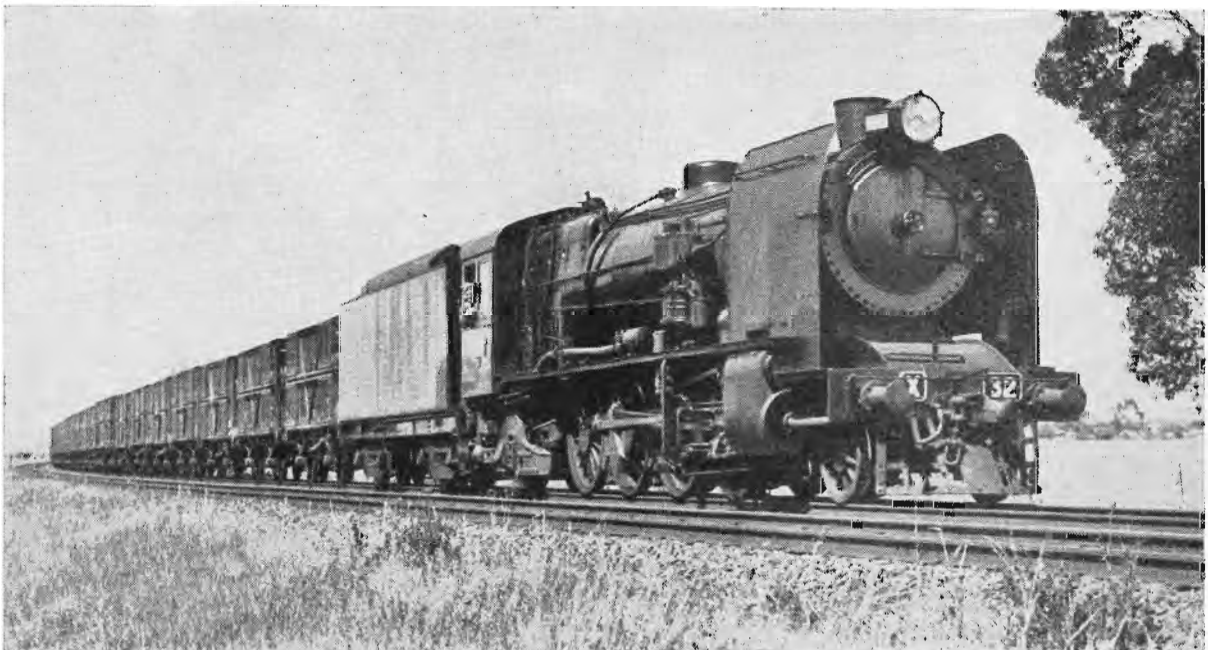
Busiest day of the week for the railway live-stock men is Tuesday—sheep sales day. Wednesday is cattle day, Thursday sheep and cattle, and Friday more cattle. The peak season is the period between October and March. Stock pours into Newmarket in a never ending stream. In one week 1,500 to 2,000 truckloads of live-stock were handled recently at Newmarket. After the sales it is not uncommon for the back loading of live-stock to be still in progress at midnight.

The siding is open from 6 a.m. on Monday to 1 p.m. on Saturday. In the busy season it is in use on Sundays.

One of the most important jobs of the Officer-in-charge is to keep trucks on the move. In one month recently 7,600 pulled into the Newmarket siding. They had to be discharged and put back into the pool as speedily as possible.

The empty trucks are sent to the Melbourne Yard for dispatch to various points. They are made up into trains and off they go again on the job of bringing live-stock to the saleyards. "Keep them rolling" is the slogan of the railway live-stock men.

The letters of appreciation that are received from time to time by the Live-stock Agent from primary producers and stock agents clearly indicate that the railway live-stock men are doing a big job and doing it well.



Bringing them to market.



Harnessing

100,000

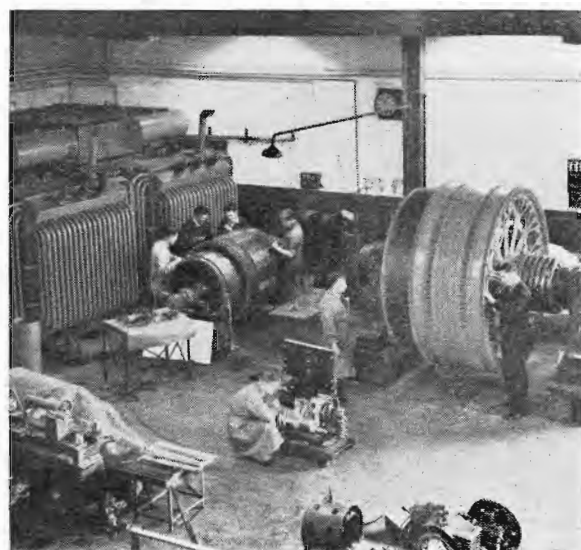
Horses

A temperature recorder
is tested at the Electrical
Testing Section.

WHEN James Watt was experimenting with steam power and engines in the middle of the 18th Century, he found it necessary to adopt some unit of measurement to express the power of steam. It was natural that he should turn to the horse to express power, for the horse was by far the most important means of motive power known in those days. And that is where the term "horse-power" originated. Watt classified a "horse-power" as the ability of a strong London draught-horse to do certain work during a short interval. In terms of figures a horse-power means the power used by a horse to lift a 1,980,000 lb. weight 1 foot high in 1 hour. At the Newport Power Station, power is generated equivalent to that of 100,000 horses. The power which operates electric trains, drives railway trams, lights stations, yards and goods depots, actuates the automatic signal gear—in fact, all the power used for nearly every railway purpose in the Metropolitan area—is produced at Newport Power Station.

Transmission cables run to 21 sub-stations from the Newport Power Station. Alternating current at 20,000 volts is generated at Newport, but train motors take direct current at 1,500 volts and it is the task of sub-stations to make the conversion and supply power to the trains. They harness the 100,000 railway horses.

The largest of the sub-stations is located at Jolimont, about a mile from Flinders Street Station. Seven transmission cables come here from the Power Station. They enter through the Cable Chamber which, with its division of cells down a long corridor, looks like a section of a penal establishment. There are dangerous outlaws locked behind the bars, for the copper wires carrying current at 20,000 volts are bared within these cells. The cell doors are all interlocked, and it is impossible to enter any one of them until a detailed safety system has been complied with, and the wires involved made "dead."



View of section of the Electrical Workshops, Spencer Street. On the right hand side is a 1,500 kw. Rotary Converter Armature being re-wound in the 'Shops.'

The bared wires are taken through individual insulators to the oil switch cells (elaborate fuse boxes) and then passed to the custody of the High Tension Bus Chambers. Here busbars take over the current and lead it to the transformers. They get to work and reduce the vaunting 20,000 volts to a mere 1,100 volts. Now decidedly chastened, the current is brought to the rotary converters. There are four rotary converters at the sub-station, massive machines purring throatily at their task. The armature of any one of these weighs 30 tons, and the huge revolving copper wheel, the commutator, is more than 30 feet in circumference.

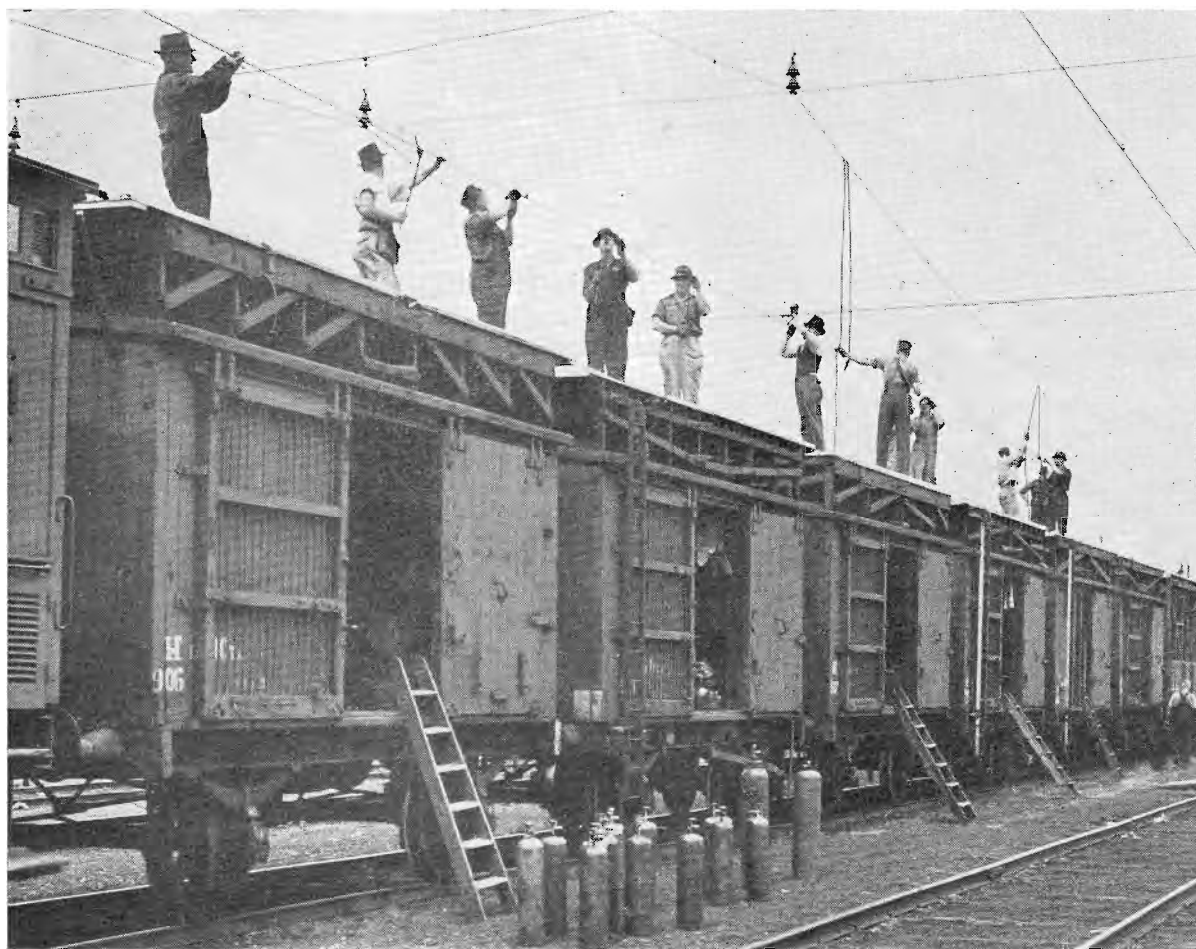
They take the alternating current at 1,100 volts and in the twinkling of an eye change it to direct current at 1,500 volts.

There are operators on duty day and night at Jolimont which is the largest of the sub-stations. Twelve of the smaller sub-stations, however, are supervisory-controlled from a special Power Operation Room at Batman Avenue.

Overhead Depot

Erecting and maintaining overhead electrical equipment and effecting emergency repairs are responsibilities of the Overhead Depot, Batman Avenue. Three hundred and sixty-five days a year (and one day more in Leap Year) the Depot is on continuous call. When magpies build nests in the brackets, or wires have been struck by light-

The Overhead Depot's Construction Gang at work on the special flat-roofed train from which repairs and new construction can be made.

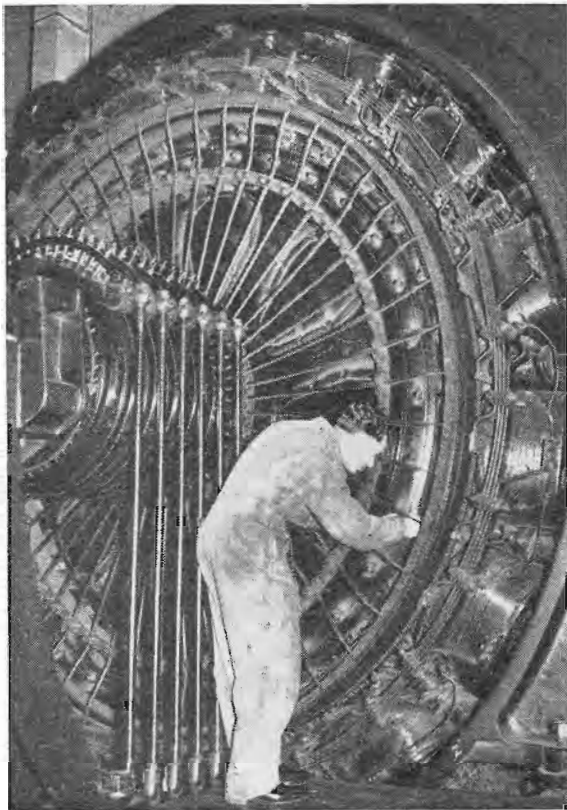


Through high speed circuit breakers, it is then led away onto a 1,500 volt busbar, and put to work on the rail-tracks overhead equipment, driving electric trains.

