BYWAYS OF STEAM

6

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6

On the Railways of New South Wales

Eveleigh Press

Front Cover: *Over many decades most railway enthusiast tours have departed from Sydney station. Here, engine 3642, in black livery, leads a New South Wales Rail Transport Museum special tour train to Otford through Sydney yard on Saturday 12 December 1970, passing West signal box. Sydney station's sandstone clock tower can be seen in the background at left of picture. Also at left is diesel-electric shunting locomotive 7923.* Fred Saxon

Back Cover, Above: *In the 1960s, ten or eleven regular passenger, mixed and goods trains passed through Carcoar on a daily basis, with three or four on Sundays. Standard Goods and 32 class engines worked most of these trains, while 30 class and later 36 class joined in on occasions. On Sunday 12 February 1967, 5400 leaves Carcoar behind and heads for Cowra with a mixed, fuel tankers forming the major part of the load.* John Ward

Back Cover, Below: *The 60 class Beyer-Garratts commenced service in New South Wales in 1952. By the early 1960s, these locomotives could be seen all over the state, the Illawarra beyond Waterfall and North Coast lines excluded. Fourteen years after delivery and with some modifications to the original design, 6032 was still at work on heavy mainline haulage. In July 1968, 6032 attacks the 1 in 66 toward Exeter, whilst hauling No.309 goods to Goulburn.* John Ward

A feature story this issue details some of the intricacies of that great railway terminal, Sydney station. This view, taken from the newly completed clock tower in the early 1920s, before the construction of the flyovers for Central electric platforms, contains many items of interest. R and S class (18 and 30) are shunting the yard, a P (32) class is waiting in the siding between Nos 2 and 3 platforms, East carriage shed appears brand new, and there is a general air of bustle which is absent from today's haven for interurban electrics and diesel multiple units. SRA

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Introduction

Our earliest railways were constructed to improve communications between existing centres of population - Sydney with Parramatta, Liverpool, Goulburn and Bathurst; and Newcastle with Maitland and Singleton. However, it was not long before the railway came to be extended beyond the frontiers of civilisation (such as it was in a developing colony), and used as the primary tool of land utilisation. Politicians saw the benefits which would accrue to their electorates if they were connected to the metropolis as a trade outlet, and clamoured for the extension of the iron rail to ever more distant areas. In this way, the railway rapidly pushed beyond the established frontiers and became itself the prime agent of settlement. In heading across the Breeza Plain into the north-west, beyond Dubbo to an envisaged connection with the Darling River, and west from Junee and Cootamundra into the Riverina, many small towns were established which owed their whole existence to the workings associated with the railway.

Three larger towns of this type spring to mind: Junee in the south, Parkes in the west, and Werris Creek in the north. Each of these was primarily established as a railway junction and depot, and was distinct from nearby pastoral towns (Cootamundra, Forbes and Quirindi). In these great railway centres, the majority of the population was employed by 'the Department' and those who weren't so employed acted in many ancillary roles. The range of employment activities in such towns was great: myriad office jobs, a full range of trades, the many specialised railway-oriented tasks, and so-called unskilled jobs were all available: from humble porter to lofty station master, call boy to senior salaried driver, telegraph boy to senior signalman, train control officer, apprentice fitter to District Locomotive Engineer, track gang to District Engineer, 'ref girl' to senior catering officer. People holding all these positions formed a great community of interest in the town, and prosperity on the railway meant prosperity for the town's commercial entrepreneurs. Conversely, a bad season meant drastic reductions in rail traffic, leading to fewer working hours, less pay and generally less prosperity, although an inescapable minimum of railway activity had to be maintained and income so generated cushioned the hard times rather better than was achieved in towns without the railway base.

Besides these great railway towns, there were smaller settlements which derived almost their whole purpose for existence in the comings and goings of trains. Such a one was Merrygoen, a tiny speck in the scrub, junction for trains from Dubbo, Mudgee and Binnaway. Here, the post office, the general store and the pub were the only neighbours of the railway station and the goods yard, with its great wheat silo. Social life was restricted to a few souls, all of whom knew intimately the ways and foibles of the trains. The great event of the day was the arrival of the down Mail in the morning and its corresponding return on the up in the evening: the only connections with the outside world in the days before passable roads. Time was measured in railway terms, and tasks were undertaken in the rhythm dictated by the timetable of the trains.

With the advent of road and air transport and the shrinkage of the railways' role, such towns have rapidly succumbed to the march of progress. New technology on the railway has eliminated the labour-intensive locations of the past, and long stretches of country railway are without permanent staff, maintained today by travelling gangs based in large towns. The general urbanisation of our society means that towns such as Merrygoen, Binnaway and others will simply die, bereft of any meaningful existence. The larger railway towns are already shaping their futures in other directions. The era of 'the railway town' is over.

Ian Dunn

Left: *As coal movement in the Hunter Valley moves into another phase, with 2800kW locomotives and 120t hoppers, we pause to remember how it used to be, not so long ago. An aerial view of Port Waratah coal sidings in 1969 finds Nos 6, 3 and 4 Nests, on the left of the photo, full of four-wheel, non-airbraked wooden hoppers of a type then almost a century old. On No.5 Main track in the centre, a lone wheat train, made up principally of four-wheel RU hoppers, with half a dozen more modern bogie BWHs interspersed, is awaiting forwarding on to the wheat sidings at Bullock Island (out of picture to the top right.) On the newly constructed sidings in the centre, next to No.2 Nest, is a single empty train of the new era in coal transport, the curved-side, bogie CH type aluminium coal hopper. Nos 1 and 2 Nests remain wedded to trains of four-wheel non-airs. On the right is Port Waratah Locomotive Depot, home to generations of coal-hauling locos, and particularly associated with the 'wet T', the saturated D50 class 2-8-0.* *Dale Budd*
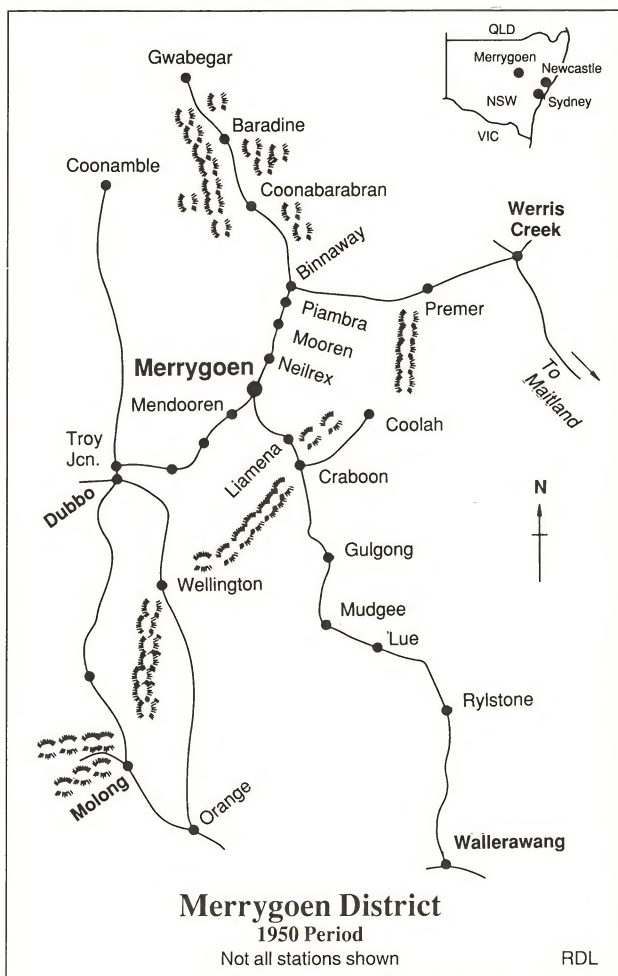
Above: *By the 1950s and 1960s, the 32 class, as well as the 30 class tender engines, worked most trains in the Mudgee, Merrygoen and Binnaway area of the state, having displaced old 12, 23, 25 and 29 class engines some years previously. On 12 December 1966, 3322 works the regular pick-up goods, No.42, through Liamena, heading for Dunedoo and Mudgee.* J.S. Glastonbury

Merrygoen District
1950 Period
Not all stations shown   RDL

Above Right: *The small township of Merrygoen is about 250 miles north-west of Sydney. The railway reached the town in 1917, and by the 1950s passenger services were provided by the locomotive-hauled Mudgee Mail or rail motors and railcars, sometimes both on the same day. In 1974, passenger train operations ceased in the area.*
In 1989, some 40 years after Wal Jenkins left the tiny town for greener pastures, not much has changed at the station. Large wheat silos on the left, a single water column between the loop and the platform road, with the station master's house at the far end of the platform and the elevated water tanks behind the station building were all present forty years ago. The approaching storm will obviously disturb the peaceful setting. R.D. Love

The ASM
Learning The Job

Wal Jenkins

Merrygoen

To me, the name Merrygoen only represented a dot on a railway map, situated north of Mudgee on the Gwabegar line and junction station for the line leading west to Dubbo. This was the total knowledge of my appointment; even the very name conjured up all sorts of questions. Later on I found out that the name was of Aboriginal origin meaning *a bleeding nose* or *dog's blood.*, a meaning which assumed significance for me soon after my arrival.

On arrival in Merrygoen, I was met by the sight of a small township consisting of a pub, shop, stock and station agent, hall, post office, school, tennis courts, half a dozen houses and one lazy dog.

Being young and carefree, the question of living arrangements hadn't occurred to me prior to leaving Orange, so I was in for a rude awakening as to where to lay the head down. On stepping from the carriage, I was met by the station master, Norm Warne, and a porter who was relieving in the position awaiting my appointment. My first question to the boss was, "Where do I live?" Both men gave a fiendish cackle and pointed up the track to a wooden building called the barracks.

These barracks were only used occasionally by train crews stopping overnight on a return run from either Mudgee or Dubbo. The building consisted of one large room fitted out with four beds, a separate galvanised shed used as a kitchen, and an adjacent room which acted as a laundry. The laundry was never used and was inhabited by very large rats. There was always one spare bed because train crews were made up of only three men, so no matter when they were there, I always had a bunk to sleep on.

The assistant station master, Keith Sewell, was already ensconced in the barracks so I had a 'batch' mate. As luck would have it, Keith was a good cook with experience gained in the army during the Second World War. Meat was obtained from a butcher's shop at Mendooran, the next rail stop on the Dubbo line. A phone order produced our meat, which was placed on the rail motor ('Tin Hare') the same day.

Our ordinary supplies were bought from Mrs

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The 600/700 class two-car die-sels were introduced in 1949 to replace many steam-hauled passenger trains then in use on country branch and link lines in NSW. In 1954, Australia was again visited by royalty, and thousands of NSW school children were transported from country areas to the cities, by rail, for a fleeting glimpse. Merrygoen station was recorded for posterity with the first ever use of four sets of coupled two-car diesels, being used in the transportation of some of the kids from the western areas to Dubbo. SRA Archives

Smith's local store, the proverbial country store where just about anything could be purchased on credit. Mrs Smith was a widow with a daughter, Wilga, and between them they ran a very successful little business. Wilga later married a good friend and shooting mate, Ron Ingram, from Binnaway.

Mrs Thorley, the wife of the local ganger, was paid an allowance by the Department to clean the barracks after a crew had stayed overnight and she didn't mind us living in the building. Officially it was not allowed, so in return we kept the place spotless.

Keith and I lived in these barracks for quite a few months until he decided to move into the Railway Hotel, situated across from the station. I batched by myself for many weeks until I got sick of my own cooking which, I can assure you, was pretty much basic corned beef and spuds.

After a short time, the not-too-big decision was made and I too, like Keith, shifted camp and moved into the pub and stayed there for the duration of my working time at Merrygoen. It was a typical outback hotel, consisting of the ground floor bar and lounge, with a separate kitchen building next to a large underground water tank. The toilets were of the pan variety and were placed down near the back fence, well away from the building because of the smell.

The guest rooms were all on the first floor and provided for permanent and casual guests. There were only the two floors, with the first being reached by a staircase leading from the front door.

I was allocated a room on this floor not far from the bath-

Merrygoen

Merrygoen is situated in the Parish of Mendooren, Napier County. Merrygoen Public School was opened in October 1867, whilst the local Post Office opened in 1879.

Merrygoen is 259m. 49 chains by rail from Sydney, via Mudgee and 349m. 46 chains via Dubbo. The nearest large towns are Dubbo (62 miles) and Mudgee (68 miles), with the small town of Binnaway some 26 miles to the north. The station is on a 1 in 733 rising grade toward Binnaway, the platform is 250 feet long and is 1338 feet above sea level.

By the 1950s, yard facilities included a five ton gantry crane, a 20 ton cart weighbridge, a goods shed (30' x 15' wide) and a wheat silo, with a capacity of 90000 bushels. The crossing loop is 1407 feet long.

Steam locomotive service facilities included two 9" water columns at the Binnaway end of the platform, serving both main line and loop line. In addition, a short engine siding led off the main line at the Binnaway end, on the up side of the line. A coal stage, ash pit and a 60 foot diameter steel turntable, along with a small timber barracks with laundry, were located on or near this siding. The final turntable in use at Merrygoen was a cone roller race, 'Newcastle' type, number 1647.

Merrygoen barracks were used during wheat and stock seasons. Both Dubbo- and Mudgee-based crews went to barracks there whilst their trains were loaded in the yards. In the 1930s, regular goods and special stock trains were rostered to work from Mudgee to Merrygoen and return (with 23 class engines), with the crews using the local barracks.