The nerve centre of the Jolimont Sub-station is the Operating Gallery. There is a motto among the operators . . . "Assume Nothing." Panels, switches and dials, all with a story to tell, line the gallery, and every train in the section records its quota of power being used. During the day the normal demand at Jolimont is about 2,500 amps, reaching 14,000 amps and more at peak periods.

ning, or a stone has scored a direct hit on an insulator or an umbrella has blown over a railway bridge, it's a case of "Send for the Overhead." The men of the Emergency Gangs have forgotten how to be surprised at the things that can, and do, happen.

Handling emergencies, however, is the least part of the job for the 75-odd men in the Emergency Gangs. They are responsible for the normal main-

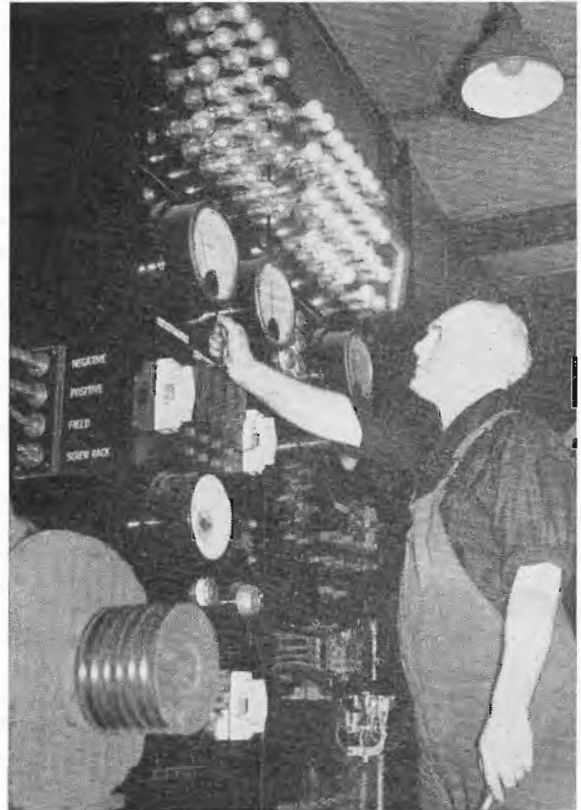


Machine dwarfs mechanic at Jolimont Sub-station.

tenance of 438 miles of overhead line and spend most of their time repairing, renewing and inspecting equipment. To their credit is the fact that emergencies arising from deterioration are almost unknown. But to take care of the unforeseen, an officer and staff are on duty at the Depot day and night, and can be speeding on their way in a fast road vehicle within a minute or two of receiving a call for assistance. Altogether there are six vans in operation, equipped with all necessary gear for rapid treatment of faults.

Magpie-nesting time is headache-time for the Emergency Gangs. To married magpies, a wire nest seems to be the dream home, with an overhead bracket an ideal housing site. But accidents occur even in the best families, especially when contact is made with high voltage transmission lines. Then the men of the Overhead Depot have to restore services. Opossums occasionally cause trouble, too, by making unfortunate acquaintance with 1,500 volts direct current.

At times the Emergency Gangs have very strange tasks. A house, for example, being transported from one suburb to another may cross a railway line, and the overhead must be raised to allow passage. Sometimes the wires are taken down altogether. During the war years the transport of aeroplane sections and massive military materials gave the gangs many jobs of this nature.



Testing panel at Train Lighting Depot, where generators of country trains are tested.

Erecting new, and altering present equipment are duties of the Construction Gang. The gang works in close co-operation with the various Branches, and one of its most recent tasks was the progressive erection of overhead equipment for the new Cremorne Bridge. This gang functions as a mobile unit using a specially equipped train as a travelling depot. The train is made up of workshops trucks, material and mess trucks, and a guard's van fitted out as an office for the Supervisor. Special roofs on the trucks provide platforms from which the men work on the overhead wires. Like a giant spider, the train creeps along, leaving behind it an elongated web of newly spun copper.

Painting Gang

The Painting Gang carries out another phase of the overhead work—scaling and brushing the steelwork of overhead supporting structures and painting it the famous railway-grey. Men of the Painting Gang use specially insulated bracket-covering equipment and work under live-line conditions. They move continuously around the system, completing the circuit about every ten years. Places near the seaside need more intensive treatment and receive attention every four or five years.

Light and power services in the suburban area are installed and maintained by the Light and Power Section. Office and station lighting, operation of sub-way pumps, power for workshops' motors, yard lighting, illumination of hundreds of advertising signs and of train destination indicators are some of the "babies" fostered by the L. & P. Section. Maintenance and battery charging for the little luggage trolleys at



Overhead Depot men . . . overhead !

Spencer Street and Flinders Street are sideline duties. Seven district Mechanics are stationed around the suburbs, each responsible for 20 to 25 railway stations. Routine maintenance, installation of electrical fittings and a host of light and power details are included in their duties. For emergency and after-hours light and power calls, Patrol Mechanics are always on tap. Another part of this section is the Low-Tension Line Gang, in which a dozen men look after the lighting equipment and renew wood poles as required.

There is long experience behind the Overhead organization and the Overhead men play a vital part in keeping the trains running.

Electrical Workshops

Never seen, and probably never heard of, outside railway circles are the Electrical Workshops, Spencer Street, where a versatile organization is ready, willing and able, at a moment's notice, to fix a 200 h.p. motor or an electric hair clipper, a 30-ton rotary converter or an engraving pencil. There is no job too big and none too small for the Electrical Workshops men, and the gadget will be as good as new, maybe even better, after they have repaired it.

"We mend anything electrical" is the Workshops' boast, and certainly the diversity of articles scattered over the various benches makes the claim good. It is difficult to name any electrical article in the Department not represented here.

The winding and assembling shop is a particularly interesting place where involved coils are made up, a coil no bigger than your closed fist maybe having as many as ten thousand turns in its construction. Over in the corner a 90 h.p. pony motor is being repaired for one of the sub-stations, and on the floor beside it lies the huge armature of an electric train motor. That little "thing" on the bench there is an element for an electric toaster, and there's one for the oven.



Fine work needs close concentration. The mechanic is turning a set of gauges to check the fuel jets in carburettors of petrol-electric cars.

Female Process Workers are insulating armature and transformer coils where perfection is the keynote; as voltages from 1,500 to 20,000 volts are involved.

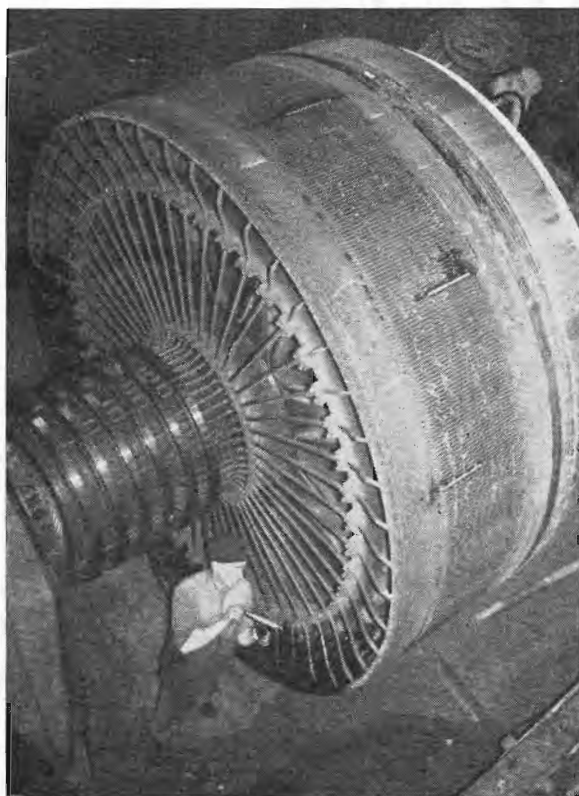
Down in the far corner of the room, Tie Station equipment is being built. More than 100 complete Tie Station panels have been constructed here. During the war years, aircraft looms were manufactured in the Section, with 70 women employed on the important defence project.

Transformers, motors and switches, and alternator rotors, weighing 18 tons, rub shoulders with fans and kettles and electric radiators. A crane for handling heavy equipment runs overhead, while sunk into the floor is a huge vacuum tank for impregnating coil windings with varnish. There are also electrically heated drying ovens.

The atmosphere of the Workshops is one of concentration, for precision is the key-note of the whole establishment. There can be no "good enough" in making or mending electrical appliances.

Testing Laboratory

Adjoining the Electrical Workshops is the Electrical Testing Laboratory where high voltage can be produced at will or the millionth part of an ohm measured exactly. Electrical equipments are tested here and investigations made of new designs and devices. At the Laboratory, too, the testing equipment used by the staff engaged in routine maintenance is calibrated and adjusted.



Huge rotary converter undergoes overhaul at Jolimont Sub-station.

There are various machines in the Laboratory which, between them, can produce any voltage up to 100,000 volts or any amperage up to 6,000 amps. The machine used for testing high-speed circuit breakers gives 6,000 amps direct current.



A view of the Electrical Testing Section.

For calibrating the master instruments used by testing Electricians, four "standards" are kept. They measure voltage, wattage and resistance. The watt meter gives a reading accurate to one-thousandth of a watt. One of the resistance meters can measure the one-millionth part of an ohm, and the other up to 100,000 ohms. Altogether, about 500 different types of instruments are tested and calibrated.

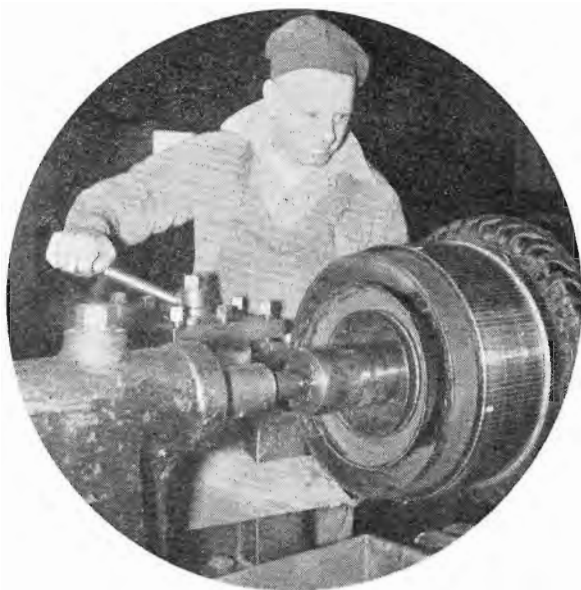
In the High Voltage Section, pressure tests are carried out on items such as insulators. High voltages are also used in the Physics Laboratory where the oil used in transformers is tested for its insulating properties.

The common mercury thermometer is not sufficiently accurate for Testing Laboratory purposes and special thermometers are kept, capable of measuring precisely one-hundredth of a degree. A vacuum pump is another item of interest, so powerful that it leaves only one part moisture in 750,000 parts "space."

Repairs and alterations to precision instruments, and overhauls of magnetos for internal combustion engines, are carried out in the Laboratory's own Workshops. Altogether the Department has about 1,000 magnetos in service.

Photography by an Oscillograph of current passing through an electrical circuit, and measurement of candle power of lamps used in signals are normal routine jobs of the Laboratory, but to the uninitiated they smack of magic.

Magic is, indeed, the key-note of the electrified system, with the men of the Electrical Engineering Branch deft operators. Some of their "tricks" are seen by rail travellers every day, but the real magic is performed, quietly and unobtrusively, behind the railway scene.



Looking After "The Sparks"

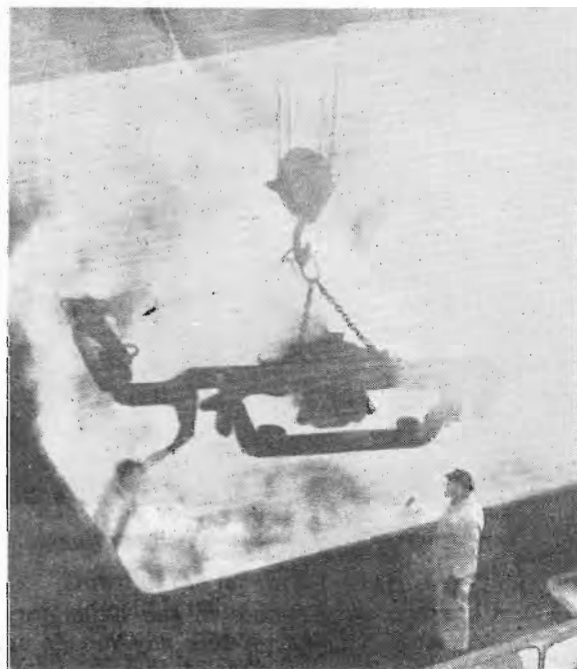
Truing up the commutator
of an electric train motor.

AFTER a mad dash to the station (covering the last fifty yards in something like evens) you flop into a seat, too flustered to care what goes on, behind the railway scene, to make the daily trip to the office possible. For nearly 30 years Melbourne has been served by electric trains. They are a commonplace now, taken for granted like the bread and milk and the groceries. Nor is an occasional thought even spared for the Driver—that stolid individual up in front who controls 305 tons of train travelling as fast as 50 m.p.h., and carrying anything up to 1,200 passengers. Jolimont Workshops looks after the trains—cleans, maintains, repairs and paints them. The Drivers are trained at the Electric Running Depot, also located at Jolimont. These two establishments are devoted to making the electric suburban service what it is : safe, fast, dependable.

When a train (or some of its carriages) has finished work for a while, it is stabled in the Flinders Street Yard. There a team of Car Cleaners from Jolimont Workshops converges on it and sets to work dusting and sweeping. Windows are cleaned and cars mopped out regularly. Every three months, the exterior of the carriages is cleaned with an acid solution which removes the grime, and restores the freshness of the paint.

Inspection of lighting equipment, woodwork, seats, door catches and undergear is carried out in the yard and any minor repairs are effected on the spot. For lengthy and major jobs, the carriage involved is sent on to Jolimont Workshops.

One of the main sections of the Jolimont Workshops is the Lifting Shop, a huge glass-roofed building where cars are lifted right off their bogies by massive overhead cranes. In the Lifting Shop, overhauls, modifications and repairs are made, and motive and control equipment put into new suburban trains after the cars have been built at Newport. It is a noisy place, with the metallic clang of Blacksmiths' hammers, crackle of welding machines, dull throb of boring machines and whine of the cranes. Metal is shaved here as easily as you sharpen a pencil, or melted as though it were butter. Wheels are re-shaped, journals turned, and in a corner of the establishment, caustic tanks spit and bubble as they scour the oil from the thousand and one parts that go into mending or making an electric train.



A bogie comes out of a bath in the caustic cleansing tank.

Spare motors stand in long lines, waiting their turn to be fitted into the bogie frames and put to work driving the "sparks." To the railwayman, by the way, an electric train is always a "spark."

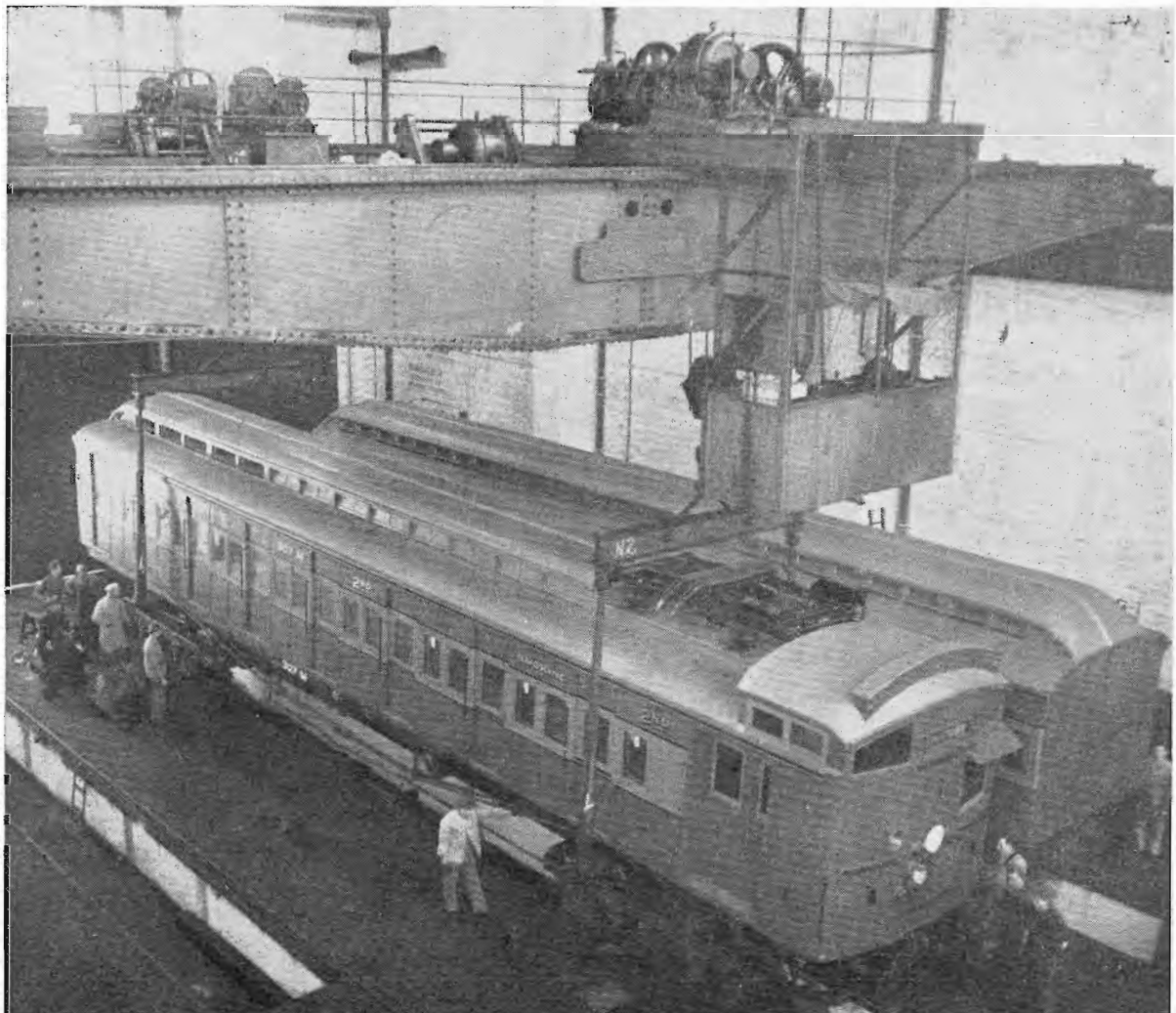
Every "spark" is inspected regularly at Jolimont Workshops. The Inspection Shop is a large building (with many roads leading into it) where trains come for routine examination every 3,500 miles. All tracks are raised high on concrete bases, leaving a pit beneath the carriages to make inspection of the undergear easy. Detailed records are kept of overhauls, mileages run, and repairs made to every train. Each carriage has its own history sheet and its life story can be read at a glance. The examination in the Inspection Shop follows a regular pattern which runs like clockwork.

Electric trains are noted for their "schoolgirl complexion all over." It is the men of the Car Paint Shop who impart this lasting loveliness. A staff of 100 has a full time job giving beauty treat-

ment to the suburban fleet. Every carriage is painted once in three years, but the roof gets attention at the end of each 18 months. The "spot" system is used in the Paint Shop. On No. 1 Spot, the car is stripped of its fittings (seats, pictures, mirrors and so on), washed thoroughly and its old paint burnt off. Then it goes to No. 2 Spot, where its bodywork is mended and generally attended to. On No. 3 Spot, painting commences, and there is further painting on Nos. 4 and 5 Spots. On No. 6 Spot, it is finished off, its fittings returned, a further cleaning given . . . and the car is ready to go back into service once more. It takes 24 days altogether to paint a car.

In one corner of the Paint Shop there is an Upholstery Section where seats are rebuilt. This section also looks after the linoleum for the carriage floors.

Power bogies are placed under the body of an electric motor car at Jolimont Workshops.



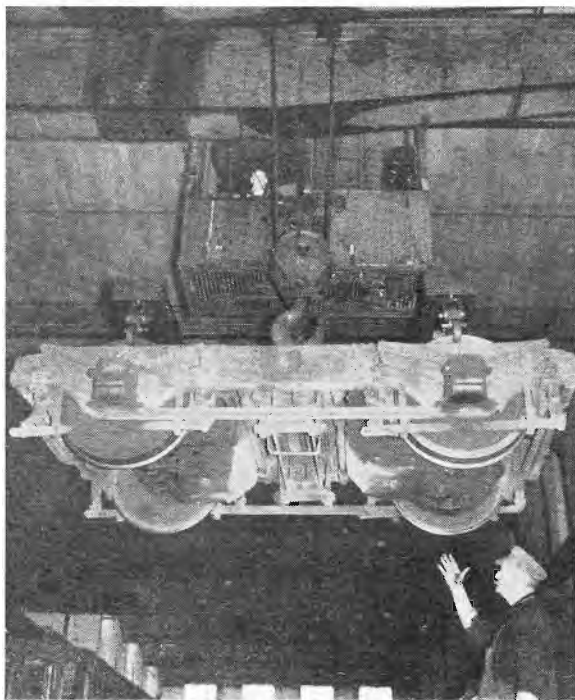
As well as 5 parcels vans and 12 electric locomotives, 879 carriages are in running over the suburban system, and of these carriages 397 are equipped with driving motors and 482 are trailer cars. To look after them, about 700 men are employed at Jolimont Workshops.

Electric trains are hard workers. In a year they carry more than 130 million passengers over a distance of $7\frac{1}{2}$ million miles. At the evening peak on a week day, there are 113 electric train departures from Flinders Street Station in one hour.

A standard 7-car electric train seats 628 passengers, but peak loads of 1,200 can be carried. To prevent unnecessary car mileage, trains are reduced at the metropolitan terminals after the peak periods, from seven coaches to four or two.

Services begin every morning about 5 o'clock and run at regular intervals until midnight. On the Box Hill group of lines, one train leaves approximately every $2\frac{1}{2}$ minutes during the evening peak. There is really no rest for a suburban train . . . nor for the men who must keep it in perfect order.

Crane lifts a power bogie at Jolimont Workshops.



The skeleton coach used to teach Drivers at the Electric Running Depot.

The men who drive the trains must, naturally, be highly skilled and highly trained. Before being accepted for training as an Electric Train Driver, a railwayman must hold a Locomotive Driver's certificate and be proficient in all forms of signalling and safe-working. Most suburban Drivers have had extensive experience as Engine Drivers and Firemen. They are all hand-picked men, steady and reliable. In a normal day's running, the Driver may cover as many as 115 miles, make 130 station stops, and pass 500 fixed signals. He must be on the alert during the whole of his shift; keep strictly to a timetable; know exactly where to stop and where not to stop. Passenger safety—as well as safety of equipment worth some £40,000—is largely in his hands.

When a man is accepted for tuition in electric train driving, he goes to the Electric Running Depot at Jolimont . . . to school. For two weeks he assimilates black-board lectures, learns what makes a train "tick" and how to effect emergency repairs. There is a special suburban motor coach, in skeleton form, in the Lecture Hall and here the trainee-Driver does his ground-work. It is equipped with all the controls of a train and the



The Car Paint Shop gives suburban carriages a fresh complexion.

student "drives" it hundreds of miles before he gets his first taste of controlling a real train.

It is not until his third week that the trainee takes over the controls . . . on the track between Reservoir and Thomastown and the railway track at Flemington Racecourse (normally used only on race days). Here he learns stopping and starting and is given practice in roadside repairs. Stopping a

heavy train at an exact spot along the platform is a delicate operation. After a week of continuous practice, he is ready to be launched on the cold, hard world and he takes trains over the suburban system, with a selected Driver travelling with him in the cabin. During this week, he reports to the Superintendent of the Depot for interview and an oral examination. By the end of the fifth week, he has driven over every inch of the 173 miles of electrified track, is fully conversant with all the roads and signals . . . and at long last is ready to go "solo." It's a big day in his life, but after his intensive 5-weeks' training, joined with his engine driving and firing experience, and his studies in safeworking, he is confident and competent.

He and the passengers are protected from accident by various safety devices. The driving handle is of a "dead-man's" type, which automatically flies to the "off" position when released, cutting off power and applying the brakes. So, if the Driver faints, there is no danger of a crash. Should the train be taken past a signal at danger, a "trip" apparatus automatically puts on the brakes. There are safety devices in the mechanism, too, ensuring that electric trains will keep out of accidents. The Driver is, himself, a delicate piece of mechanism and his eyes, ears and general physical fitness are checked over regularly.

Fast, safe, dependable is the boast the Railways make of their suburban service. The maintenance of the Jolimont Workshops men, coupled with the skill of the Drivers, makes the boast a good one.

RAILWAY BIRTHDAY IS JANUARY 13

JANUARY 13 marks the anniversary of the ceremonial commencement of the Victorian Railways. At 10.20 a.m. on that date in 1859, a special train hauled by the Department's only passenger locomotive departed from Batman's Hill (now Spencer Street) Station for Williamstown. It was a momentous occasion.

The train consisted of six carriages, including a State Coach for the Governor of the Colony of Victoria (Sir Henry Barkly) and his staff. The remainder of the cars were crowded with Heads of State, City Councillors, and other dignitaries. A salute from the Volunteer Artillery Battery on Batman's Hill and excited cheering from the thousands gathered near the station sent the train off into history.

The special train raced through "the village of Footscray" at 30 m.p.h., and reached Williamstown at 10.42 a.m. More than 70 ships anchored in Hobson's

Bay were dressed in flags. Her Majesty's colonial steam sloop, "Victoria" (in charge of Commander W. H. Norman, father of the late Mr. C. E. Norman, a former Chairman of Commissioners) fired a salute in unison with the guns of Fort Gellibrand.