Merrygoen came to a form of prominence in 1954 when, at the Locomotive Officers' Conference held in the Chief Mechanical Engineer's Office in Redfern, attention was drawn to the first-ever use of four sets of two-car diesel units (600/700 class) coupled. They ran through Merrygoen in conjunction with the royal visit for that year.

In 1977, tenders were called for the demolition of the crew barracks.

At the time of writing, and 41 years after Wal Jenkins departed Merrygoen for wider fields, the station building and the town remain much as they were then. The goods shed has long gone (as are most goods sheds in NSW), and some sidings are placed out of use. The loco area is a sorry sight. The turntable is intact, but welded 'shut' to prevent movement. The only evidence of the small buildings once there, is the ruined foundations in the long grass. The trackwork is spiked out-of-use.

R.D. Love

PLAN OF
MERRYGOEN
1950 PERIOD
Not to Scale

To Gwabegar

Stock Races

Siding

Line

Stock

Siding

Kitchen/Laundry

Tank

Barracks

60' Turntable (1929)

Ash Pit

Coal Stage (removed)

Sdg.

Engine

Street

Sports Ground

Silo

Silo

Tennis Court

Leading Hand's House

Columns

Stationmaster's Residence

Ganger Thorley's House

Stock & Station Agent

Water

Ash Pit

Water Tank

Post Office

Road

Back

Loading Bank

Siding

Station Building

Signal Box

Railway Hotel

House

Goods Shed

Goods

Stock & Station Agent

House

Shop

House

Gantry

Loop

House

Tennis Court

House

Crossing

House

Main

Denman

Weighbridge

From Dubbo

From Mudgee

DGT

Merrygoen barracks in 1949. Wal moved from these sparse facilities to the relative luxury of the Railway Hotel, improvements in the food being one advantage.

Wal Jenkins

The Railway Hotel in Merrygoen. This fine old structure is a typical representative of a rural pub and many hundreds all over the country were named such as this, possibly indicating the major source of the clientele. In Wal Jenkins' days there, the small building on the immediate left of the hotel was the added-on dining room, with Sam Yeo's Stock and Station Agency and Mrs Smith's General Store at the far left of the photo. This view is from near the Mudgee end of the platform; the goods siding is in the foreground, with the 'back' road (stow road) beyond. Graham Ball

room and which overlooked the kitchen below. This suited me fine as tucker was one of my main interests as a young bloke, and I always seemed to be hungry. It wasn't too far to duck down the stairs and fill up with good home-cooked meals which surpassed my corned beef delights.

The lady cook was a large woman with a short temper, who had to swelter over a big, wood-fired range to provide the many goodies which emanated therefrom. She must have been a widow, as she had

a young daughter to provide for, and many a shouting match erupted from the bowels of that kitchen.

My room also overlooked the backyard, with the best rooms facing the open spaces beyond the small village. The only problem with my room was the fact that it was situated above the bar and I had many a sleepless night when brawls erupted below. The normal drinking noise was more of a drone but at times these drunken fights spilled out onto the roadway and, of course, as we looked down from the

On the balcony of the Railway Hotel in Merrygoen. It is obvious that raking the platform or scrubbing the floor of the 'Gentlemen's' is not on Wal's mind. Local sport activities were important in those small country towns.

Photo Courtesy Jenkins Family

When Porter Class 1, Wal Jenkins, arrived at Merrygoen in late 1948, he took up residence in the loco barracks, located a few hundred yards from the end of the platform towards Binnaway. Old 2-6-0 2705 runs into Merrygoen yard from Binnaway to work a tour train in 1961 and the barracks can be seen on a slight rise to the rear of the tender of the engine. That area was in effect Merrygoen loco siding. The points leading to the turntable, ash pit and barracks are to be seen to the right of the engine. R.D. Love

2705 steams into Merrygoen yard in 1961, rostered to work a tour train over to Dubbo. A local property is to be seen behind the tender of the engine. The property was adjacent to the old barracks where Wal boarded in his early days in the town.

Doug Askew

verandah on the first floor, we shouted encouragement to the combatants.

The next day, when everyone was sober, all was forgotten and the rivals, wives and all, became good friends again. I was always a non-drinker but my position was respected and I fitted in with everyone.

The cleanliness of the station and surrounds was my responsibility as the junior member of the staff. This entailed removing cobwebs from the buildings, scrubbing all floors with sandsoap when required, keeping both men's and ladies' toilets clean and free from nasty odours by the liberal dousing of Phenol disinfectant, cleaning all windows with Bon Ami, polishing signal levers and all brasswork with Brasso, raking the gravel platform free of debris and the general upkeep of a typical country railway station.

The cleanliness of the station, whilst very important for appearance's sake, only played a minor role in relation to safeworking duties. This was the main reason for my appointment as a Porter Class 1 (otherwise known as a porter-shunter), and the shunting of trains was an important and vital part of work at Merrygoen.

As we were a junction station on the Mudgee to Gwabegar line, the consist of trains had to be shunted and remarshalled for despatch to Dubbo and all points west. The main traffic consisted of: stock trains, both sheep and cattle, from all directions; timber trains from Gwabegar and sidings in the north; mineral trains from Broken Hill (containing trucks of concentrate, a wet mixture of zinc, lead,

The Mudgee Mail served almost all stations between Lithgow and Gwabegar, a distance of 278 miles. The train was allowed 12½ hours for this portion of the trip, the average speed of 22mph being quite acceptable in days gone by. On a bright, sunny morning in 1967, 3001 departs Craboon and heads for Merrygoen and Binnaway. The daily pick-up goods (No.42) is standing in the loop.

R.D. Love

On 3 June 1967, 3001 leads No.63 down Mudgee Mail into Merrygoen yard, two twelve-wheelers and a van making up the load on this day. The scissors crossover and the up starting signals (mounted on a wooden post) were later replaced by less interesting installations.   J.S. Glastonbury

Merrygoen yard viewed from the down home signal, looking towards Binnaway and the north. The track in the foreground is from Mudgee, the track on the left is the Dubbo line. An unprotected dirt road crosses the yard, giving vehicular access to the station. The home signal for the Dubbo line is adjacent to the fettler's shed and by the 1990s, the scissors crossover between the two lines has been replaced by separate crossovers. In years past, the large flat area between the railway and the town was the wheat stacking area. The yard, silos and station buildings are on the right.   Graham Ball

A view in the opposite direction to the previous photo, also from the home signal for the Mudgee line. The difference in levels for the two converging tracks is apparent. The Dubbo line curves sharply away to the right and is actually situated beyond the large tree at the extreme right of the photo.

Graham Ball

The southern end of Merrygoen yard, with Frame D on the left, controlling access to the yard from either the Mudgee or Dubbo line. A separate frame, unlocked by a key obtained from Frame D, controlled the goods siding and back road, is seen to the right.

Graham Ball

The northern, or Binnaway, end of Merrygoen yard. In years past, wool and clay were loaded from the ramp adjacent to the goods road on the left. The wheat silos are situated on a separate silo road, an extension of the old stock siding. The loop and mainline (platform) roads are to the right.

Graham Ball

Left: *There is a cricket match at Neilrex, some eleven miles to the north. Porter Class 1, Wal Jenkins, poses beside a KF four-wheel flat truck loaded with bags of wheat in Neilrex yard more than forty years ago.*

Photo Courtesy Jenkins Family

Right: *In June 1967, the down Mudgee Mail stands in the platform at Merrygoen. Double water columns were a feature, serving both main line and the loop, and an ash pit was also located adjacent to these columns.*

J.S. Glastonbury

Below: *There was an art to the loading of bagged wheat into an open wagon. The post-1945 S wagon is shown loaded and roped but not-yet tarped.* SRA

Below Right: *This scene shows the activity of loading bagged wheat into steel S wagons from a horse-drawn dray. The neat packing of the sacks, to ensure that the load does not move, is clearly shown.* SRA

etc.) and train loads of wool and wheat.

Sometimes, the Mudgee Mail, on its way north, would have a cattle truck marshalled next to the engine. This four-wheel truck was either for us or for despatch to the Western line and had to be detached and placed on the stock road near the stock yards. My responsibility included, not only the shunting of this train by myself, but assisting guards to shunt all trains as required.
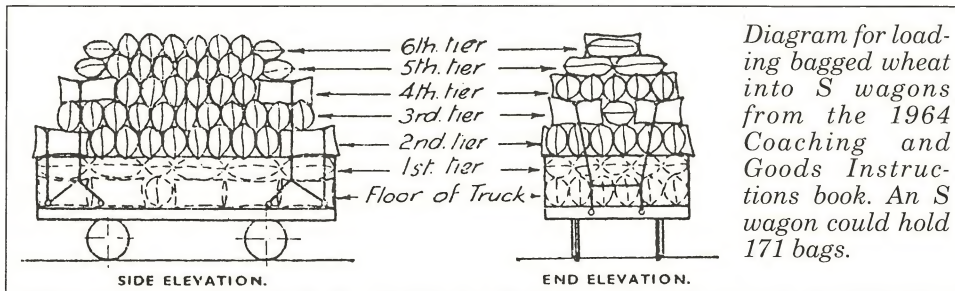
Keith Sewell, the ASM, came on duty at 3pm and carried out any shunting work after I signed off.

Empty trucks had to be supplied from either south or west to enable local loading to take place. A neighbouring open cut mine despatched S trucks of clay to Newcastle for refinement into firebricks, etc. The mine provided well-paid jobs for local people.

Trucks were also provided for the loading of wool, bagged wheat and bulk wheat from the silo. The layout of Merrygoen yard was arranged to provide tracks for the loading of bagged wheat from a huge wheat stack, bulk wheat from a large concrete silo, clay from the open cut mine, and loading and unloading from the stock yards.

The main line was, of course, next to the platform and station building. Adjacent to the main line was the long loop line, with both lines facing the township. This loop was for the purpose of allowing trains to cross each other on the single line system.

Next to the loop line was the goods road, which was a general purpose line that ran the whole length of the yard. At the western or Dubbo end was placed the bagged wheat dump and, as this line ran north, a goods shed was placed opposite the men's toilet at the end of the platform. From the goods shed, the line continued to opposite the station itself, where a wool loading ramp was situated and where the clay was also loaded.

6th. tier
5th. tier
4th. tier
3rd. tier
2nd. tier
1st. tier
Floor of Truck

SIDE ELEVATION. END ELEVATION.

Diagram for loading bagged wheat into S wagons from the 1964 Coaching and Goods Instructions book. An S wagon could hold 171 bags.

S 18437

This goods line then passed next to the wheat silo, continued to the stockyards and was then known as the stock siding, ending in a dead end.

A gantry crane straddled the goods line and was used to unload machinery, etc. from incoming trucks, as well as to load any outgoing traffic. It worked by means of an endless chain acting as the lifting device and was pulled by hand. It was a slow process but quite heavy loads could be shifted.

The little goods shed was mainly used for the holding of small consignments and was badly rat-infested. Most incoming small consignments were unloaded from trucks as the train waited at the platform road and were placed in what was known as the 'out-of' room, next to the station master's office. Many were the trucks of cartoned beer that had to be unloaded and placed in this little room awaiting the arrival of the publican. Many a carton was 'accidentally' dropped to provide refreshment

for the boys! The men at Merrygoen were never guilty of this dastardly act. Pilfering became so rife in those days that railway detectives were known to ride in trucks in order to apprehend the rascals and, in many cases, the culprits were the train crews themselves. Tobacco consignments were loaded into a brakevan in Sydney and were accompanied by a special guard to make sure they arrived safely at their destination.

To continue with the yard layout, a very long 'stow' road was situated behind, and about 20 yards across from, the goods line and passed next to the boundary fence opposite the Railway Hotel. This line was mainly used to remarshall trains ready for despatch and also to stow trains in the event of there being three trains in the yard at the same time.

An approach road on the western end of the railway yard gave access to all incoming lorries with loads to despatch. Near the entrance gate, a small offshoot road led onto a weighbridge and, as I was a qualified weighman, I had to weigh some incoming traffic prior to its being loaded.

Our station was the main junction on the Mudgee to Gwabegar line for trains to be diverted to the west to Dubbo. It was part of my duties to do this diverting by means of opening a set of points which was not connected to the main station signal box. This entailed a lot of walking and, on scorching hot days, a great thirst was generated which had to be quenched at the rain water tank from which, I might add, sometimes popped out parts of frogs.

As all signals had to show a light at night, this meant that, once a week, all cisterns had to be refilled with kerosene, glass lenses cleaned and polished and the wicks trimmed or replaced. These refilled and cleaned cisterns had to be taken out to all the signals by means of a three-wheeled tricycle which had room for six cisterns on the back tray.

This trike was literally moved along by a push-pull rowing action and, at great risk to life and limb,

Diagram for loading wool bales on U, KC and K wagons from 1964 Coaching and Goods Instructions.

fair speeds could be reached, especially downhill. Naturally, each signal lamp rested on top of a very high wooden post and access was gained by climbing a rickety iron ladder. Each wick was lit before the climb began and, sure enough, when the top was reached, the light had blown out!

A gale seemed to develop every time it came around to 'lamp day', so I became very adept at relighting the wicks by means of a match poked in the end of a dry stick and shoving this down onto the top of the wick. Now and again, and to keep the traffic inspector off my back, I'd give the magnified Fresnell signal lamp lenses a good clean with spit and elbow grease. These lenses magnified the tiny kerosene light which shone through large red and green shades.

The system of safeworking for trains on the single line track that ran through Merrygoen was called, in railway language, 'Electric Staff'. As trains ran both ways on the single line, a system was devised that only allowed one train on any section at one time. The whole of the single line track was divided into sections, with either a manned station or an unattended signal box at the end of each section.

At each station, or box, an electric staff instrument was placed and was electrically interlocked with the instrument at the next location. This instrument stood about 5' high and contained a number of staffs fitted into slots in metal columns. Only one staff could be withdrawn at a time and each train driver carried this staff to the next station, knowing that as long as he carried this token, no other train could be in the section with him. When he reached the station in advance, he placed the token in the instrument and obtained another one for the next section, if it was not already occupied by a train.

When both signal boxes at either end were manned, it was required that the officer or signalman had to depress a button to enable the person at the other end to withdraw a staff. It was possible for the instrument to be turned to automatic working, so as to enable the withdrawal of tokens when the box was unattended. The tokens in the instruments were about 14" in length, whereas on the North Coast the tokens were only about 10" long and were known as 'miniature staffs'.

A great many trucks of wool were loaded in the yard and, where possible, I assisted with the placing of each bale in its respective position in the truck according to a wool loading diagram. Each bale was loaded from the floor up, in tiers which narrowed as each tier rose. This ensured an interlocking of bales which had to withstand the rough haulage by train.

A belly rope was placed around the middle tier of bales and, by means of a 'sheepshank' knot tightened by brute force, meaning me, or sometimes tightened with the aid of a motor lorry. Cross ropes were placed over the load and the whole truck was covered by two tarpaulins. Tie ropes secured these tarps and a cardboard ticket was placed on either side of the truck showing sending and destination
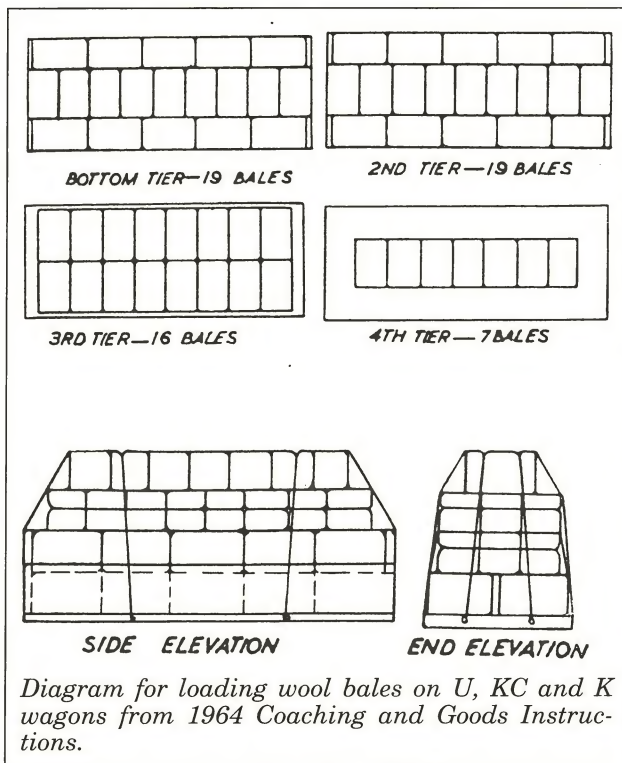
stations, consignor and consignee names, and the loading date.

I had no idea that tarpaulins were so heavy until it came time to cover my first truck of wool with them. The idea was to place a ladder against the side of the truck, pick up the tarp and climb the ladder. This act sounds easy enough but the main problem was that I couldn't even lift the bloody thing off the ground, let alone climb the ladder with it!

The problem was solved by placing a rope around the tarp and hauling it to the top. It only took me a few weeks to build up enough strength to lift and carry them and from then on they posed no problem. Incoming trucks sometimes were covered by tarpaulins and these had to be taken off and rolled up in a proper way to ensure that they could be handled ready for placement on loaded trucks of wool. If a surplus of tarps occurred, we were directed by the office at Orange to send them to whatever station had requested some. A report had to be made up and sent to the controlling office each morning and contained details of all tarpaulins and ropes on hand. If we were short of either they were ordered, and if there were some surplus they were despatched.

Live poultry and turkeys were another important item that was despatched to the 'big smoke'. These unfortunate birds were loaded into bamboo crates, small for 'chooks' and large for 'gobblers'. The empty crates also had to be ordered from the Truck Clerk in Orange and were sometimes in short supply, depending on the season.

Another type of consignment that was despatched from our small station was dried kangaroo hides made up into bundles of ten or more. The hide dealer in Sydney would clean and tan them and eventually they ended up in the making of shoes. There was an official quota system existing in those days by which only a certain number of 'roos could be shot, a type of culling that still exists to this day. The police turned a blind eye, however, to the shooting of kangaroos in plague proportion but were very strict in making sure that the official quota for the district was not exceeded.

The method to ensure that correct numbers of skins were recorded was for each tanned skin to be taken to the local police station for an official stamping. It was only after they were stamped that they could be accepted for despatch by train. This method satisfied all concerned, including landowners who could shoot as many 'roos as they wanted, and the police who were only concerned with recording tanned skins.

The year of 1949 was my first full year at Merrygoen and, in contrast with the shift work of the preceding years of 1945 to 1948, I was to have my first taste of all day work. It was great, with no weekend duties and plenty of time for leisure.

The barracks where I had first resided backed onto a property which consisted mainly of trees, shrubs and rocky outcrops and which continued on until wheat paddocks were reached. Wheat and wool were the main rural products of this area, which was mostly flat country with undulating hills and rocky tors.

Depending on the weather, it was no problem to climb over the barbed wire fence and stroll through these paddocks and see literally thousands and thousands of rabbits on the loose. The whole country was in the midst of an absolutely horrific rabbit plague, which was causing untold damage to the land and to the economy. They would eat anything in sight except trees and much erosion was caused by their burrows and warrens.

As mentioned earlier, Norm Warne was the station master during my first months at Merrygoen and he was instrumental in teaching me many tricks of the trade. He was a railwayman through and through and the knowledge he had accumulated over many years of service was passed on to me, for which I was most thankful.

Amongst other things, Norm showed me the art of tying special knots in the ropes used to hold down

The Binnaway, or north end, of Merrygoen yard. Wal Jenkins' original abode in 1949, the old barracks, was located on the rise to the right of the mainline opposite the silos. They have long been demolished.
Graham Ball

R.D. Love

Doug Askew
R.D. Love

the bales of wool loaded in trucks. One of his specialities was the 'sheepshank' knot which I can still do to this day, and once applied, would never come loose.

He was a tall, well-built man, very erect in bearing and always very neatly dressed in his uniform, with shoes nicely polished. He had a sense of humour and now and again would let go with a joke, but he was always on the ball and his duty came first. He was given the nickname of 'The Diplomatic Urger' by train guards because of his insistence on getting trains to depart on time, whereas some guards were content to waste the time away and to leave only when they were ready.

On these branch lines out west, there were no fences erected alongside the track and, as a result, stock could roam at will all over the running line. Much time was lost because of drivers having to slow down for them, or sometimes actually to stop. Therefore lost time was built in the train timetables to allow for this stock movement. Often, the trains had a through run and no time was lost to stock; however, this meant that a train might arrive thirty minutes early but not be booked in until the actual timetable time of arrival. This was, no doubt, a well-established practice and persisted for the years I was there.

Sheep were the main offenders on the line, with sometimes

whole flocks of them wandering along the track. I knew of cases where not just a few sheep were killed or maimed, but sometimes a whole flock of fifty or more. I can recall Driver Pierce Fowler (previously mentioned in the Introduction to my story) once ploughed through a mob of sheep near Gulgong and killed about ninety of them. He was disciplined for not slowing down sufficiently to avoid running into them.

During my first year at Merrygoen, Norm transferred to Gulgong, a station situated halfway between Merrygoen and Mudgee. The reason given for this move was for his wife to be near her relatives at Home Rule, a little village near Gulgong. The township of Gulgong has a self-imposed Heritage Order placed on it and for many years to come will remain as it was in the early 1900s.

Our next station master was Bill Lackey, who was promoted from Lue, a little station on the eastern side of Mudgee. Bill was about 5'5" tall and a real live wire. Almost the exact opposite of Norm, he was always cracking jokes and liked a small drop of the amber fluid.

Although he was officially the boss, we got on well together and we found out early in the piece, we had a mutual fondness for that 'flannel fool' game of cricket. We travelled far and wide to many small villages for a

Tony Eyre

In 1961, the Australian Railway Historical Society organised a steam-hauled, sleeping car tour of the western areas of NSW. The tour ran through Mudgee to Merrygoen, over to Dubbo and returned via Bathurst to Sydney. In Merrygoen yard, Lithgow-based engine 3309 gave way to 2-6-0, 2705 for the leisurely trip over to Dubbo. This series of photos illustrates the layout of Merrygoen yard more than 30 years ago, with the goods shed, gantry crane and the double water columns being shown.
R.D. Love

Engine 3309 has cut off the tour train, run ahead from the platform and heads for the turntable in Merrygoen. The station master's house is beside the main line, with the platform at the right of the photo. The elevated water tanks can be discerned above the engine.
R.D. Love

chance to 'swing the willow' and maybe collect a few runs into the bargain. Matches were played, not only on our ground, but also at Dunedoo, Neilrex, Binnaway, Gulgong, etc. As soon as we arrived at the ground, arrangements were made to get a fire started in order to boil the four gallon tin of water that would simmer and bubble away ready for strong tea at lunchtime. Whatever was left in the tin would be drunk cold during the afternoon and, surprisingly enough, was very refreshing.

Bill and his wife and children lived in the station master's house supplied for them just north of the platform. Their side fence butted up against a long dam and many crayfish were hauled from there by means of a piece of meat tied to a length of string. The crayfish were drowned by immersion in salty water which cleaned them and then they were cooked in boiling water.

Keith Sewell, the ASM, was next to obtain promotion and his place was taken by Dave Colliss. As there was no accommodation available for Dave, his wife and small son, permission was given for him to erect a tent in the railway yard. They were quite comfortable in this environment and the rent would have been very small.

Ted and Mrs Bell ran the Post Office during the latter part of my stay. The previous postmistress had an arrangement with my predecessor which I carried on. Each day, after the departure of the Mudgee Mail, I would carry the mailbags across to the P.O. and once a week would be paid the princely sum of three shillings. When Ted became postmaster, he collected his own bags and this brought my pocket money to an end.

Ted was also the unofficial barber and used to cut my hair on occasions. I was in his chair one day when a bloke rushed in and reported a serious bushfire. Ted, being the Fire Captain as well, had no choice but to leave me half shorn and together we piled into the wagon and headed off. On our return, we were both as black as the ace of spades but he grabbed the shears and finished me off, dirt and all.

Laundering of my clothes became a problem until I moved to the pub and arranged for a local family to do this chore. Mrs Jefferies was a lady in her 70s and, with her married daughter, managed to do the washing and ironing for many people in the district, including several lazy sheep station ladies. I can still see them in my mind sweltering every day over

coppers full of sheets, etc.

The cost of three shillings per week was very reasonable considering that I only had working clothes and occasional 'after tea' shirts to have laundered.

A tennis court was situated next to the Jefferies' house on their block and had been used over the years by their children. I enjoyed many casual games there during my stay, although the main village court was used for competition matches. This was situated next to the hall, a short distance from the post office.

Like cricket matches, tennis was played against neighbouring towns and at times was taken very seriously. I never got above B grade and it was mostly 'hit and giggle' as far as I was concerned. The part I did enjoy the most was when a break was made for afternoon tea and out came the cakes and scones with jam and rich farm cream. To this day I am still partial to hot scones with all the toppings, ignoring my weight increase.

The local hall was the focal point of all entertainment for the district. A dance could be arranged at the drop of a hat, the main problem being the treatment of the floor for dancing. The leading hand with the fettling gang had his own special recipe for making sure the floor had the correct amount of slipperiness. I think one of his main ingredients was candles which had been slivered and spread around.

Usually the band consisted of one man playing a piano accordian and another 'tickling the ivories'. Two or three times a year a ball was arranged and a full band was hired to do the honours. These were eagerly anticipated by the locals and also by visitors from surrounding sheep and wheat properties. With the pub only about a hundred yards away, it was only a matter of course for the men to get 'tanked up' so as to get up enough courage to get the girls up for a fling.

As the night progressed and the men became braver, many a fight was settled outside on the grass. Sometimes the ball would wind up about 3am and the blokes would wander away to sleep things off so as to be ready to start work after breakfast - that is, if there was no hangover.

It appears as if all Aussie men and women behave the same at these country dances. Perhaps it can be explained by some intellect but it's beyond my reasoning. It works like this. Before the music starts, all the men are up near the entrance and all the

When the wheat silos are loaded to capacity, construction of a large wheat stack is commenced nearby. This scene was repeated all over NSW during the bumper harvests. The old Commer semi-trailer has brought the bags to the rail yard, men lift the bags off and put them on the mechanical elevator, more men lift them off the elevator and place them in a set pattern to form the stack. The completed stack is then covered with hessian and corrugated iron. Young Wal had trouble lifting one of these bags, but in Forbes yard in 1960, it seems to be fairly easy for these men.
R.D. Love

ladies are at the other end near the stage. With some uncanny instinct and without any visible sign, all the girls would settle themselves on the seats and the music began. This action would prompt some of the men to leave the congregation around the doorway and move in on the females, picking out the one that had been eyed very secretly.