After a round of addresses at Williamstown Station, during which the official dais twice collapsed under the weight of the guests, the train proceeded to Sunbury to inaugurate the first 23 miles of the Melbourne-Bendigo line. Here the line contractors provided a most elaborate banquet for the official guests and the builders of the railway. A feature of the affair included the roasting whole of two bullocks.

Public traffic commenced between Melbourne and Williamstown on January 17 and to Sunbury on February 10, 1859. The total mileage of the System at that time was 30 miles.

Man Behind The Levers * * *

In
"A" Box
Flinders Street



A "man behind the levers."

The Signalman in charge of "A" Box, Flinders Street.

"THERE'S nothing at all mysterious about signalling," said the Special Signalman in charge of "A" Box, Flinders Street. "It's simply a matter of making a road, locking it, and giving the 'all clear' signal. Making a road," he explained kindly, "means setting the points to give the train a clear run-through. For example, a train coming from a platform at Flinders Street and travelling over the Viaduct to Spencer Street may cross six or more points. It's our job to 'make the road'—to set the points in the correct position. When the road is made and locked, we give an 'all clear' signal. As the train is passing we let the next Box know it's on the way . . . There's nothing more to it."

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Quite a simple business, really—when you know how! Simple: if ever it can be called simple to direct 1,296 trains safely on their way every day, to learn the time-table for each of them by heart, to make the roads for 90 trains in a single hour during both morning and evening peaks, and to know the function of 246 separate and individual levers.

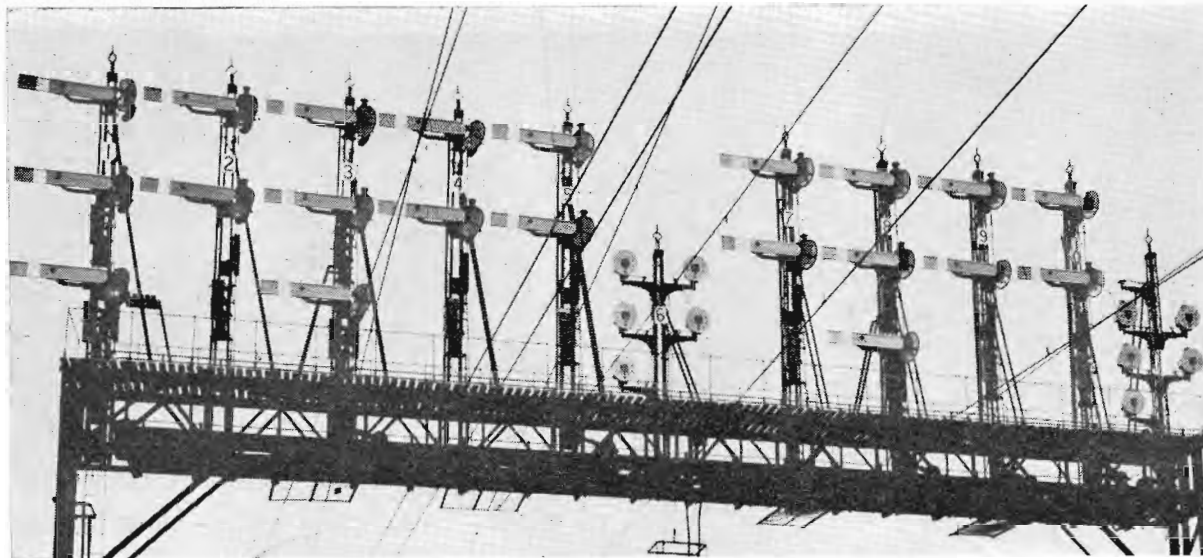
The apparatus in "A" Box, Flinders Street, is the largest manual frame in the Southern Hemisphere. The levers are in three colours: black, blue, and red: but although the general effect is decorative it is utility and not beauty which has prompted the pattern. The black levers operate points; the blue levers bring the lock bar into play, locking the points so firmly in position that a train cannot displace them; and the red levers actuate the signal arms. Everything interlocks.

Fine, but strong

"The mechanism is as finely adjusted as a Swiss watch," the man in charge pointed out, "but it's strong, and meant for hard work at high speed. Once the points are set and signalled 'safe' they cannot be altered until the train . . . all of it . . . has passed over the track. Nor can a train be brought across the path of any other train—the points and signal levers required for the movement would be locked and just wouldn't budge. You can't leave room . . ." he broke off suddenly as a bell, rang, called "Willie up," swung two or three levers into place, and then walked back. "What was I saying? Oh, yes. You can't leave room for human error in a job like this. Here's another example. Trains can enter the Flinders Street platforms from either this side or the Richmond side of the station. But there's no risk of a head-on collision because the inter-locking control extends to the other boxes. Suppose I've got a train at No. 6 platform. Then the man in 'C' Box can't route a train into No. 6 because his levers wouldn't work. He can't move them until I release this 'Control' lever. On the other hand, having given him control, I can't operate for that platform until he returns it to me. Elementary, isn't it?"

Three sets of bells rang in swift succession, and two 'phones exploded simultaneously. A cabalistic conglomeration of "Coburg down . . . hold the pass. on No. 5 . . . the Ports running three late . . . let the Dandy through" . . . disturbed the serenity of "A" Box. Levers clicked into position; taps on the bell key sent messages to the next Box; the Block Recorder made rapid entries in his book. Then calm crept back again.

"It can get busy even in the slack periods," the Signalman admitted.



This impressive array of signals can be seen along the Flinders Street Viaduct.

"Mind you," he went on, "I don't want you to get the idea that this work is too easy. There are several things an 'A' Box Signaller just has to know." (More bells rang, "Electric goods on No. 12," sang out someone.) "He can't just come here and take up duty at once, even though he might have 20 years' signalling experience behind him. He spends about five weeks learning the job. He must know this frame intimately and what each of the 246 levers does. He must know the position of every individual point in the yard; where all the signals are located and what they control. He has an extensive time-table to memorize, with cuts and additions and specials to complicate matters. He must be familiar with the bell code, and be able to react automatically to it. He must learn the message in those Annunciator lights. And just as important as all this, he must learn to take his place in the team. For one movement, three Signalmen may have to co-operate, each working the appropriate levers in his own section of the frame. That takes practice." He paused reflectively. ("Up Co-ey . . . Newport down.") "Every train entering or leaving Flinders Street on the Spencer Street side, or travelling on the St. Kilda or Port Melbourne lines, is controlled from this Box. The newcomer must know all about every one of those trains. Although he is ready to take his place here after about five weeks of familiarization (and a thorough examination conducted by a Block and Signal Inspector), it is a year, I'd say, before he can really claim complete proficiency. Believe me, I'm still learning, and I've had 24 years in 'A' Box."

He moved quickly over to the frame. "Watch this," he said. "The train on No. 1 is due out. Levers 60 and 14 set the points. 15 and 78 lock them. 44 and 74 operate the signals. And there she goes. There's no difficulty about that, but it's a lot more trouble to take a train from, say, No. 4 platform to the south line on the Viaduct. It needs 14 levers to make the road, five to lock it, one for control, and six signals. That's 26 levers for one operation. You don't want too many of those!"

The Signaller in charge and his colleagues operate the levers with almost carefree abandon. They make it look easy, but those hard muscles on their forearms and across their shoulders didn't grow overnight.

Most days bring peaks of great activity followed by troughs of watching and waiting. Showtime, Cup Day, football finals and similar occasions, however, are "all-peak" days.

"Fortunately they don't come round so often," the Signaller admitted philosophically, "but we're mighty busy people when they do. You can't possibly memorize the time-tables for all the specials, and that means you're continually referring to the chart. Of course the outline of the time-table is committed to memory." A sudden thought struck him. "You know, when you come to think about it a Signaller must have a fairly good memory. Apart from everything else, there are things like the Book of Rules and Regulations to be known thoroughly. It has over 400 pages. And its Appendix must be known equally well. From memory, it's 915 pages long. And on top of that . . . but I'm sorry! I'm making it all seem too complicated. It's really not as hard as it sounds. There's nothing at all mysterious about signalling . . . it's simply a matter of making a road, locking it, and giving the 'all-clear' signal."



Watch And Clock Repairs Are Important

THE Watch and Clock Repair room at Spencer Street could well be the setting of an Oppenheim thriller. To reach it, you go into the Station area through the Collins Street entrance. But instead of turning right towards No. 1 platform, or proceeding straight ahead to the suburban barrier, you turn left past the 'phone boxes. It is inevitable that you steal a furtive glance over your shoulder before slipping down the small alley-way near the fire hydrant, and by the time you have reached the narrow staircase which winds up to the Repair room you'll be wishing you'd brought a gun. Up the stairs. There's a door at the top. It opens noiselessly. Inside men are poring intently over a long bench. Clocks—innumerable clocks, tick mournfully on the wall. A den of anarchists, perhaps, busy manufacturing time-bombs? Someone coughs, and you nearly jump out of your skin.

Then the Watchmaker comes over from his bench to greet you, and now you know that here is no anarchist—but a man who creates. For he is an artist, whose medium is springs and cog-wheels, staffs and pivots. He plays no small part in ensuring that railway time shall be the right time. He is the Watch and Clock Repairer—like his father before him.

The family link with the railways goes right back to 1884 when his father was given the contract for all watch and clock repairs in the Department. When father retired in 1910, his son took over, and is in charge of activities still. He has three Technicians assisting him. None of the team is a railwayman, despite the close railway link, for the repairs are on a contract basis. The Watch and Clock Repair organization is a little individualistic cell in the mighty railway protoplasm.

"We keep the record here of every watch and clock in service," he explains. "Our records go back to 1884. Look at this card for example. Here's the maker's name, the number, date of issue, dates of repairs and what the repairs were. The card also shows who has the watch on issue at present.

"These books keep clock records, and set out the full history of any clock at any station . . . where it has been, and what has happened to it. Our records are complete, and up-to-date."

Many of the clocks are very old. It was back in March 1856—94 years ago—that a Melbourne importer offered to supply 12 clocks suitable for railway stations. Although no immediate use could be made of them, the clocks were purchased and held until 1859, when the first portion of the Government railway was opened, between Williamstown and Sunbury. After the best part of a century nearly all of those twelve clocks are still giving accurate service.

The Watchmaker at his Work Bench.





Checking the Clocks.

Unfortunately no records are available on how many watches were purchased for the first government railway line, but as there were only five Engine Drivers at the time, the number would have been small. Certain it is, however, that 351 watches were on issue in 1881 and that 2,960 are in use today. On that date, too, there were 371 clocks on the system. Now there are 1,678.

Issues and control of watches and clocks is vested in the Electrical Engineering Branch, with the Maintenance Contractor undertaking all repairs.

The largest clock in the service is the tower clock at Flinders Street. You could say it's also the most important, for it automatically controls hundreds of other clocks. Look at an office, or station platform, or signal-box clock in the metropolitan area, and just above the figure 12 you'll see two clips. At every hour of the day or night, on the hour, those two clips come down and grip the minute hand of the clock, drawing it exactly on to the "12." So if it is a little fast, or a little slow, it is brought automatically to exact time each hour. The controlling mechanism for the operation is in the Flinders Street tower clock.

Looking after that clock is, of course, a big responsibility. It is wound up weekly—and winding it up is some job, believe me! The clock face is eleven feet in diameter, by the way.

Although it is much smaller—only 5' 6"—the Spencer Street tower clock is probably the best known. It's an old and reliable employee. It

was first erected in 1883 at the entrance to the old Flinders Street Station. Then, when rebuilding of the station began, it was shifted over to Princes Bridge, and later around to Spencer Street. But its perambulations were not over, and alterations at Spencer Street meant its movement to another nearby site—and there it is today.

The Watchmaker and his team do not confine their activities to the suburban area—their responsibilities extend over the whole State. Often one of them goes out to a country station or box where the clock is playing tricks. Or, if the station clock is sent to town for repairs, a spare is supplied in its place.

"At ten o'clock every morning," he points out, "the Telegraph Office sends a 'time-ball' to the whole State. All telegraph business stops at 9.58 to give a clear line.

"Quite a lot of people ring me up, too, to find out the right time. That little instrument up there is controlled direct from Canberra Observatory, and it tells me to the very second how much my clock is fast or slow."



Spencer Street tower clock.

In railway running, of course, the seconds are important. "On time" means just what it says: not a few seconds early, or a few seconds late. And in keeping the railway time, the Watchmaker and his men render valuable assistance behind the railway scene.



In The Quartermaster's Store

A broom ?
Certainly, Sir

VICTORIAN Railway Storehouses have three sources of supply. Two of these (the Newport Workshops Storehouse and the Spotswood Workshops Storehouse) supply the specialized items used mainly by the Rolling Stock and Way and Works Branches. The third is the Spotswood General Storehouse, and its task is to provide items in general use by workshops, depots, stations and offices throughout Victoria. It even supplies general items to the other two sources. There are 14,000 different kinds of items on the shelves at the Spotswood General Storehouse. They are worth £130,000, and most of them are turned over about three times a year.

Do you want a broom? You can have a broom . . . or a guard's flag, bottle of ink, station bell, shovel, knapsack spray, bicycle tire, axe handle, ball of twine, one-fire stove, coil of barbed wire, bath, packet of matches, or a cake of soap.

Will it be any trouble to find? Not in the least! Spotswood works on the open storage system, with as many items as possible laid out for view in their own trays on shelves. No item is hidden behind any item of another type, and the highest shelf is low enough for any man to reach without a step-ladder. This tray storage system in standard material racks was introduced by the Department in 1922, and it is still as modern as the minute after midnight. It replaced the "grocer shop" idea of keeping stores on shelves built against the walls. Where the nature of the goods prevents trays being used, special methods of parcelling, piling and stacking have been adopted. Shovels, for example, are stacked in special stands, not dumped in some out-of-the-way spot.

Every inch of the Storehouse building (which is 120 yards long and 55 yards wide) is light and airy, for the saw-tooth roof is nearly all glass. There are no dim and murky corners where stores can get lost. The Storemen take a pride in the cleanliness of their establishment, and you could eat a meal off any of the trays and shelves. With its wood-work painted white, the interior of the store is always a picture of how a modern storehouse should look.

The Storehouse is divided into sections, under the control of Senior Storemen, whose duty it is to know what materials they have, where everything



Money . . . A heap of scrap at the Reclamation Depot. The annual value of "junk" to the Department exceeds £100,000.

is, the quantity on hand, and to ensure that sufficient stock is always on the shelves to cover requisitions.

Stocktaking holds no terrors. On every tray a chalked number tells how much of the commodity is on hand. As items are taken out to fill orders, or incoming materials are trayed, the chalked number on the top tray is altered. A stocktaking of the 14,000 different types of items can be made in a day.



The neat tray system used by the Victorian Railways sets high standards in large-scale store keeping.

The system used at Spotswood is in operation at every railway storehouse throughout Victoria. Racks, trays and bins are of standard sizes and pattern. One of the main advantages of the scheme is that a Storeman can be transferred to any storehouse anywhere in the State, and within a few minutes have everything at his finger-tips.

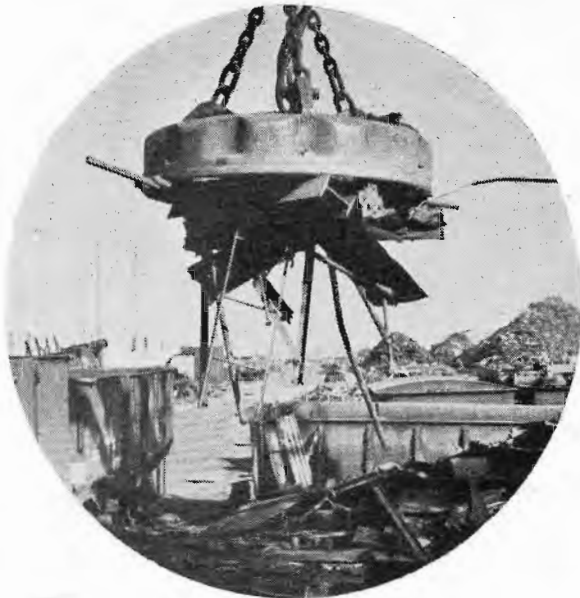
Dispatch System

About 40 Storemen are employed at Spotswood, some of them assigned to the various sections, others on packing. When a requisition is received, the goods are made up in the sections and collected by an electric trolley which makes a regular circuit and takes the goods to the packing area. Here the items for the various localities are collected, parcelled, and dispatched by road vehicles for metropolitan depots, by parcels coach to the suburbs and by goods train to country areas. Many items (like bolts, nuts and screws) are often required in large quantities and they are issued from a special bulk section.

Stores are another form of money, and the same care given to cash is given to goods. There is no room for haphazard methods. Last year the total issues made throughout Victoria by the Stores Branch came to about £4 million. Quartermastering the State's largest business is, itself, a big business.

A view of Spotswood General Storehouse.





Magnetic Crane at work : Reclamation Depot.

Next-door neighbour of the Spotswood General Storehouse is the Reclamation Depot. You might call it the Railway Scrap Heap, for unwanted materials of every description come here, from broken light globes to old engine tenders. Ferrous and non-ferrous metals, empty containers, used oil drums, rusty piping, lengths of hose, unserviceable overhead wires, sleepers, buffers, springs, bottles, and a host of other bits and pieces find their way to the Reclamation Depot. The conglomeration looks like useless rubbish to the rest of the world, but, to the Reclamation Depot, it is a treasure trove of Railway Stores. Nothing that can be repaired at reasonable cost, or reconditioned for further use is wasted. Anything not wanted by the Department is sold. There is a lot of money in junk, and the value of the Depot to the Railways is £100,000 per annum.

A typical activity of the Depot is the reclaiming of 4-gallon metal drums used as weed-poison containers. The drums are washed thoroughly, holes soldered up, and are generally made ready for use again. Every day 150 of these are returned to service. Not even the washing water is wasted, but it is stored in tanks, and later used as half-strength weed killer!

Many 44-gallon drums are converted into incinerators and sent to stations and depots throughout the system. Some are supplied to the Education Department for use at schools.

Nothing looks more forlorn than an old burnt-out one-fire stove. But from the good parts of three or four old stoves, one first-rate stove can be built. The Reclamation Depot looks after that.

Reclaiming non-ferrous metal is one of the Depot's main activities, and from the furnaces, junk emerges as brass, copper, gun metal, bearing metal and solder. Three thousand tons of non-ferrous metals are treated every year, the ugly looking bits and pieces being converted into shining silver ingots.

Ferrous metal—steel of one sort and another—totals 17,000 tons a year. It arrives continuously in truck loads, rusty, jagged and very awkward to handle. A huge magnetic gantry crane unloads the trucks, and dumps the metals into pens to be sorted and classified later. Inside the Ferrous Shop, a heavy shears cuts scrap into handy sizes. Dog spikes, used on the tracks, are straightened, bolts are cut to standard lengths and the threads restored to nuts and bolts. Most of the non-ferrous metals are classified and sold.

Old locomotive water tanks are a head-ache. They are too big for sale in their original form, but a team of Oxy-acetylene Operators cuts them into trade size strips. You can always rely on the Reclamation Depot to find the soul of goodness in apparently worthless things.

A neat and tidy junk depot sounds like a contradiction in terms—but the depot is very neat and very tidy. Teams of Sorters work in the bins separating the various materials, salvaging anything that the Department can use again, and arranging the rest in salable form. Everything has its own special place, and nothing is left lying around. The aim of the Depot is for a quick turnover: in, sorted, sold, out! But some items are put away in the knowledge that they will be needed as replacement parts in a year, or later. Knowing what to save is a special art in itself.

The Reclamation Depot knows, literally, how to get the best out of everything. Making the valueless valuable is its purpose in life.



Between 9 a.m. and 5 p.m. on a week day, about 4,000 people ring the Department. There are 50 incoming lines, 980 automatic extensions, and about 300 harmonic extensions. It takes a staff of five to cope with the work through the "postal" system, and three girls are on the harmonic board.

"Jacks Of All Trades"

At Spotswood 'Shops



Internal Combustion Engine Section.

ON a triangular 30-acre block of land, with the entrance near Spotswood Station, stretch the Way and Works Branch's efficient Spotswood Workshops. Few railway workshops began their career with the same advantages as Spotswood 'Shops. The old 'shops at Spencer Street and Arden Street were amalgamated and activities were transferred to Spotswood.

"We started with a 30-acre triangular shaped paddock, lots of ideas based on experience and knowledge of the Way and Works Branch's requirements," says the present Manager with considerable satisfaction. "The establishment was planned in detail in relation to shop layout and plant."

An inspection of the various divisions shows the advantages of planned layout and systematic routing. Raw materials arrive by rail and are unloaded at one end of the works. They pass in turn through various operations in adjacent sections until, with the minimum of handling, they emerge as tables, chairs, level crossing gates, gangers' trollies, gang cars, etc. The final stage of manufacture brings the product of the 'Shops to another set of rail tracks and a loading platform, with the result that dispatch is facilitated.

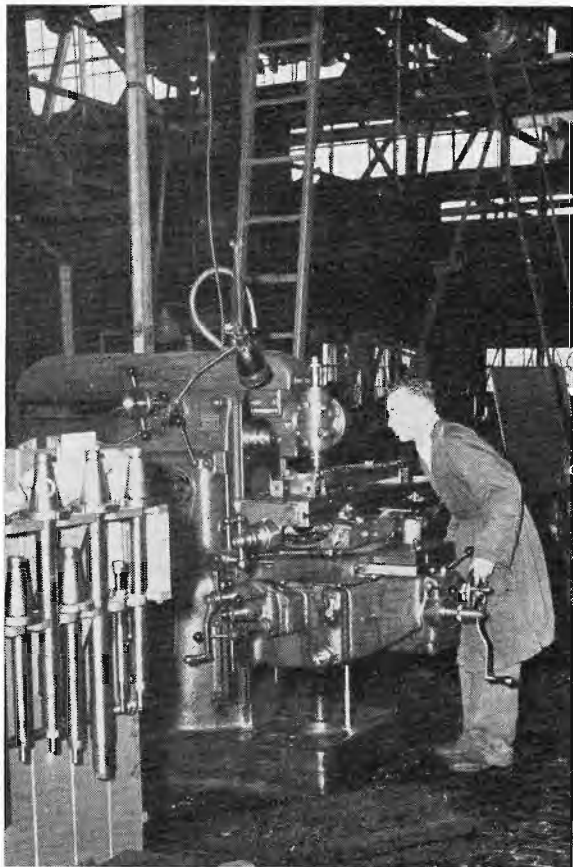
A road running from the apex of the triangular area to the base divides the Workshops into two main sections, the one woodworking and the other mechanical or metal working.

A wide range of manufactures comes from the Woodworking Section, from high-grade furniture to rugged buffer stops. The furniture at country booking offices, at Flinders Street and Spencer Street stations, and at the Victorian Government Tourist Bureau, was made at Spotswood. So,

too, were the wheelbarrows and tarpaulin standards to be found from Morkalla to Orbost. Gang-boards, portable buildings, wardrobes, ticket cabinets, hand trucks, ladders, cupboards, chairs these, and countless other items, are made in the Woodworking Section of the 'Shops: machined and fabricated from the timber which arrives constantly from the Wood Machine Shop.

An interesting aspect of the section's work is the repair of furniture damaged in transit. Occasional accidents are inevitable in a service so busy as the Victorian Railways, and furniture is notoriously fragile. The skilled craftsmen at Spotswood can repair almost any article so well that the original flaw can rarely be detected. One outstanding example of their work was the mending of an antique carved chair of which a portion of one arm had been broken off—and lost. Not only was the wood matched and fitted, but one of the experts reproduced the carved pattern to the complete satisfaction and admiration of the chair's owner.

Pre-cast concrete work is another unusual activity. Wash troughs, fence posts, platform facing, small signalling standards and base blocks are typical items turned out in a corner of the Civil Engineering Section.



At work on a Milling Machine.

The Mechanical Section of the Spotswood Workshops is quite different in character. Its function, to put the matter briefly, is to make everything in metal work which Newport Workshops does not make. Its productions are of a very general character, and its tradesmen are not only Jacks of all trades, but masters of them all.

From the section come locomotive turntables, water cranes, bridge girders, signal masts, lifting cranes, 6,000 and 10,000 gallon water tanks, fish plates, steel chains . . . and padlocks, cash safes and Casey Jones motors: re-conditioned picks, shovels, dog-lifters and spanners lie by weighbridges and automatic staff interlocking machines. Not only does the section make things, it also mends them—sometimes a more difficult process.

The manufacture of internal combustion engines for inspection and gang cars used by the Track Force is a field in which you would scarcely expect to find railwaymen, but it is quite big business at Spotswood.

Probably the most intricate work of all takes place in the Electrical Shop, where telephone and telegraph instruments, train control boards, switch boards and electro-mechanical signalling apparatus, train stops, flashing light signals for level crossings, signals and point mechanisms, etc., are made or mended.

Equipment throughout the whole Mechanical Section is modern, and carefully chosen for the work required. It represents scientific planning by Engineers who know their business.

The Workshops Manager and his Assistant have a staff of about 600, covering Carpenters, Painters, Wood Machinists, Fitters and Turners, Blacksmiths, Boilermakers, Electrical Fitters, and many more grades. "We are a very happy group and we all work well together," states the Manager.



Buffer Stops being turned out.

The Manager is justly proud of the fact that during the Second World War a manual effort group of about 100 Spotswood 'Shops employees—working in their own time on Saturday mornings—made Red Cross requirements to the value of nearly £4,000. The trim brick headquarters building, in its neat lawn and garden setting, typifies the organization. It is a tradesman's area.