Merrygoen was a watering station for all steam trains, with the water being pumped from the Castlereagh River, about six miles distant. A large holding tank was located at the rear of the station and sat on steel piles 20 or more feet above the ground. This tank held 20,000 gallons of water and, with the height above ground, pressure was provided to allow the water to flow to water columns alongside the main line from where the locomotives were watered. An ash pit was also located at the site between the tracks and this allowed the fireman to get beneath the loco to rake out the ashes.

A pumper was provided by the Railways and it was his job to travel the six miles to the pump house when required, start up the Tangye oil engine and get the water flowing. Each day, he checked the ash pit and, if ashes were there, they had to be removed by shovelling to a heap alongside the track.

On very hot summer days, we occasionally swam in this overhead tank with the water reaching to chin level. The only access to the tank was by means of a vertical iron ladder and if you were afraid of heights it was better to remain on the ground and sweat. If a person was lucky enough to get a lift to the river, he could really enjoy himself because the sand on the banks was very similar to that on the beaches of Sydney.

The summer months at Merrygoen were usually very hot, the winter months moderately cool, with an occasional frost. This type of climate was ideal for wheat growing and for the raising of sheep. High prices were being realised in the late 1940s for wool

and many graziers could be seen driving around in their new cars. In the days after the War, restrictions were imposed on the export of wool, and the hitherto unheard-of price of what was then known as a 'pound a pound' was obtained at the wool markets. (This translated into 240 pence (£1) for an imperial pound weight.)

As previously mentioned, part of my duties was to weigh each lorry load of bagged wheat which arrived in the rail yard. This only applied to the bags which were to be loaded on the huge wheat stack. Bagged wheat which was destined for the silo was weighed at that point. Each lorry would pass over the silo weighbridge and then proceed to a section of road fitted with open grids. Men were employed to cut the twine at the top of the bag and tip the wheat down into the open grids, the wheat then being fed by an elevator system that moved it up into the concrete silos.

From memory, I think that there were about four of these silos connected together and, as they began to fill, it was up to the silo operator to continually turn the wheat by means of the conveyor elevator system. To reach the top of the silo from the inside, a small cage was provided to enable one man to haul himself to the top by means of a thick rope which passed through a hole in the floor and the ceiling of the cage. This elevator was counterbalanced to make things easier for the operator.

A rail siding was located alongside the silos and, when necessary, bulk wheat trucks were provided to haul the wheat to the seaboard for shipment, the main port being Darling Island, Sydney. To load the wheat, lids were opened on top of the trucks and, by means of a tubular chute, wheat was directed into the truck. Bulk trucks were always in short supply in the wheat season and each silo had to work on a quota system. The quota caused many delays to the lorries waiting to unload their bags because of the

Westward of Merrygoen the line diverges left for Gulgong on the Mudgee line and right for Dubbo. Movements in this direction are controlled by a bracket signal, whose uppermost arm applies to trains heading for Gulgong. Below the signal arms is mounted a U indicator for use when the station is unattended. The photo on the left shows the U obscured by a mechanical shutter, while the photo on the right shows the shutter lowered to reveal the U. When the U is displayed, it permits a train to pass the starting signal at stop, provided the driver has the electric staff for the section ahead. The crew working a train through an unattended station left the signals clear for the next anticipated movement, hence the need, on occasions, to pass the starting signal at stop.

Graham Ball

full silo, and I have seen laden lorries arrive at the silo and have to wait many hours to empty their loads, with up to 20 or 30 of them in a queue.

Usually bulk wheat trucks were despatched in 'block loads' in which whole trains were made up of these trucks, attached at each silo from Gwabegar to Mudgee and beyond. I was called on duty one morning at about 3am when word came through of a very bad derailment of one of these trains between Merrygoen and Dunedoo. I was directed to proceed to the site by car, relieve the guard, take charge and continue to protect the derailed vehicles.

This was my first view of a derailment and when I arrived in the half light I could hardly believe my eyes. Bulk wheat trucks were spread everywhere, with some on top of others. It's hard to imagine that a metal truck could bury itself with only the top showing and with a section of rail line bent in a U shape with the end protruding through the truck.

I had to struggle for many yards through wheat up to 3' deep and which was spread over a great area alongside the tracks. When the cleanup began, with

the arrival of the breakdown crane, people seemed to appear from nowhere out of the bush and many containers of wheat were taken home for the 'chooks' that day.

In later times, wheat headers strip the crop in the field and direct the bulk flow into lorries at intervals. These lorries then travel to the silo and discharge their load directly through the grids. In my day, the wheat was loaded into bags which had to be hand-sewn after filling; the growers were always after casual bag sewers and this provided work for itinerant men who travelled the state to work at fruit picking, vegetable digging, etc. depending on the season.

Dave Colliss, the ASM, asked me once to come with him on a weekend to have a go at this bag sewing caper and earn a piece of the sixpence a bag cash. One day was enough for this joker, a 6" needle plus twine was required, and a thick leather pad was needed on the hand that had to push the needle through the heavy bag material. A sharp knife was a necessity to cut the twine after sewing. Each bag

was left upright and it was up to each person to keep a tally of the number of bags sewn so as to be paid the correct amount. Usually the property owner loaded the completed bags onto a lorry by means of a conveyor system, in readiness to be hauled to the silo.

In a good season, the silo quickly became full and it was then that the bagged wheat stack was commenced, although sometimes the stack was established to provide specific markets. Very strong skilled men were required to construct these stacks of bagged wheat. Each bag weighed about 120 pounds and, whereas it took all of my strength to get a bag 6" off the ground, these men could handle

Above: *The locomotive water supply at Merrygoen consisted of two elevated, cast iron water tanks near the Binnaway end of the platform. Originally, two water columns were located between the tracks, but only a single column remains today.*

R.A. Gallagher

Right: *Summers can be a little warm in Merrygoen and the shunter/porter on the local railway station found that elevated water tanks had more than one purpose, being the right place to cool off.*

Graham Ball

them with ease.

On the arrival of a lorry, an escalator elevator was wheeled up to it and the bags were placed on this and, as each bag reached the top, a man would take it on his shoulder and, without bending, throw it on the stack so as to build it up with each bag interlocked. This same method of stacking was used when rail trucks were loaded alongside the dump.

The stack in the railway yard was enormous in size, measuring roughly 20' in height, 100' in length and 30' in width. When completed, corrugated iron was placed on top to act as roofing, with this same material sometimes used as walls.

One of my main memories of this stack was when the mice plague hit the village. They came and bred by the millions and caused terrible damage to the bagged wheat, at times causing parts of the stack to collapse onto the ground. I've seen cats and fox terrier dogs that had given up catching these pests; it was a strange sight to see mice actually running over the tops of these animals with them being too bloated to even care any more.

The little village of Merrygoen had a sports field which doubled as the cricket ground in the summer, and in the winter months an occasional game of football was played there. Whilst I was still there, a committee of village elders arranged for a full sports day to be held on this ground, with prize money to be awarded for all events. The main attraction for the day was to be the 'Merrygoen Gift' in which runners were to compete in the hundred yards dash.

Hand bills and posters were printed with the theme *You'll be happy coming and Merrygoen* to advertise the 100 yards championship sports day. Weeks of preparation were necessary to get the ground in perfect condition and for running lanes to be marked out. The local boys began training for the big event and after I had finished tea, and whilst it was dark, I would secretly jog for about four miles. What I didn't know was that some of the other lads got to hear about my nightly excursions and they too began to train at night in the cool air. However, I never did get to take part in any event, owing to a weekend trip to Lithgow, the reason for which now eludes me.

The local school was situated about half a mile from the centre of the village and catered for all the children, no matter what their ages. I can't recall the headmaster's name but at one time I did call on him to assist with a particular mathematical problem I had encountered whilst doing a correspondence course with the Railways.

For the huge amount of sixpence per fortnight, we became members of the Railway Institute, which was located in Castlereagh Street, Sydney. This Institute was a boon for country members and provided all types of services. A very large library was part of the Institute building and each country member could borrow from there. The cartage of these books was provided by means of small cartons which held two volumes.

By prior arrangement with the Head Librarian, one could provide a list of choice which included westerns, romance, mysteries, etc. After selection by the librarian, the cartons would be despatched by train and, when read, would be returned by the same method. I must have read hundreds of these books over the years, with the main titles being, of course, westerns and mysteries.

This same Institute in Sydney also conducted correspondence courses in many railway subjects for country members and the same principle applied to the carriage of the correspondence books as to the cartons of library books. To be qualified as a station master, one had to have passes in, amongst other things, Station Accounts. To obtain these qualifications, a member applied to be instructed by qualified teachers in the Institute. Two exercise books were provided for the student, and while one book was being marked by the instructor back in Sydney, the other book was filled in from the instruction papers and, when completed, was forwarded by train to be marked. This method ensured that only one book was being used by the student at any one time.

I obtained all my accounts qualifications by this correspondence method over the years, with examinations being carried out by examiners travelling to the students in the country. In my case, at Merrygoen, I was the only person to be tested but it never really mattered how many were to be examined, whether it be one or dozens, the examiner always came.

As a result of being a student of this method of teaching I did manage, on 6 September 1950, to gain passes in Accounts which qualified me for a position as an Assistant Station Master. It was to be another six months before I was offered a position, but more of this later.

Other qualifications obtained whilst at Merrygoen had to be gained by personal study, with oral examinations being given by visiting traffic inspectors. From 1948 to 1950, the results of these examinations were as follows:

12/8/1948	Block Telegraph - Inspector Shadwell
3/9/1948	Track Block and Automatic - Inspector Grannal
18/11/1948	Weighman's Licence 6327 ref.7817 - Issued without testing
1/6/1949	Station Management
1/6/1949	Guard's Duties
16/11/1949	Weighman's Licence 6327 ref.8324 - Issued without testing
24/8/1950	Passed Medical Exam. for Signalman
24/8/1950	Passed B Standard Dictation - 85%
6/9/1950	Passed Sections 1 and 2 Modified Goods and Coaching Accounts (respectively 71%, 92%, 60%, 85%)
10/11/1950	Re-passed Station Management
10/11/1950	Passed Staff and Ticket in Safeworking
24/11/1950	Weighman's Licence 6327 ref.9148

A major coal strike occurred during 1949 while I was working at Merrygoen which was to have se-
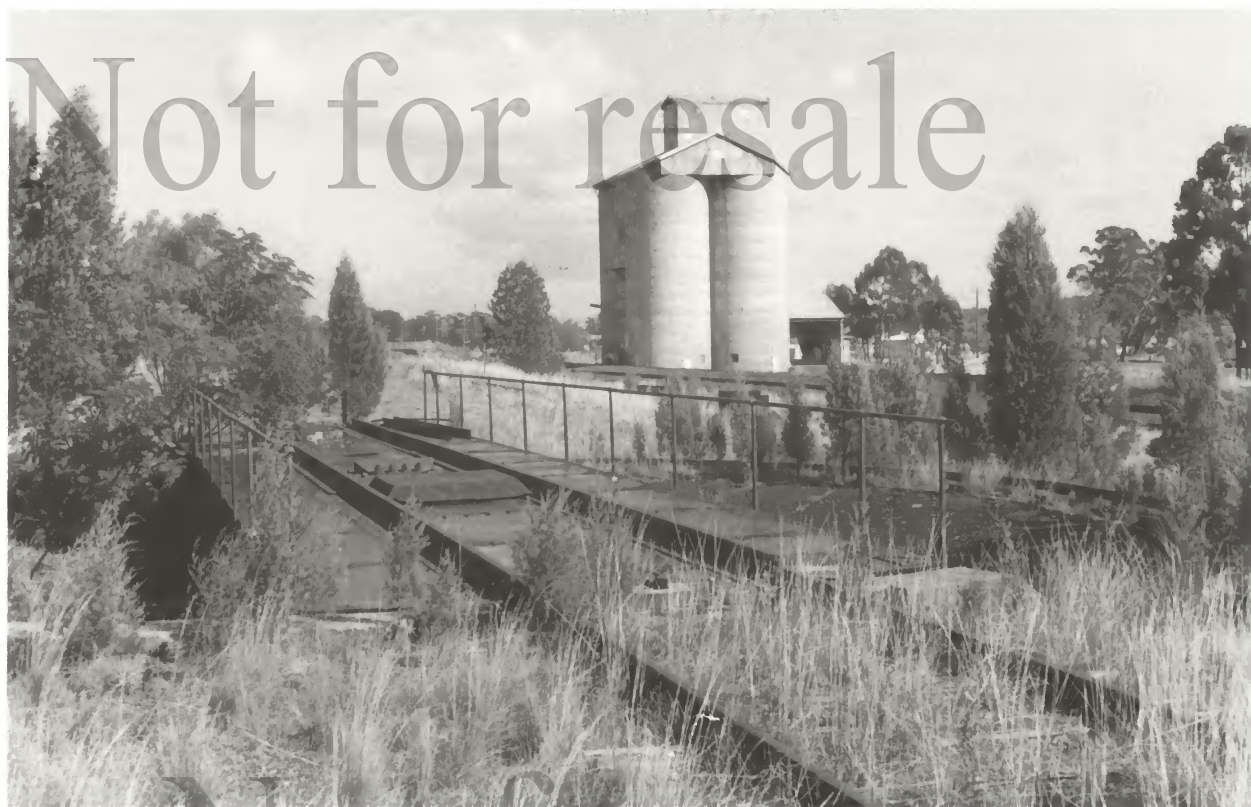
By the 1980s, there was no longer the need for a loco siding or turntable in Merrygoen. The 60 foot steel turntable has been welded 'shut' and most of the trackwork leading to the loco siding has been lifted. Trees and scrub are gradually taking over the area. R.D. Love

vere repercussions, not only for the miners themselves but for all railwaymen and Australians.