Railway College

For

Railway Craftsmen

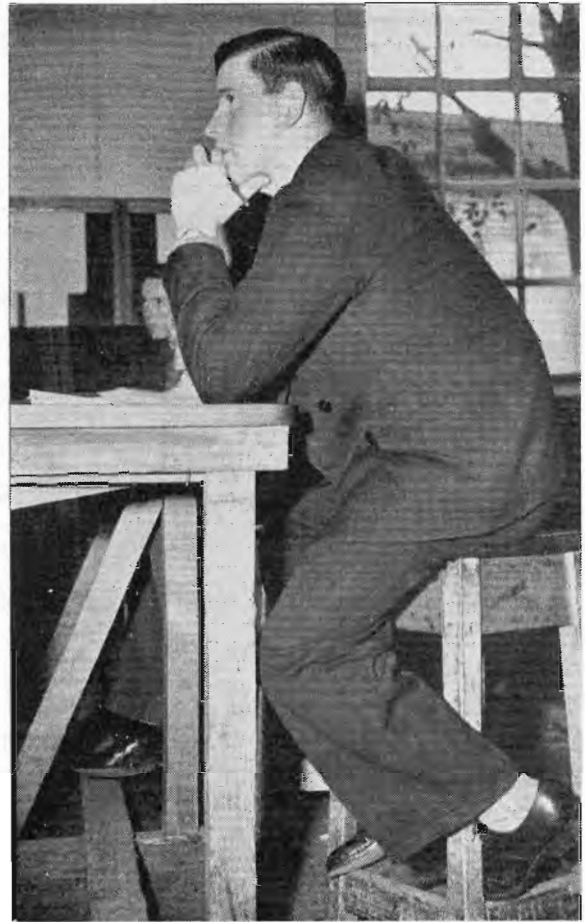
"YOU can see, therefore, that angle B is equal to 40 degrees," says the Instructor, pointing to the blackboard and at a maze of symbols which might have been copied from an Egyptian sarcophagus. He pauses while the information sinks in. "Any questions?" No, there are no questions. "All right. Then how many degrees are there in angle C?"

The class has been expecting this problem, but the silence is intense. From somewhere outside comes a clatter as a pilot engine drops a rake of trucks into a siding. Then silence surges back. The Instructor waits patiently, twisting the chalk abstractedly in his long fingers. "Come, now," he breaks in, "how many degrees are there in angle C?"

Suddenly they have it. A dozen hands shoot up enthusiastically, and the Instructor nods approval. They're doing fine, these lads, and because they have solved the problem of angle C, the railways of the future will run all the more efficiently. He takes the answer, turns to his blackboard, and the mathematics lesson goes on.

In the adjoining class-rooms other Instructors are teaching other subjects to classes of equally keen young men. For this is the Victorian Railways Technical College at Newport, where the Railway Apprentice is given a thorough course of trade training. During his first three years on the job, every Apprentice in the metropolitan area spends from eight to ten hours each week in these class-rooms. His tuition costs him nothing, it is carried out in normal working hours, and it can lead towards his becoming an excellent tradesman, a Sub-foreman or Foreman, or to a professional or executive appointment. The theory of the classroom supplements and simplifies the practical training of the Workshops.

The College Principal is an Engineer who—together with three qualified Engineers as assistants—has been loaned to the Railways by the Education Department. He has 392 Apprentices under his charge at Newport. A further 2,449 have passed through his hands, or those of his predecessors, since the College was established in 1922.



What does the future hold? Perched on the corner of his stool, a railway Apprentice absorbs knowledge.

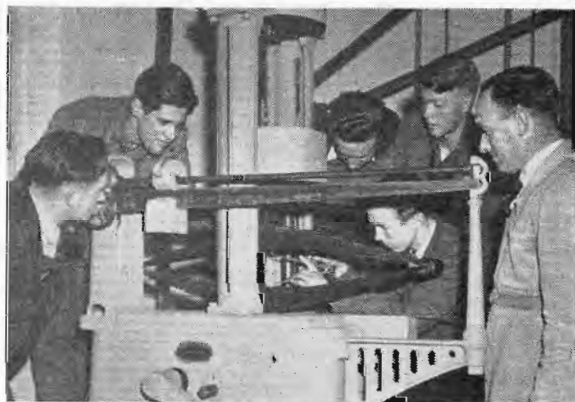
He emphasizes that apprentice training at the V.R. College is far more interesting than any studies his lads have ever attempted before. "All class-work," he explains, "has a railway outlook. It has been designed to help the student in his general work. Augmenting the tuition given by myself and my assistants, five railway officers take classes, part-time, in the essentially railway aspects of such subjects as car and waggon building, boiler-making, electrical fitting, heat engines, and applied mechanics. It's a point of interest that three of the Railway Engineers conducting these classes are old-boys of this College.

"When the Apprentices enrol we grade them, according to their educational qualifications, into senior, intermediate or junior groups. Generally speaking, the first year of the senior syllabus is equivalent to the second year of the intermediate syllabus and the third year of the junior syllabus. This system ensures that no Apprentice will be out of his depth, or held back to repeat work he has already done at school. Within the various groups the trades are mixed together."

The Principal picks out a roll book at random. "Take this class as an example," he says. "It's made up of Boilermakers, Car and Waggon Builders, Carpenters and Joiners, Upholsterers, Fitters and Turners, Interlocking Fitters, and an Electrical Fitter and a Weighbridge Fitter. That's a typical class of lads in the junior grade. Each Apprentice shares in the education programme common to his group and, in addition, receives special training in his own chosen occupation.

"Every year three scholarships are awarded to outstanding pupils for full-time five-year diploma courses at a Technical College or a degree course at the Melbourne University. During their studies the trainees are paid a salary, all tuition fees are met, and they retain full Railway privileges. On graduation they are appointed to the professional staff of the Department. Since the College was founded, 85 scholarships have been awarded. Needless to say, competition for the free places is keen.

"Further awards for diligence, available to all Apprentices in any group, are proficiency allowances for satisfactory behaviour, regular attendance at school and workshop, and an examination average of 60 per cent.



Apprentices being taught to become good railway tradesmen.

"By the way, speaking of proficiency, I must mention the ex-servicemen who have passed through here. About 57 have completed their training, several of them going on to further studies under the Commonwealth Reconstruction Training Scheme. One of them won a Railway Scholarship. Each has given a fine example to the younger lads."

The Principal's responsibilities extend far beyond the four walls of the College. He supervises the studies of all Apprentices at country locations, makes regular visits to the country to talk over students' problems, and gives special coaching. Country Apprentices attend their local Technical Schools at Departmental expense. They are also supplied with the printed lecture notes issued to metropolitan students—notes which give a compre-

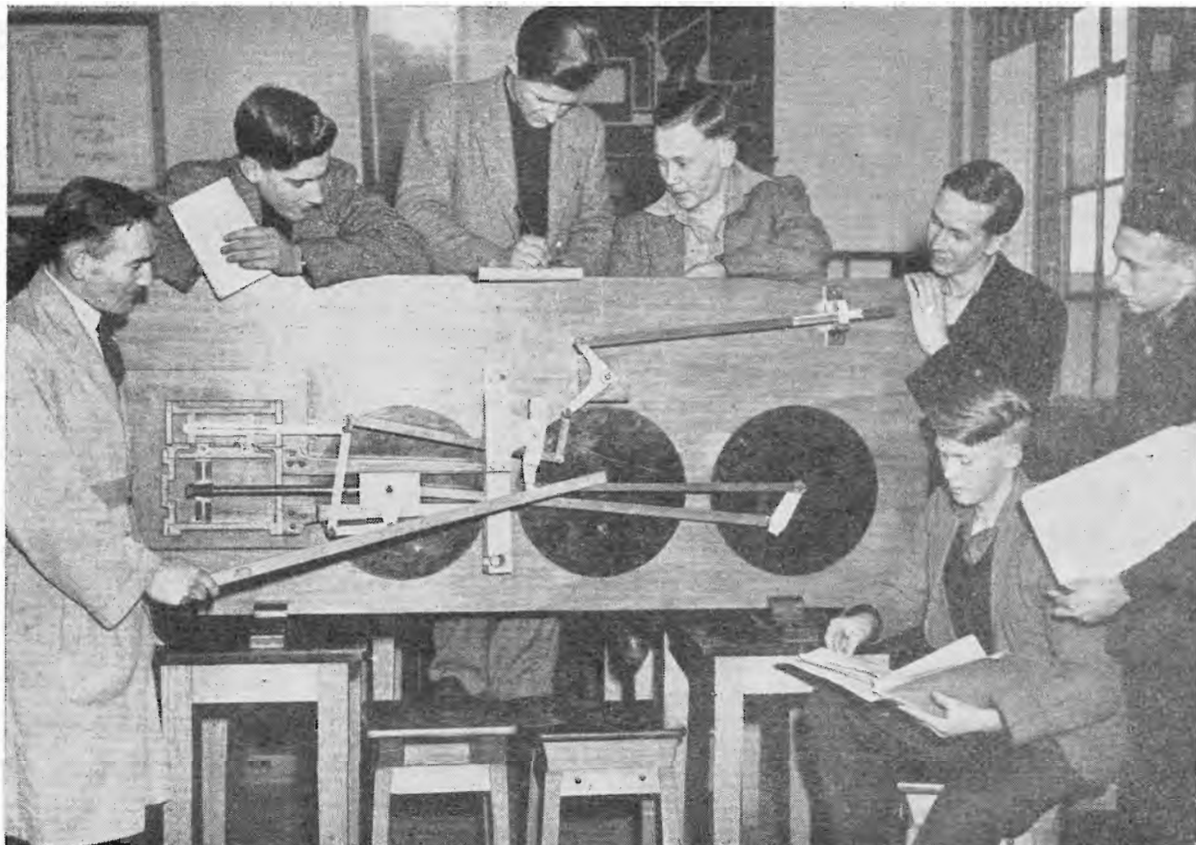


Practical experiments supplement theory at Newport Technical College.

hensive and detailed explanation of every subject. The notes are retained by all students for permanent reference.

At the Newport Technical College, instruction is chiefly made up of blackboard lectures in conjunction with elaboration of the printed notes, film screenings and practical laboratory work. In none of the grades is the work excessive, or more than any Apprentice should be able to handle. Lads who are anxious to follow up any particular phase of their trade have a technical library at their disposal. There is also an English library for those who wish to extend their education, improve their vocabulary, or to discover the simple (yet important) mysteries of writing good business letters.

"Throughout the whole of industry the Railway-trained Apprentice has a first-rate reputation," the Principal points out. "That reputation has been built up by sound training. As far back as 1905 the Victorian Railways were pioneering a system of Apprentice instruction which sought to bring back all that was best in the 'guild' methods, modifying them to suit modern conditions. The emphasis in training was laid not only on making a lad an efficient employee, but also in ensuring he became a skilled tradesman, taking a personal pride in his work. Forty-three years ago a special course for Railway Apprentices was begun at the Working Men's College. In 1922, the present organization of an exclusively Railway College was instituted.



Apprentices being shown the operation and various settings of the Walschaert valve gear

"I suppose you might say that the Railway success in Apprentice training has come from recognition that an Apprentice is an individual—not just a name in the nominal roll. An experienced railway officer who was once an Apprentice himself holds the full-time post of Supervisor of Apprentices. His sole duties are to look after the welfare of Apprentices, help them in their work, assist in solving their personal problems, and to protect their interests generally. In every way

the progress of each Apprentice is closely watched for he's a young railwayman with quite a job of work to do."

Yes, indeed, quite a job of work to do! The hours spent learning to read blue prints, solve mathematical equations or test the strength of metals are very important hours. For in the hands of the Railway Apprentice lies, to a great extent, the future of the Victorian Railways.

Train Names Are Picturesque

The naming of trains in Victoria has never achieved English popularity, but nevertheless many of our trains have official or colloquial titles.

In England we find the "Flying Scotsman" and "Golden Arrow," noble and suggestive names, but our own "Overland" has a "dinkum Aussie" touch—the very name echoes wide open spaces. The "Geelong Flier" is yet another apt title.

On the job, out in yards among the good fellows who make the trains go, we find the "Milkie," the "Fish Pilot," the "Peanut," and the "Darkie."

The "Rabbity" used to run from Seymour to Benalla, and was noted for once having had a Driver who, when asked by an Examining Officer where a home signal was fixed, said: "In the ground, of course." The "Switchback" ran from Essendon to Broadmeadows and occasionally to Wallan.