The National Coal Strike, which affected all states, lasted for seven weeks, from June to August 1949. The effect of the strike was to slow down the whole economy (coal then being more important as a source of power than it was later), to produce very expensive restrictions on the use of coal and gas for both domestic and industrial purposes, to bring the public transport system almost to a halt and to cause extensive unemployment. In its effects on the community, it was one of the most devastating strikes in Australian history.

The demands of the Miners' Federation, the refusal of which precipitated the strike, were for long-service leave and the adoption of the principle of the thirty-five hour week. Behind the immediate demands lay a long history of bitter industrial struggles in the coal mining industry. There were also political factors of considerable importance. The dominant leaders of the Miners' Federation were members of the Communist Party of Australia, which at this time was anxious to bring about a confrontation with the government. The confrontation occurred when the government brought down emergency legislation under which a number of trade union officials were sent to gaol. In an attempt to break the strike, the government drafted troops

to the coalfields to win coal by open-cut methods.

As a result of determined government action and deep division in the trade union movement, the miners, by majority vote, decided to return to work without winning their demands. Some of their demands were granted shortly afterwards by the Coal Industry Tribunal. The causes of the strike and the roles of the union leaders and the government continue to be a highly controversial issue.

One result of this strike was the cancellation of many trains because of the lack of coal to fire them. Naturally, with hardly any train movements, there was no work for many of the staff. Railwaymen who could not be gainfully employed were encouraged to clear any leave that was due to them.

This was my option, as I had five weeks' annual leave due. Little did I know that the strike would continue beyond my leave entitlement. From memory, I not only had the five weeks' leave, but an additional three weeks' unpaid leave, making a total of eight weeks. The whole of this period was spent at Lithgow and a great sigh of relief went up when we were advised to resume work because of the miners' return.

Ben Chifley was the Prime Minister during these dreadful days. Not only was he the best leader the country ever had, but he was also a strict Labor unionist. He played a strong role in the 1917 railway

Merrygoen's skillion-roofed signal box is a typical platform-mounted type. Originally weatherboard clad, it has been resheeted in modern material, retaining the original windows and door. The rail-constructed telegraph pole behind conveys the all-important communications channels to allow the signalman to carry out his duties.

Graham Ball

strike when he was an engine driver and was sacked because of this involvement. When the strike was over he was re-employed two grades lower as an engine cleaner.

Many believe that his 1949 order to bring in the troops shortened his life. What many people didn't realise was that he was never against the workers, only against their Communist leaders.

Ben lived with his wife Elizabeth in a semi-detached cottage at 10 Busby Street, Bathurst, NSW. My paternal grandparents lived in the other half of the cottage for a period and, as the Chifleys were childless, they used to nurse my father Edward on occasions.

On 17 June 1950 I was appointed to the position of 7th Class Signalman at Berrico on the North Coast, near Gloucester. Bill Lackey, the Merrygoen station master, had spent a number of years at Berrico and praised the job. However, I was destined never to take up the position as, on 26 November 1950, I was appointed to a job that I had been striving for. After five years of study, I was offered the job of 5th Class Assistant Station Master on the relief staff in the South Grafton district, with home station at Coopernook, north of Taree.

The position of Assistant Station Master is classified as being on the salaried staff. The whole of the railway system consists of two sections - salary and wages staff. My appointment carried a salary of £570 per annum. In actual fact, the wages staff were paid an hourly rate and were made up of workers who seemed to do most of the work, such as fettlers, guards, porters, etc. The salaried staff were clerks, station masters, inspectors, superintendents and all office staff.

The poor old wages men were only allowed second class free railway passes, while the 'collar and tie pen pushers' were entitled to first class passes and were paid a yearly salary which was broken up into hourly payments just like the wages staff. All staff were paid fortnightly, usually by a special four-wheel 'pay bus' which travelled throughout the state rail network, with each worker being paid in cash.

As mentioned, each railwayman was entitled to free travel throughout the system as follows. Each person, after being placed on the permanent staff (which means after serving a six months' probation period), was granted a free holiday pass that could be used anywhere within the state. Also, four 'privilege' passes per year were issued that could only be used for single or return journeys from stated point to point destinations. These passes included all members of the family group, although children could not be granted passes for their own travel.

By arrangement with all states of Australia, free passes could be obtained for interstate travel with the condition that dates of travel must be shown and destination points from each border be endorsed on each pass. My father always used his free holiday pass when we travelled as a family to the seaside. One time, we all went interstate to Sandgate in

The rail passenger services were discontinued through Merrygoen some eighteen years ago, but the heavy goods and wheat trains still pass through en-route to the ports. In 1991, 44100 + 48160 + 4497 roll to a stand in Merrygoen station with a large wheat train. The loading bank and gantry, located on the goods siding, are to the right.

R.D. Love

Queensland and his pass would have entitled us to travel from the border to Brisbane and thence on the Queensland system to Sandgate on the coast.

I celebrated my twenty-first birthday whilst at Merrygoen and travelled to Lithgow for a small dinner with friends. I still have the engraved gold watch given to me which, with a little attention, could be made to tick again. Actually, the date of 4 June 1950 meant a small pay rise, as did each birthday up to the age of twenty-one.

When word got around that my days at Merrygoen were numbered because of my transfer, a few of the village elders decided on a send-off for me. I had made many friends in this small place and had grown from a raw learner struggling with tarpaulins and bales of wool into someone who could now go on with an increased knowledge of how the railway system really worked. The responsibility gained with the experience of working under all types of conditions was to enable me, in later years, to understand how to cope with all types of emergencies such as derailments, safeworking failures, floods, etc.

The send-off arranged for my departure was in the form of a dance in the local hall, which a great number of my friends attended. I was required to make a speech which I carried out with much trepidation as I was 'gummy', with no top teeth or dentures. I was presented with a leather wallet containing £12/0/0 and was really choked up, as this

was a lot of money in those days. Goodbyes were said and the next day, 4 March 1951, I departed for new pastures.

The Thorleys, Yeos, Smiths, Hudspeths, Nevilles, Bells, Lackeys, Jefferies, Forans, Watsons, Ingrams and many more, were friends made but not forgotten.
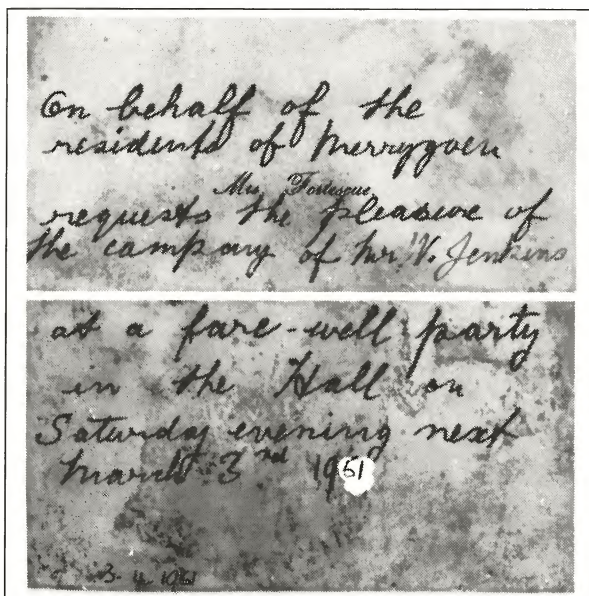
All photographs
from the
SRA Archives.

Left: *Workmen
plus a solitary
horse pause from
their labours to be
photographed
during the final
stage of the open-
ing-out of the
Arncliffe tunnel.*

Left: *When the Arncliffe tunnel was opened out to a cutting, substantial timber formwork was necessary for the construction of the brick arch bridge to carry Forest Road across the line. This view is looking north towards Arncliffe station. The piers of the temporary road bridge can be seen beyond the formwork.*

Right: *The building of the arch bridge across the Arncliffe cutting is nearing completion in this view looking south.*

Our Rail Heritage
ARNCLIFFE CUTTING

Robert Booth

The railway provides many landmarks enabling a traveller to establish his location. The crossing of a bridge or the passage through a tunnel are two examples. The echoing of the train's noise as it passes through the canyon walls of the Arncliffe cutting is a case in point on the suburban Illawarra line.

There is not much for a passenger to see as a train rumbles through the cutting's confines, although looking upwards one can only admire the time and labour expended to construct the tall brick arch bridge which spans the four tracks. Actually, the cutting has an interesting history, important aspects of which have been photographed for posterity.

When the first section of the Illawarra line from Sydney to Hurstville was being planned, it was proposed to put a cutting through the sandstone ridge just south of Arncliffe. Closer examination of the costs revealed that it would be cheaper to use a tunnel instead and this is what eventuated when the line was opened to Hurstville on 15 October 1884. The 197 foot tunnel here avoided the need to build

a bridge to carry Forest Road over the line. Forest Road, incidentally, is a very early thoroughfare in the St George district following the ridge from Arncliffe to Bexley, Hurstville and Lugarno. As the name suggests, some of Sydney's early supplies of timber in the form of blackbutt, ironbark and turpentine came this way.

The opening of the Illawarra railway caused rapid suburban residential development. By about 1915 increasing numbers of trains pointed to the need to quadruple the tracks to Hurstville. As an early part of this work, the Arncliffe tunnel was opened out to a cutting which was widened at each side to accommodate four tracks. This required an excavation to a maximum of 52 feet, a depth accentuated by the cutting's vertical walls. Forest Road was diverted temporarily onto a spindly wooden overbridge during the excavation period.

More substantial timbers were needed as the formwork for the permanent arch to carry Forest Road across the line. Although the exact date of the completion of the bridge is not known, it was cer-

This 1921 photograph shows the completed civil engineering works in the Arncliffe cutting. The two original tracks have been shifted westward and were to form the Illawarra local lines two years later. Sighting and space limitations required that two of the upper quadrant signals be suspended from a gantry. The original signal arms were flat with a pressed-in strengthening rib at their top and bottom edge. There was a supporting bar behind the arm as well.   *SRA*

tainly ready in August 1921. The bridge is 40'5" above the rail level and has an opening of 56'10" across. Forest Road is 66' wide, but since it crosses the cutting on a skew and the bridge has been built square, the parapets are separated by 121'9".

When signalling was installed for the widened lines, electric upper quadrant semaphores controlled by track circuits were used. This system was brought into use between Arncliffe and Rockdale on 25 August 1921, although initially the extra two tracks had yet to be laid. Signal boxes at Arncliffe and Banksia working on Tyer's telegraphic block were superseded on this date. Four tracks were opened through the cutting on 28 October 1923.

Space and sighting limitations in the Arncliffe cutting required a pair of the new signals to be suspended *beneath* a signal bridge (or gantry) which survived as the last of its kind using underhung upper quadrant signals. (There were examples at Flemington, Homebush, Hurstville, Marrangaroo, Rockdale and Tempe earlier.) Electric colour light

signals replaced the upper quadrants at Arncliffe in 1992 after 71 years of intensive service.

The Arncliffe cutting gained some notoriety in the 1960s when one of the evening newspapers, well known for its sensational headlines, declared the cutting radioactive. A passenger on a southbound suburban train decided to try out his newly acquired geiger counter while travelling home. He happened to switch on the instrument as the train was passing through the cutting and to his surprise the counter ticked away. Such news revealed to an editor is just the thing to sell his evening tabloid and the story was given front page coverage.

Actually, the radioactive count recorded by the instrument was the normal background radiation. It was quite harmless and a similar reading could have been obtained anywhere around Sydney. Thus reassured, Illawarra passengers could travel again through the Arncliffe cutting and gaze upon its walls without fear or suspicion!