• Telling The Story In Picture •

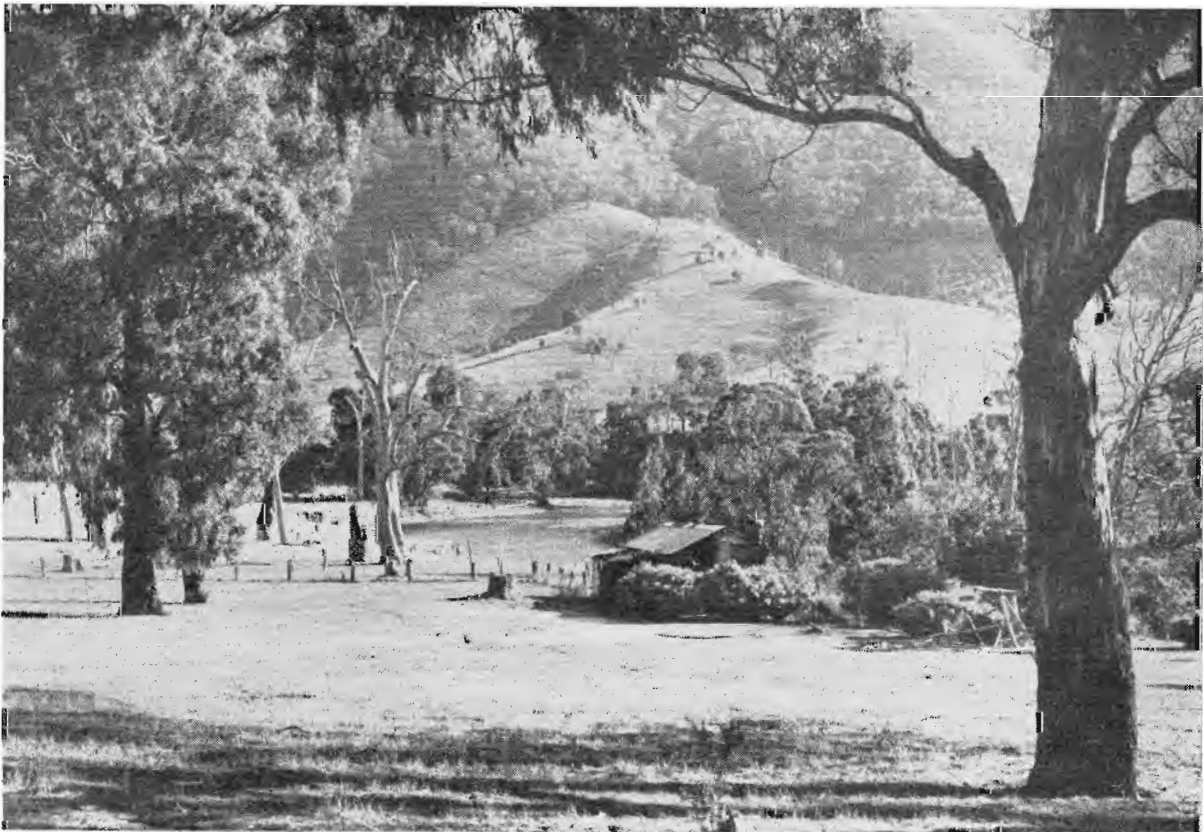
THE attractive photographs of Victorian beauty spots displayed in country passenger carriages and on refreshment room walls are the work of the Railway Photography Section. So, too, are the pictures in the various offices of The Victorian Government Tourist Bureau, and the photos used in the innumerable spheres of railway publicity. The blue and white prints of all engineering and architectural designs and copies of train control graphs all come from the Photography Section. The Department established its first studio over 40 years ago, in a dark room on the roof of Head Office. It was a humble beginning made under primitive conditions, but the innovation quickly proved its worth, and when a fourth floor was added to the building the section was allotted increased space. In addition to normal photography, photo-lithography was undertaken for production of copies of engineering drawings.

Today the printing of technical drawings is a major activity of the Section, with blue and white prints made in thousands for distribution to Engineers and Foremen on various projects. About 1,200 square yards of these blue and white prints are produced every week.

When a print is required, the Branch concerned sends a tracing to the Photography Section. The plan is backed with a special sensitized paper and

put through a continuous copying machine which "photographs" the plan on to the paper. The paper is developed . . . and there's the print! Any number of prints can be made from the one plan. Drying and trimming follows. It all sounds easy, and it all looks easy, but the process really calls for a high degree of skill. Whether blue or white prints be required the method followed is the same, but a different type of paper, and a different developing process, are used for each.

A masterpiece of the photographic art : the scene is a Victorian bush cottage.



Besides photographs of scenic value, the Section is concerned largely with the provision of pictures to illustrate progress of works, details of locomotives, carriages, trucks, machines and parts of instruments, and with all kinds of pictures (large or small) that are required for recording railway and associated activities. These pictures are taken by the Photographer and the Assistant Photographer, or by the Publicity Photographer. They are aided in developing, printing and enlarging by a trained staff of Photographic Assistants. Equipment is up-to-date and the dark rooms are air-conditioned. All pictures are indexed and catalogued, and can be made available in any size.

Several enlarging cameras are operated, one of which produces those large photos seen at The Victorian Government Tourist Bureau. Big pictures of this nature are made in four sections, and joined together later. During the war years, the Railway Photography Section made hundreds of enlargements of plans for munitions and war equipment. Plans sent out from England and America (by methods which are still secret) often arrived in a form little larger than a postage stamp. The Photographers enlarged them to standard size for use in workshops and factories: details of gun sights, plane sections, precision instruments, time fuses and other articles of war. Work went on right around the clock, seven days a week, in those grim days.

The war interfered with a scheme for renewing all photographs in train carriages, but new cars are provided with modern pictures. Altogether there are in trains about 25,000 prints, photographed, printed and mounted by the Photography Section.

More examples of the Photographer's skill - a thousand feet below ground, and around Victoria's wonderful beauty spots.



Coloured photos, often displayed at The Victorian Government Tourist Bureau, invariably excite admiration. They are coloured from ordinary prints by a lady colourist who is a fine artist. She produces, too, the coloured transparencies of Victorian beauty spots used in publicity displays. Some of her work has been sent abroad as travel propaganda. In technical training, coloured lan-



tern slides of machine and locomotive construction are used for the instruction of railway Apprentices at Newport Workshops.

One of the quietest and most unobtrusive units in the Department, the Photography Section tells all its stories in picture. Its productions are masterpieces of the photographic art.

Translating It Into Print . . .



These are the machines that printed this booklet.

HAVE you ever wondered where all the railway tickets come from, or who prints the time-tables, the posters on stations, or the folders and pamphlets that are handed out at the Victorian Government Tourist Bureau? Well, it's all part of the work done behind the railway scene.

The Railway Printing Works at North Melbourne are responsible for it all. Their job is to tell the story in print.

The first essential for printing is, of course, type. Most of it is cast on the monotype machines at the Printing Works. These ingenious machines are in two parts. The first is a contraption looking something like a typewriter. The operator presses the keys of the machine, but instead of printing like the typewriter, it punches a series of holes in a roll of paper.

The punched paper is then transferred to the casting machine, a very intricate machine that moulds type in accordance with the holes in the paper roll. Each letter or symbol is cast singly—hence monotype, as distinct from linotype, which casts a whole line in one piece, and is used in

newspaper offices. So much railway work is set in ruled, tabulated columns that it is essential that letters and symbols be separately set so that the necessary pieces of rule can be slipped in where ever they are required.

When the type is set, a proof of it is checked for mistakes. Corrections are marked, and are made by hand by Compositors. The Compositors, by the way, hand-set the larger types used in posters and also set smaller jobs.

In due course the type is transferred to the printing press. In the modern presses the paper is automatically fed into the machine.

The correct shade of ink is put on the machine, the type (locked in a forme so that it won't shift) is fixed to the bed of the machine. Then the Machinist presses a button and the press goes into action.

The rollers transfer the ink to the type and the type in turn transfers the ink to the paper and the printing is finished. Printed sheets for books are taken to the automatic folding machine. If necessary they are then stapled. The guillotine cuts off the surplus edges and the job is ready to pack and dispatch.

Where pictures are to be used, as in this booklet, the photographs are etched by a Process Engraver on metal blocks. These blocks are then placed in the forme with the type before being put on the printing machine.

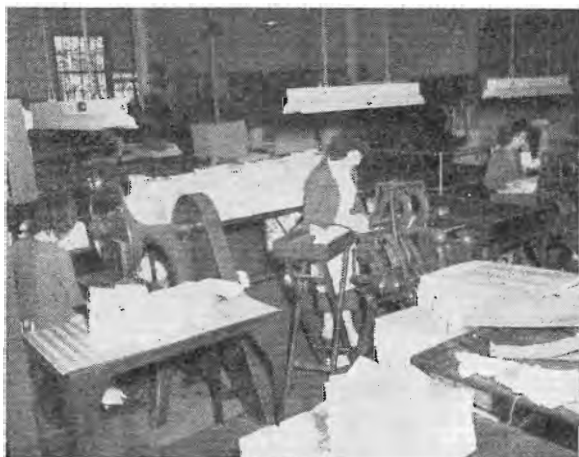
In the case of tourist pamphlets which are printed in colour, the Process Engraver makes a set of four blocks. Each block is then printed with a different ink, i.e. yellow, red, blue and black (the primary colours from which all other colours and shades derive) to give the finished result. Great care has to be taken to see that the blocks are registered carefully on the printing machine, so that each succeeding colour is printed exactly over the previous colours.

About 2 million separate pieces of publicity, including booklets, folders, handbills, leaflets and posters, are printed at North Melbourne each year.

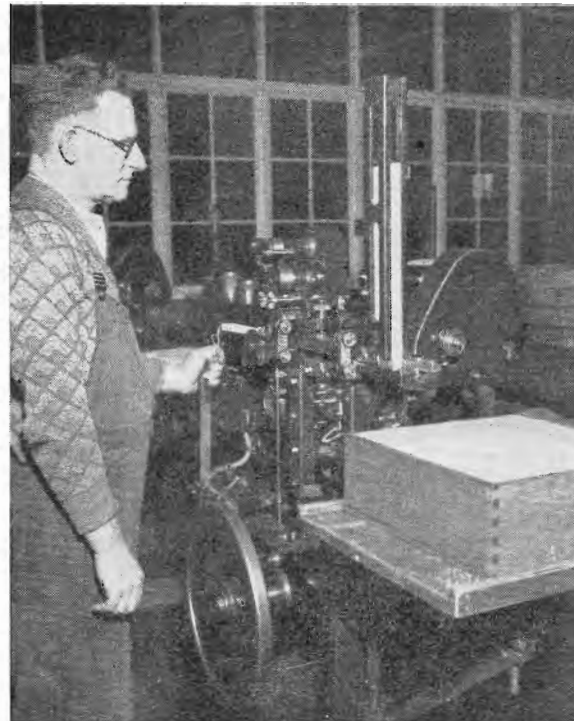


Keyboards in the Monotype section.

Stapling booklets.



A special section of the Works handles the printing of railway tickets. It makes all the base-coloured tickets used on the Victorian and South Australian Railways.



Printing the tickets.

When you buy a railway ticket you will notice that different coloured board is used for first and second class suburban tickets, and different colours again for country tickets. There are also various coloured symbols for different types of tickets, such as off-peak, special day return, change of class, and a host of others. These base colours have to be printed on the card as the first step in making a railway ticket.

The coloured boards are first cut into strips and then to the correct size. This is done on an automatic machine which has to be very accurate as the margin of error allowed is only $\frac{3}{1000}$ of an inch in thickness and $\frac{1}{1000}$ of an inch in length and breadth. The blank tickets are then printed on a special automatic ticket printing machine which also automatically numbers them. All printed tickets are again checked through a counting machine and tied in groups of 200 ready for issue to stations.

Incidentally, tickets used in Victoria are similar to those used in Britain. The man who invented this type of ticket was an English railway clerk, named Thomas Edmonson. He also invented a standard rack for holding the tickets. Both ideas were patented, and, consequently, any railway wishing to use his type of rack had also to use his size of ticket. Every year the Victorian Railways sell about 80 million of these "Edmonson" tickets.

Next time you buy a ticket or read a railway poster or pamphlet, just think of all the activity that has gone on behind the railway scene in preparing and printing them.

Helping Holidaymakers

THE aim (and achievement) of the Victorian Government Tourist Bureau is to help people. A highly trained staff of travel experts plans trips and tours and offers suggestions for holidays to Victorians themselves and to visitors from other States and overseas. All the services of the Bureau are free. Bookings are made for rail, road or air travel, seats and sleepers are reserved, hotel or guest-house accommodation secured, tourist pamphlets and folders issued, full information given on transport arrival and departure times—in fact anything and everything associated with travel is dealt with at the Victorian Government Tourist Bureau. Naturally, all these facilities are very popular and widely used.



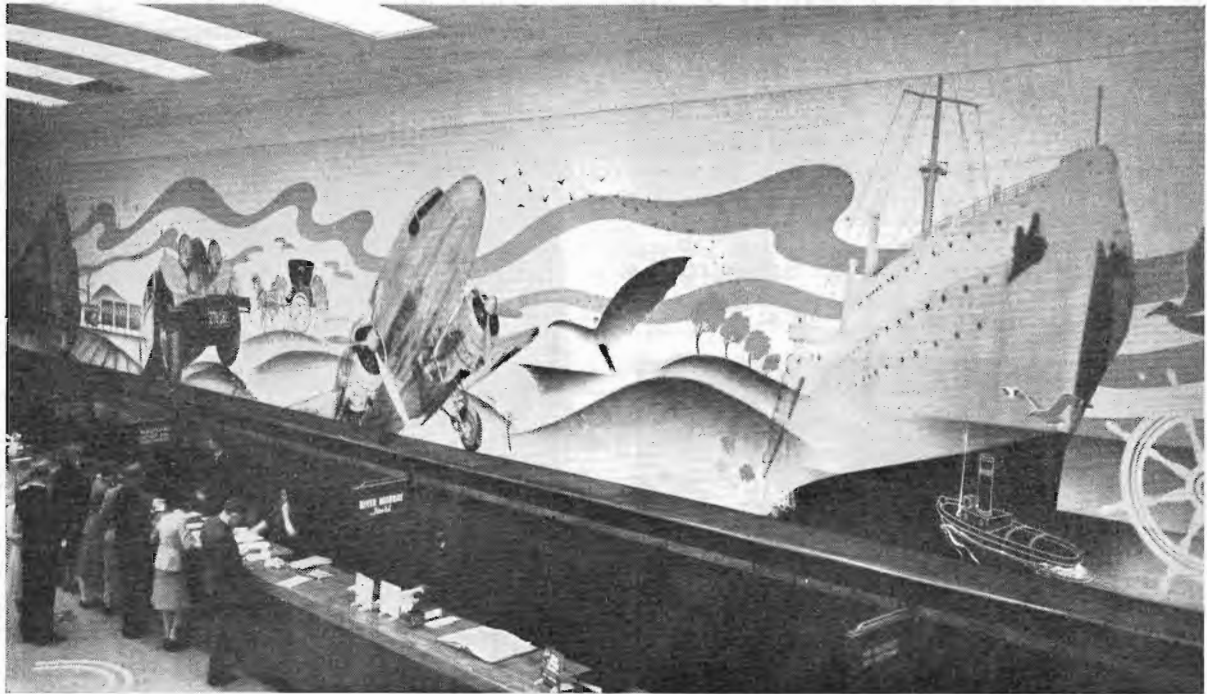
The Victorian Government Tourist Bureau, 272 Collins Street, Melbourne, where travellers are given friendly, personal service.

The Tourist Bureau was first established in 1908. For years it was located at Princes Bridge Station. After a couple of changes in address it settled at 272 Collins Street, Melbourne—and there you will find it today.

You can gather some idea of the business it handles from these figures: every year nearly a million people pass through the doors; 'phone calls alone add up to about 900,000 a year!

Branches of the Victorian Government Tourist Bureau have been established in Victoria at Geelong, Ballarat, Bendigo and Mildura. There are interstate offices in Sydney, Brisbane and Adelaide.

Quite apart from the valuable service given to tourists and holidaymakers, the Bureau plays a big part in making Victoria a popular tourist resort. The tourist attractions of a State are a valuable trade potential.



The Victorian Government Tourist Bureau mural is symbolic of travel.

The work of the Victorian Government Tourist Bureau has been of inestimable value in beginning and developing various phases of tourist activity, and to a large degree the popularity of Victoria as a tourist resort has been brought about by the Bureau's efforts.

The Chalet

The Chalet at Mt. Buffalo National Park is regarded as one of Australia's finest tourist hotels. It is owned, controlled and maintained by the Victorian Railways.

Until 1924 The Chalet was leased by the Government to a private individual. Then the Railways took it over, enlarged and improved it, and it has become world famous. Its situation and the grandeur of its surroundings are unique in Australia.

Mt. Buffalo National Park is aptly called "Australia's Mountain Playground." In winter it is covered deep in snow, and skiers flock there from all parts of the Commonwealth. It was once considered

purely a winter resort, but now it is popular all the year round; the clear air, the sun-drenched ground and the lavishly-blooming wildflowers stamping it as an exceptionally lovely holiday resort.

The Chalet provides first-class accommodation, and is equipped with every comfort. A special section includes large bed-sitting rooms, each with a private bathroom attached. Although The Chalet is centrally heated, log fires add a cheery touch. Hot and cold water are laid on to every room. The food is superb.

In the evenings, bridge and other card games, dancing, billiards, table tennis and talkie pictures while away the hours.

Mt. Hotham

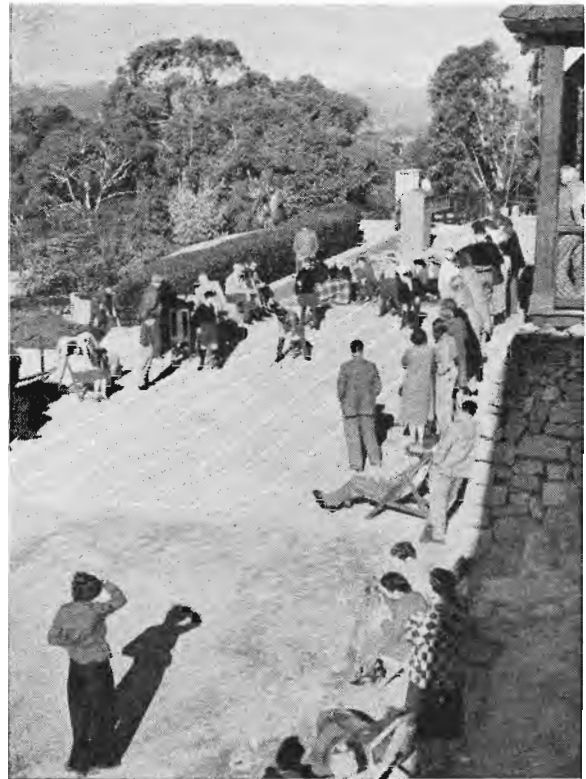
Mt. Hotham offers the finest skiing in the State, but is not quite so accessible as Mt. Buffalo to beginners. The journey is made by rail to Wangaratta, car to Harrietville, on horseback to the snowline, and thence by ski.

Accommodation for 30 guests is available at "Hotham Heights" which is run by the Victorian Railways. It is 6,000 feet above sea-level and surveys an inspiring alpine panorama. Special features include a spacious lounge-dining room, drying room, sun deck, central heating throughout, hot and cold water service, electric lighting, sewerage and other amenities. There is a continuous trunk line telephone service.

All in all, it can be seen that the Railways play a very large part in helping holidaymakers, quite apart from the transport they provide.



Left : View across the mountains from Mt. Hotham. Below : On the terrace at The Chalet, Mt. Buffalo National Park.



RAILWAYMEN MAKE . . . ICE !

OF the 500-odd occupations filled by railway men and women, making ice is among the most unusual. The Railway Ice Works, on the fringe of the Melbourne Yards, produce about 3,300 tons of ice between September and April each year, for use in the 417 refrigerated "T" trucks. During half a century they have played their part in making a much appreciated service available to railway patrons.

Iced "T" trucks are used principally to carry butter, cheese and meat, but they are also invaluable when export fruit is to be moved from cool stores to ships.

The Ice Works men make the ice, clean the "T" trucks thoroughly, and load the ice into the storage bins. It is a 7-day a week job, with 30 trucks a normal day's

work. As many as 88 trucks have been got away in one day. This record performance was put up during the 1946 fruit season when the "ice men" worked from 8 a.m. to midnight, despite pouring rain. They are rightly proud of that effort.

Ice is made in long moulds which are filled with water and frozen in brine by carbon dioxide. Each "batch" takes about 16 hours.

When frozen, the blocks are taken up by lift into the store-room, where 120 tons are always held as reserve against plant breakdown. However, good maintenance ensures that breakdowns are rare, and once the machines have been started, they can be relied on to run for 24 hours daily during the whole season, with never a stop.



And Speaking Personally

Being an Engine Driver is a traditional ambition, but today's youth looks enviously at the Diesel Rail-car Driver.

SCARCELY a day passes without some lad applying to become a railwayman. There's a special fascination about "the Railways" quite apart from the good pay and attractive prospects railway careers offer. At present many Victorian railwaymen belong to the "fourth generation"—their great-grandfathers, grandfathers, and fathers all having been in the service. The number of three generation and two generation railway families is countless. Figures kept by interviewing officers show that one lad in every two joining the Department does so because he has a relative or close friend in the service. The 27,000 Victorian railwaymen cover about 500 different grades—Engine Driver, Engine Cleaner, Fireman, Printer, Clerk, Signaller, Shunter, Guard, Stationmaster, Porter, Mechanic, Welder, Blacksmith, Doctor, Engineer, Chemist, Journalist, Photographer, Electrician, and a host of others.

A continual intake of bright young men keeps the Railways fresh and active. After reading this little book, you've some idea of how "alive" the Department is. And you realize too (maybe for the first time) that the apparently simple operation of carrying passengers and goods calls for an enormous amount of skilled work "behind the railway scene," by this small army of railwaymen in such a wide diversity of occupations.

Needless to say, the Railways are always willing to enrol intelligent youths as trainees in this highly specialized rail transport business.

Apprentices, Junior Clerks, Junior Porters and Lads for Workshops are given the opportunity to rise to the highest technical and administrative positions. They are trained at the Department's expense. Every year, outstanding Apprentices are awarded scholarships to the University and recognized technical colleges.

Among the advantages of a railway career are security of employment, permanent appointment



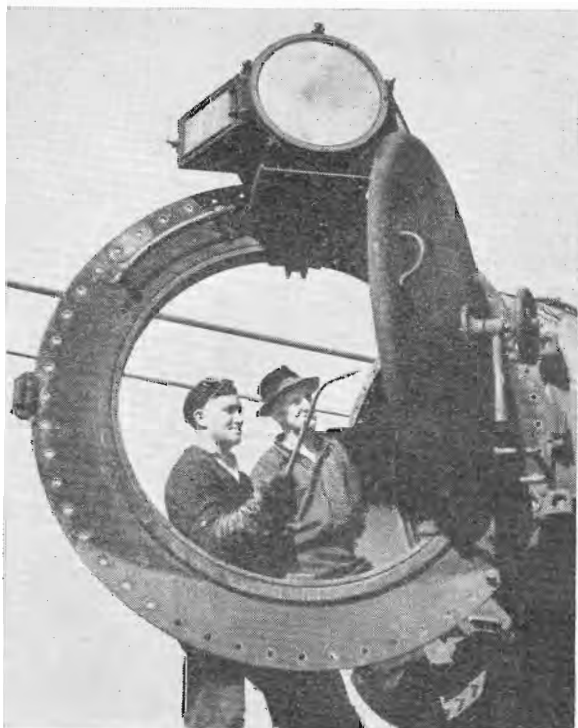
Young railwaymen learn telegraphy at the Victorian Railways Institute.

with full superannuation benefits after two years' service, generous sick leave, liberal recreation leave, long-service leave (6 months after 20 years' service and 3 months after a further 10 years), rail travel to work at half-fare, and a free railway pass on annual leave for both Victorian and interstate travel. Rates of pay compare very favourably with those offered in all Government departments.

But these are only a few outline facts—if the idea of a railway career appeals to you, get in touch with the Secretary for Railways. If possible, call personally at Room 225 on the 4th Floor of the Railways Administrative Offices, Spencer Street, Melbourne, C.I. Or you can write for information.

By the way, there are railway jobs for young ladies too, as Typistes, Stenographers and Powers Machinists, to name only a few.

For the youth of Victoria, in fact, both lads and lasses, there are worth-while jobs waiting: careers in which they can proudly take *their* place "behind the railway scene."



Railwaymen overhaul a locomotive.



The Goods Guard comes on duty.



THIS special issue of *Behind the Railway Scene* has been printed for every member of the staff, so that, primarily, he or she may have a better idea of what the other man does.

But there is another aspect. So much goes on daily in a railway system, and so many questions are asked about it, that most Victorian railway people will, it is believed, welcome the information this little book gives, if only to answer the questioner intelligently or put the doubter right.

• Interesting Facts

THE Victorian Railways are designed and operated to create wealth for the whole community.

When the State Government took over complete control of all rail transport in Victoria (1878), the railway mileage totalled 967. By 1891, 2,800 miles were open, rising to 3,396 miles in 1908 and 4,687 miles today.

The railway network is so widely flung that practically no area of arable, pastoral or non-mountainous land in Victoria is more than eight miles from a line.

The electric suburban service covers 173 route miles (438 single track miles) with lines radiating through every suburb of the metropolis, the longest being to Frankston, 26½ miles from the city. Electrification was begun in 1913, delayed by the First World War, and completed in April 1923.

Each year, about 200 million passengers are carried over the Victorian Railways system, in addition to 7 million tons of goods and 12 million head of live-stock.

The safety record of the Department is outstanding. Safeworking practice is equal to the best in the world. Interlocking and block systems were introduced more than ten years before they came into general use in the United Kingdom.

Of more than 3,000,000,000 passengers carried by the Railways in the last 20 years, only one has been killed in a train mishap.

ISSUED BY THE VICTORIAN RAILWAYS COMMISSIONERS.