This view is looking at the northern end of the Arncliffe cutting. The cross on the signal arms indicates that it is not in use. The signal applying to the up Illawarra (later the up Illawarra Local line) has been positioned to the right of its expected location to improve its sighting by the train driver. *SRA*


Arncliffe District
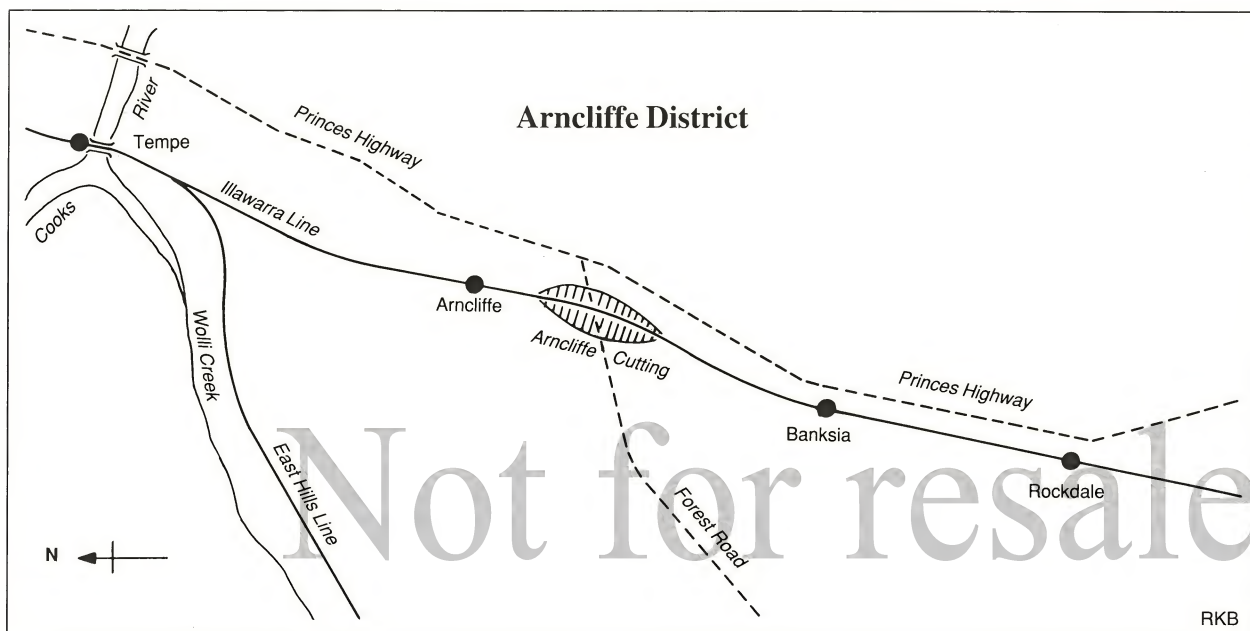
A tight fit. One of the old, single line tunnels on the original route of the Illawarra line, between Waterfall and Stanwell Park, c.1900. These tunnels were notorious for problems with heat, smoke and fumes affecting both crews and passengers alike. A T (later 50) class engine emerges from the portal, showing the lack of free space when a train occupies these single line bores. SRA Archives

Above Right: *By the 1920s, Ardglen tunnel, at the summit of the climb through the Liverpool Range was the scene of a series of accidents, some fatal. As a result, double-heading of down goods trains was banned and respirators were introduced for the use of engine crews when passing through the single line tunnel. On 30 January 1965, Broadmeadow engine 3528 hauling six-car SEB set 109 and EHO van has no need for a bank engine on the 1 in 40 grade approaching the tunnel but the crew would still have the respirators connected, just in case. The train is No.23a, relief Northern Tablelands Express.* R.D. Love

NOT ALL STATIONS SHOWN   RDL
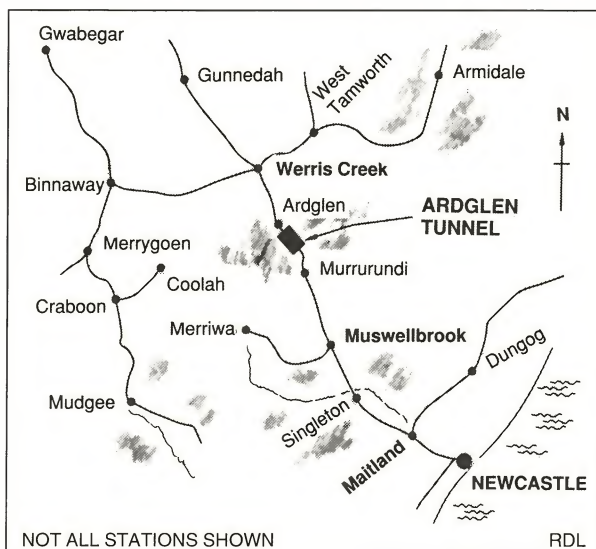
Fireman John Percy Smith came to an untimely end in Ardglen tunnel in 1909 as a result of an accident. John Smith's headstone still stands in Werris Creek Cemetery.
Bruce Griffey

The Death of Herbert John Heffernan

The Use of Respirators on the New South Wales Railways

Ray Love

Introduction

A headstone in Werris Creek Cemetery reads …

In
the memory of our late
comrade Fireman John Percy Smith
who was accidently scalded to death
in Ardglen Tunnel on Nov.27th 1909,
Aged 26 Years
etc. etc.

So records an incident which occurred more than eighty years ago, where an engineman lost his life in the narrow tunnel through the Liverpool Range at Ardglen.

Ardglen tunnel had been causing operating problems for crewmen for some years. Even as early as 1916, Ardglen tunnel was one of a few locations throughout the state where double-heading of goods trains was prohibited, in this case, down goods trains only. All assistance was to be by rear-end banking, obviously as a result of the potential danger.

On the morning of 27 November 1909, No.87 down goods left Murrurundi and headed up the range towards the tunnel. The train engine was T727 (later to become 5097) and was in the charge of driver Cliff Jones and fireman John Percy Smith. The train was pushed from Murrurundi to the tunnel, the driver in charge of the 'banker' being Joseph Sharp, a resident of Murrurundi. When passing through the tunnel, T727 primed (boiling water gushing out of the funnel with the exhaust steam, caused by an overfull boiler or foaming boiler water) and both men were severely scalded. The fireman, John Smith, had climbed down onto the tender steps to get some relief from the severe heat and gases in the tunnel and, when the engine primed, received extensive burns from scalding water.

Medical assistance was obtained for the two men at Ardglen station. Another Murrurundi crew,

The approach to Burringbar tunnel on the Casino-Murwillumbah branchline. The 1720 foot long tunnel was opened in 1894 and is located on a 1 in 50 rising grade against down trains. Respirators were brought into use there in the 1940s. As most of these old, single line tunnels were not fitted with ventilating shafts, smoke and fumes from labouring steam engines had a disastrous effect on the crews.
Lloyd Holmes

SAVED BY GUARD
Driver and Fireman Unconscious
Marvellous Escape of Train
Muswellbrook, Saturday

"After a goods train, tearing headlong through a tunnel near Murrurundi, had been brought to a standstill by the emergency brakes, the guard was horrified to find both driver and fireman unconscious on the footplate of the engine.

"The train was proceeding yesterday from Muswellbrook to Werris Creek, and when passing through the Ardglen tunnel near Murrurundi on the Tamworth side, Driver Kelly and Fireman Hillier were semi-suffocated or gassed by smoke fumes.

"There is a steep ascent in the tunnel, and when it was passed over the train went down the corresponding decline with a great velocity - it is estimated at the rate of 40 miles an hour.

"The first indication that something was amiss came when the train tore through Ardglen station and the fireman failed to exchange staffs with the stationmaster.

"The guard, realising that something unusual had happened, adjusted the brakes, and with some difficulty succeeded in stopping the train. He then found the driver and fireman in a helpless condition. They were in a kind of a stupor, and unable to speak coherently, apparently overcome by gas generated in an inexplicable way from the smoke and steam from the engine in the scanty air of the tunnel.

"After a delay of 50 minutes Kelly and Hillier recovered sufficiently to take the train on to Kankool, where a relief driver and fireman took charge. Kelly and Hillier were taken to their homes in Muswellbrook.

"But for the presence of mind of the guard it is thought the train would have gone to destruction. His prompt action saved the situation."

driver William Bush and his mate, George Bolton, were on P84 (later 3301) waiting at Ardglen for train No.87 to pass through when the accident occurred and both men rendered assistance to the badly injured crew of engine 727.

Later that day, the engine and train were worked on to Werris Creek by Murrurundi crew, Joseph Sharp and Ernest Prince. Fireman John Smith died from injuries in Murrurundi hospital the following day.

An inquest was held in Murrurundi soon after and confirmed, by eye-witness accounts, the causes of the accident:
- adverse weather and wind conditions, causing the smoke to travel with the engine;
- dirty boiler condition, causing the engine to prime;
- fireman Smith riding on the step of the locomotive to escape the oppressive heat in the tunnel;
- only 4'6" between the top of the chimney and the roof of the tunnel;
- no air shafts in the roof of the tunnel.

John Percy Smith was buried in Werris Creek cemetery, but driver Cliff Jones continued on after being released from Murrurundi hospital. He retired in 1934, and in 1962, at the age of 90, he returned to attend some local celebrations in Murrurundi.

In the mid 1920s, Ardglen was the scene of another incident, fortunately without loss of life.

A report in the *Quirindi Advocate* (left) gives an account of the near-disaster.

Reporting of this event was spread near and far; even the papers in Brisbane carried the story. As a result, a letter from Brisbane appeared in the Quirindi Advocate (right).

Ardglen Tunnel

"Sir, - Reading in the Brisbane press this morning an account of the narrow escape from train disaster on the New South Wales line near Ardglen, through the driver and fireman being overcome by gases in Ardglen tunnel, I think it well, in the interests of the public, that I recount an experience of my own in the same tunnel.

"In February last, while travelling in a sleeping car by the express from Sydney to Brisbane, I woke up suddenly and thought the carriage was on fire. I felt almost suffocated and got out of bed and struggled along the passage and found a conductor. I told him I thought the car was on fire.

"He said, 'Oh no, that is only the Ardglen tunnel. It is very badly ventilated and we are always complaining about it, but nothing is done.' He then told me that a little while before a man fell out of his bunk unconscious.

"This surely is a matter which vitally concerns Brisbane people as well as Sydney, as we have to travel over the same track. The New South Wales Railway Department has adopted the motto 'Safety First'.

"Surely it is somewhat of a farce in the face of such a thing being allowed to exist as a tunnel so inefficiently ventilated as to cause the men in charge of the train to collapse. Had the guard been overcome too, it is horrible to contemplate what might have happened.

"The matter should not be allowed to rest until the tunnel is properly ventilated. I consider the whole question is one which calls for a Royal Commission, and the guard should be given a testimonial for his prompt action. - Yours etc."

R.D.A. Frew, A.M.I.C.E.
Brisbane, August 18.

The advice of Mr Frew had not quite 'struck home' when, on the ninth day of July 1926, another fatal accident involving train crews occurred.

A down goods train, hauled by a 53 class 2-8-0, stalled in the tunnel when the rear bank-engine, a 32 class passenger engine, slipped badly on the rising 1 in 40 grade. The crew on the train engine passed out due to fumes, heat and gases and, as a result, the train ran away through Ardglen station on the falling 1 in 40 grade towards Willow Tree. The tender on the runaway engine derailed and turned over and the fireman, Herbert John Heffernan, was killed, although the driver, named Thomas Holt, escaped with injuries. The location of the wreck was was near milepost 227, referred to as the Dunbar by local crews (after a nearby mountain of that name) and adjacent to the pastoral property, Temi. As a consequence of this last-mentioned incident, only the Standard Goods engines were then used as bank-engines over the Liverpool Range, a situation which existed for the next 40 years until the diesel-electric locomotives took over bank work.

At the Annual Delegates' Meeting of the Australian Federated Union of Locomotive Enginemen (AFULE), the problem was highlighted.

The minutes recorded: "The fatality in Ardglen Tunnel drew tragic attention to a danger that has lurked there for years and which danger has repeatedly been brought under the notice of the authorities. At the coroner's inquiry into this matter, we submitted evidence - both oral and documentary - to prove that for a long time, this tunnel has been a source of great anxiety to enginemen and to prove also the authorities have frequently been appealed to, to do something in the way of altogether eliminating or reducing to the absolute practical minimum, the dangers so obviously associated with the working through the tunnel."

The findings of the coroner were as follows:

"I find that Herbert John Heffernan at the Ardglen Tunnel on the Great Northern Railway in the Police District of Murrurundi, in the said state, died on the 9th day of July 1926, from asphixiation and poisoning by carbon monoxide accidently through the railway engine upon which he was employed as fireman at the time of his death accumulating fumes and gases in the said tunnel and there being no sufficient means in the said tunnel for the disposal of the said gases or for the protection of the said Herbert Heffernan."

These accidents noted above were at least sixteen years apart and, probably, different circumstances applied at the time of each. However, it is true to say that following the last mentioned incident, where the coroner drew attention to the obvious lack of fume and gas dispersion and its adverse effect on crewmen passing through the Ardglen Tunnel, something *was* done.

A form of fresh air breathing apparatus was provided for crews working steam locomotives in locations which incorporated tunnels on heavy, adverse gradients.

Its introduction and use on the New South Wales

In 1927, respirator equipment was brought into use in Ardglen tunnel, to assist crews working in the smoky atmosphere. Masks, hoods and gloves were available. Here, the driver makes use of the mask connected to the engine air supply. R.D. Love

Another single-line tunnel which caused many problems. The original Otford tunnel, between Otford and Stanwell Park was opened in 1888. This photo, of the northern portal, was taken about 1900, some nine years prior to the installation of a blower system. SRA Archives
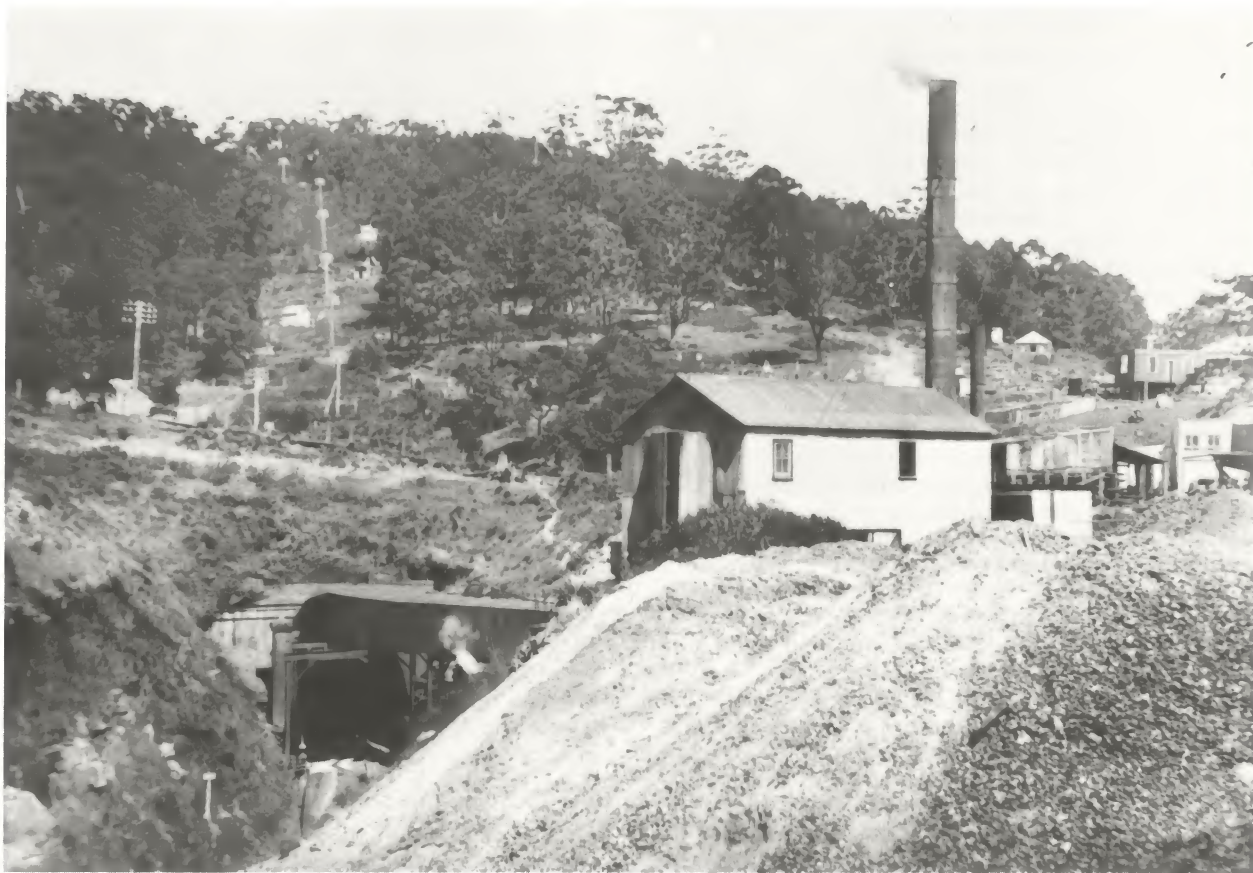
The original Otford tunnel was one of the most feared tunnels in the state during its period of service, for both passengers and crews. Mechanical ventilating equipment was installed at the northern portal of the tunnel in 1908, in an attempt to overcome the problem. In 1915, a larger steam driven blower was installed. The photograph illustrates the engine house, chimneys and ducting of the later installation, near the portal.
SRA Archives

Above Right: *Electrification of the 'short north' section of the main line was only a few months away as 5619, fitted with a 'Wampu' tender, climbs Cowan bank with the pick-up goods. Electrification almost removed regular steam operations on this 50 mile section of line, as well as the need for respirators. The adjacent No.5 Boronia tunnel was abandoned in 1909.*
John Elliot, R.D. Love collection

Below Right: *By the end of 1963, quite a few of the 59 class 2-8-2s had been converted from oil to coal firing, giving them a new lease of life and increased working areas. The main north between Gosford and Armidale was their stamping ground for a number of years. On 30 November 1963, 5913 and 5920 start on the 1 in 40 out of Ardglen, heading an up goods. This was the first known working of double coal-burning 59 class engines.*
Tony Eyre

Railways is the subject of this essay.

On Monday, 18 April 1927, respirators were brought into use in Ardglen tunnel. This was the first location in the state and over the next twenty or so years, these safety devices would be brought into use in another thirteen locations.

It could be pointed out that nearly nine months elapsed between the findings of the coroner's inquiry and the introduction of the respirators, but allowance could be made for time taken to develop a suitable device, fit the engines with necessary equipment and prepare the breathing equipment to be issued to the district involved.

Definition

The Concise Oxford Dictionary definition of 'respirator' is given as follows:

"Apparatus worn over mouth and nose to warm or filter inhaled air, or to prevent inhalation of poison gas. Apparatus for maintaining artificial respiration."

The apparatus which came into common usage in NSW during the steam days fitted the definition in a loose sort of way but, in the circumstances, was the best equipment available at the time.

Masks, hoods and gloves for use in Ardglen tunnel were supplied to engine crews in a leather bag, the steel ring assisted in picking up the equipment 'on the fly'.

Respirator kits included hoods (not shown), four gauntlets (long gloves) and two masks fitted with flexible air tubes.

Photographs by R.D. Love

Breathing mask supplied to each engineman. The mask was of metal construction and was fitted with a tube, to be connected to the engine air supply.

The mask was fitted with a hinged wire gauze cover and a wet sweat rag or sponge cloth could be inserted behind the cover to act as a filter.

Early Problems And Proposals

The effects of steam locomotive exhausts in the confined space of single-line tunnels, especially on steeply graded climbs, where the locomotive is working at maximum output, were brought to the attention of the authorities in NSW in the early years of the present century.

In November 1903, a report appeared in the *NSW Railway & Tramway Budget,* the staff magazine of the day:

"Complaints are made from time to time of the discomfort experienced by passengers when passing through long railway tunnels. In Australia, the difficulty is not felt to any great extent as the tunnels run for no great distances, the two longest locally being those at Woy Woy and Otford, practically each a mile in length, the latter however being the more inconvenient as it is single line and is on a steeper grade."

and ...

"The principal sufferers from the discomfort are the men on the engine who are surrounded with steam and sulphur from the locomotive and from, time to time, endeavours have been made to intro-

The sweat rag in position behind the cover in the bottom of the mask. R.D. Love

duce arrangements which would add to their comfort. Air-tubes, for instance, were run through the air space in the tender and fitted with mouth pieces so that the driver and fireman could inhale
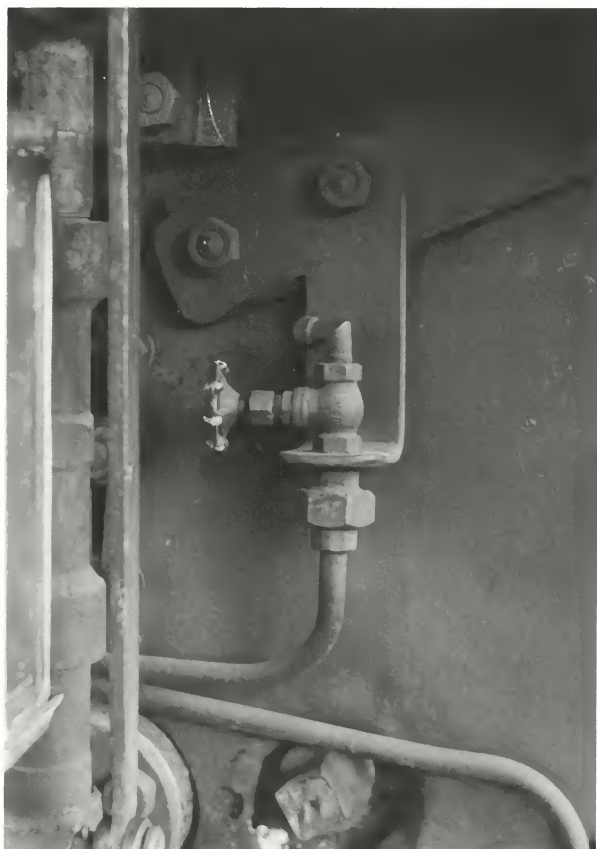
The air supply valve as fitted to the boiler backhead of a Standard Goods engine. A valve was located on each of the driver's and fireman's side of the cab. Air was supplied from the main reservoir of the locomotive, the control of which was adjusted by the engineman to suit himself. R.D. Love

Hood, gauntlets and mask in use. It was necessary to hold the mask to the mouth and nose, drive the engine and be prepared to control slipping by operation of the sanding valves, all in a blackened cab with copious amounts of steam, fumes, smoke, noise and dust. R.D. Love

Left: *Firing of the locomotive (in this case, a Queensland engine) is temporarily suspended whilst the tunnel is negotiated. The fireman has put on the hood and holds the mask in position.*
R.D. Love

Below: *Approaching the tunnel, the driver decides to use the mask only. (Again, a Queensland engine, note the right-hand drive).*
R.D. Love

fresh air, but after some little experience, the men did not take advantage of the contrivance.
"Nasal protectors and respirators have also been tried, as well as small cylinders charged with air to be used when in tunnels, but very little demand has been made of them. It would apparently indicate that local circumstances are not so oppressive as to demand special artificial arrangements."

In 1906, two cases of scalding of enginemen when working trains in the up direction through the Helensburgh tunnel were brought to attention. Driver Allanson and fireman Hinds were affected late in 1906, to be followed soon after by driver Wall being affected. In the second case, driver Wall's fireman escaped injury by lowering himself onto the side steps of the locomotive whilst passing through the tunnel. The proposed remedies for the problems were "… the running of lighter trains and to work the locomotives tender first. The theory was to keep the exhaust steam and smoke of the engine behind the crew, but it did not work in practice as the strong directional winds kept the exhaust with or even ahead of the engine in many cases…."

Although the report referred to 'Helensburgh tunnel' on the original single line, it is more likely to have been the adjacent 'Cawley's tunnel'. The original Helensburgh Tunnel was 264 feet long on a rising 1 in 50 grade, whereas Cawley's tunnel was longer at 1250 feet long and on a sharper rising 1 in 40 grade.

Apart from the problems mentioned above relative to the Helensburgh tunnel (Cawley's), the problems associated with working trains through the (original) Glenbrook tunnel on the eastern side of the Blue Mountains were also causing some concern. Ventilation (or lack thereof) was the main concern, but it was conceded that the "… distance is not as great as the South Coast line …".

Remedies were proposed and "3… the matter will

receive mature consideration".

Associated with these 'remedies', track deviations, regrading, duplication and mechanical ventilation for the tunnels were all proposed. A lengthy report on these incidents and remedies appeared in *Budget* of 1 December 1906.

Similarly, ventilation problems existed in the

Long, single-line tunnels have a forbidding appearance about them. Crews had to exercise care in their approach, making sure the fire was in good order, water level in the boiler was correct, minimal smoke was emitted and sufficient momentum was available to continue through without stopping. This photo shows a single-line tunnel on the Murwillumbah branch soon after construction.

SRA Archives

tunnels of other world railway systems.

A report in *NSW Railway Budget* dated September 1907 quotes instances of smoke, fume and ventilation problems which existed with the opening of the Gallitzin Tunnel on the Pennsylvania Railroad in the USA. The atmosphere in the tunnel became so bad that "… trainmen sometimes became unconscious and it was necessary to provide relief …". The report goes on to give details of a large ventilation hood applied to the tunnel to assist in air circulation, assisted by mechanical means. It was apparently successful and considered 'efficient'.
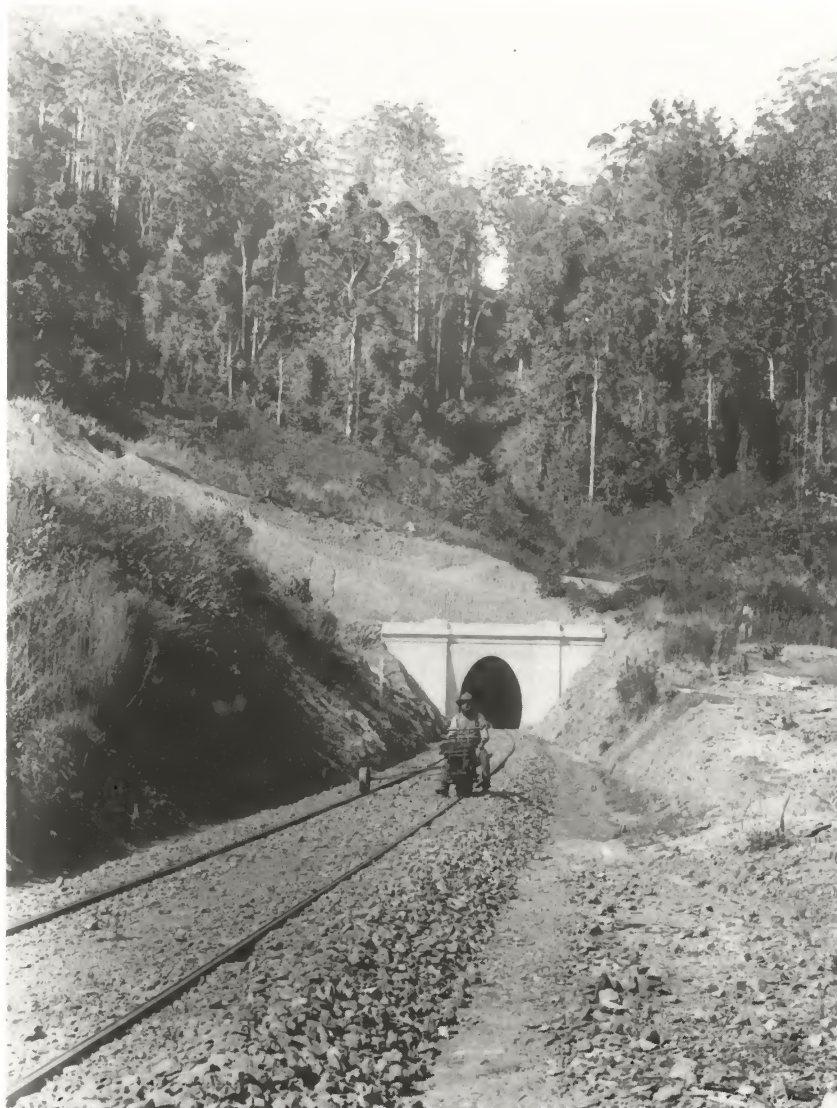
Not long after, problems with Otford tunnel came to the attention of the railway administration again. In the *NSW Railway Budget* of March 1909, details were released of the mechanical ventilation system brought into use at that notorious location:

"The Otford tunnel on the main Illawarra line, 30 miles from Sydney, has often been a source of discomfort to passengers passing through owing to its warm and stuffy atmosphere and this was particularly felt on the up journey when certain winds prevailed. Not only was it a source of discomfort to passengers, but there was the more serious risk involved of the enginemen working the locomotives being overcome in the tunnel, and on more than one occasion enginemen were scarcely able to pass through the tunnel when they collapsed …".

The report goes on to detail the large ventilating machinery put in place, in an attempt to overcome the problem. The subject of the ventilation and problems associated with the tunnel was dealt with in ARHS *Bulletin* No.344 of June 1966.

In New South Wales, the problems associated with the danger to engine crews in these confined tunnels on adverse grades continued.

Complaints in late 1914, by enginemen about the oppressive heat when working through Ardglen tunnel were dealt with during the Locomotive Officers' Conference of February 1915. These meetings, held every month and chaired by the Chief Mechanical Engineer (CME), at which all senior Locomotive Branch officers attended, dealt with all problems, failures, costing, etc. associated with the Locomotive Branch (later Mechanical Branch), locomotives, carriages, goods vehicles and so on.

Item 9215 from that meeting (of Feb. 1915) reads as follows …"Assisting 'N' class engines through the Ardglen Tunnel. From tests made, it has been ascertained that there is no difference in the discomfort experienced by the enginemen on the 'NN' or 'P' class engines when assisted by another engine through the tunnel. Further, that there is no appreciable difference as regards the discomfort experienced to the men whilst steaming through the tunnel with 'T' class engines of the ordinary type compared to the superheated engines of the class."

Breathing Devices - First Attempts

During 1922, agitation by locomotive crews in regard to the continued discomfort and dangers associated with the working through single line tunnels began to bear results.

On 9 December 1922 it is recorded that twelve 'respirators' were fitted to various engines and in addition, in the December 1923 issue of *NSW Railway & Tramway Magazine*, the staff magazine of the period, it is noted where, in the Notes of Commendation Section, an employee's history card is to be marked for the following suggestions. "Driver Stott of Hamilton Depot - Respirators on 'NN' class (later 35 class) engines - enginemen to be supplied with sponges." The sponges were later known as sponge cloths or, more commonly, sweat rags and became part of the respirator equipment.

These events seem to indicate that certain classes of locomotive (or even certain individual locomotives) were equipped with a form of respirator, depending on the location and type of service to which that engine was being used at the time. This method, that of fitting certain engines, had disadvantages. This selective fitting of locomotives may have resulted in specific engines not being available when required or the engine in that location, having been fitted up for respirator service and awaiting its next specific job, suddenly being required elsewhere in an emergency, thus causing operating problems.

Initial Use In Ardglen Tunnel

Irrespective of the foregoing statements, the final form of respirator was made available for engine crews working through the 1600 foot long, single-line Ardglen tunnel in April 1927, obviously as a result of the Coroner's Enquiry into the death of Herbert Heffernan as previously described.

Weekly Notice No.14, 1927 advised:

"Ardglen Tunnel-Working-Use of Respirators -

Commencing on Monday, 4th April 1927, the Station Master at Murrurundi will deliver to each Engineman on the Down journey a container, in which will be two (2) Respirators and four (4) Gauntlets for use of the Driver and Fireman when working through Ardglen Tunnel.

"The Respirators are fitted with a flexible tube. The nut at the end of this tube is to be connected to the air valve of the pipe line on the front of the boiler and the respirators placed over the mouth and nose. The Engineman can insert a wet sponge cloth over the air inlet in the bottom of each Respirator. An additional cloth will be issued to each man at his home depot and retained by him for this purpose.

"The air supply for the Respirators is to be controlled by the Driver and Fireman respectively, by opening the air valve to suit their own requirements and ensure a regular supply of air.

"The Gauntlets and Respirators when finished with are to be replaced in the container by the enginemen and handed to the Station Master at Ardglen and the latter must return the equipment booked through 'Parcels' to the Steam Shed Inspector, Murrurundi for sterilization."

Gauntlets are long, arm-length leather gloves, commonly worn by welders and boilermakers.

There were noticeable omissions from the list of equipment supplied in the container as noted in this first instruction in Weekly Notice No.14 of 1927. Two weeks later, in Weekly Notice No.16, another set of instructions was issued, replacing the earlier Notice.

Weekly Notice No.16 of 1927, reads in part: "Commencing on Monday, 18th April 1927, the station master at Murrurundi will deliver to each driver of a down train, a container, in which will be two (2) Respirators, four (4) Gauntlets, and two (2) Hoods for use of the Driver and Fireman when working through Ardglen Tunnel.
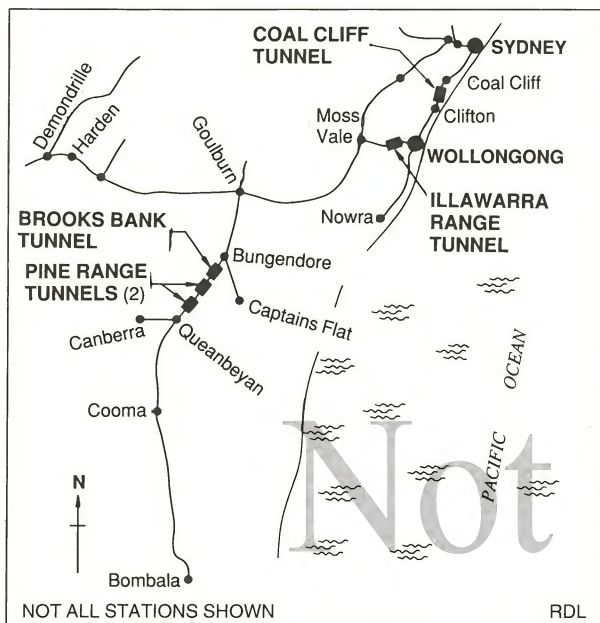
"The respirators are to be connected etc …"

The main difference between these two instructions is the issue in the respirator kits of two (2) 'hoods'. These hoods were more like small capes (and were often referred to by that term) made of a canvas-like material, fitted with short tie-straps, and were to be placed over the head and shoulders of each of the two enginemen involved, thus protecting them from fumes, smoke and ash. In one set of instructions issued for respirators, these capes or hoods are referred to as 'granny hoods'. The instructions then conclude by advising of the return of the equipment to the Steam Shed Inspector at Murrurundi as quoted in the earlier Weekly Notice.

These instructions brought about statewide utilisation of respirators for use of enginemen.

Further Problems

Even though respirators had been provided at one of the state's most notorious locations, Ardglen tunnel, by April 1927, trouble was still being experienced in other locations.

Marrangaroo tunnel, between Lithgow and

COAL CLIFF TUNNEL
SYDNEY
Coal Cliff
Clifton
Moss Vale
WOLLONGONG
Demondrille
Harden
Goulburn
ILLAWARRA RANGE TUNNEL
Nowra
BROOKS BANK TUNNEL
Bungendore
PINE RANGE TUNNELS (2)
Captains Flat
Canberra
Queanbeyan
PACIFIC OCEAN
Cooma
N
Bombala
NOT ALL STATIONS SHOWN
RDL

Where it all started. Double-heading of down goods trains from Murrurundi to Ardglen was banned as a result of fatal accidents in the tunnel. All assisting was from rear-end bankers. Engine 5230 earns its keep as it banks a down goods (with 5442 in front) out of Murrurundi yard, heading for the range and the tunnel, in March 1963.   *Mick Ewer*

Wallerawang had always been affected by adverse westerly winds. Even though it is a double-track tunnel, it is located on a 1 in 80 rising grade against up trains. It is 3200 feet long and contains reverse curves within the tunnel itself. It was opened in October 1923.

In September 1927, at the Locomotive Officers' Conference (LOC) held in Sydney, the Chairman, Chief Mechanical Engineer, Mr E.E. Lucy drew particular attention, during the summary of the accidents sustained by Mechanical Branch staff for the previous two months, to the case of an engine-man being overcome by heat in Marrangaroo tunnel. In reply to the Chairman, two of his senior officers, Mr Mecham and Mr Went, said: *"... that trouble was very occasionally experienced in this tunnel (which had a reverse curve) but only when a westerly wind was blowing."*

In the middle months of 1929, again at the LOC, the Chairman, Mr E.E. Lucy drew special attention to another case of a fireman overcome by fumes in Marrangaroo tunnel. Mr Mecham (then a very Senior Locomotive Officer) said: *"... that trouble had been experienced before in this tunnel, which was 49 chains long and in which there was a 'S' curve and with westerly winds blowing, trouble was encountered by enginemen from fumes. This matter had been under consideration for some time and engine-men were directed to open the small air valve in the*

cab to modify the effect of smoke and fumes, but this did not in all cases suffice and it was proposed now to provide respirators."

It should be mentioned at this point, that the enginemen working through the tunnel (men from Eveleigh, Lithgow, Bathurst, Wallerawang, Mt. Victoria and Mudgee depots) had to put up with the problem for a further ten years as respirators were not introduced there until November 1939. A Lithgow driver recalled: *"... the respirators were in constant use in Marrangaroo tunnel in my days there (1950s and 1960s), always taken by a crew if the wind was blowing strongly in any direction and they were always taken by crews working Garratts. The equipment was usually picked up at Wallerawang, dropped off at Eskbank and returned from there to 'Wang."*

Respirators - Other Locations

The introduction of a device to assist in overcoming the fume and heat problems within tunnels, initially in Ardglen, must have proved successful.

Another notorious location, the tunnels over the ranges near Queanbeyan, known as Brooks Bank and Pine Range tunnels, received respirators soon after those at Ardglen.

Brooks Bank tunnel is 960 feet long and is located on a 1 in 40 grade against down trains, whilst 7 miles away, Pine Range No.1 (540 feet long) and

Left: *The bankers over the Liverpool Range through Ardglen tunnel were given 'bed and breakfast' in Murrurundi loco. By the late 1950s, the old shed was falling apart, but the bank engines could usually find a spot to have a rest. 5472, fitted with a Mort's Dock tender, takes it easy near the shed in 1959.* *John Elliot, Mick Ewer collection*

Below Left: *In the early years of the present century, Ardglen tunnel was the scene of a number of accidents involving train crews. As a result, respirators were brought in, as well as rear-end banking using standard goods engines for down goods trains. On 19 December 1964, 5367 pushes a down goods through the tunnel and over the summit of the grade.* *R.D. Love*

Pine Range No.2 (795 feet long), are both located on rising 1 in 40 grades, but face up trains.

In Weekly Notice No.1 of 1928, the following appeared: "Commencing on Monday, 2 January, 1928, the Station Masters at Bungendore and Queanbeyan will deliver to each driver of Down and Up trains, a container in which are two Respirators for use of the driver and fireman working through tunnels between these two stations."

The instructions conclude with requirements for the return of the devices for cleaning, etc. and giving overall responsibility of care and cleanliness of the sets of respirators to the Steam Shed Inspector at Goulburn depot.

It is of particular interest to note that no provision is made in this Instruction for the supply of hoods or gauntlets.

By July 1928, restrictions on double-headers applied when working through these tunnels. Generally speaking, both engines had to be equipped for the use of respirators and each of the four enginemen had to be issued with respirator kits. This applied to both up and down trains.

Weekly Notice No.4 of 1928 carried notice of the provision of respirators for enginemen working through the 572 foot long Capertee tunnel on the Mudgee line. This single line tunnel was opened for traffic in May 1882, located on a rising 1 in 48 grade facing up trains and on a radius within the tunnel of 790 feet (12ch.).

"Commencing on Monday, 23 January 1928, the Station Master at Capertee will deliver, etc.…"

In this case however, attention *is* drawn to the provision of hoods and gauntlets with the respirators. Responsibility for cleaning and checking of the equipment was placed on the 'Fitter in Charge' at Wallerawang depot and it was then his responsibility to oversee the return of the cleaned and sterilised respirator kits to the Station Master at Capertee. Some years later, the respirators were placed in the overall charge of the District Locomotive Engineer, Lithgow, when Wallerawang depot lost its mechanical staff. When that happened, it was then left to the 'Loco Pumper' at Capertee to collect the respirators, clean and sterilise the components and hand them on to the SM at Capertee for re-issue. The
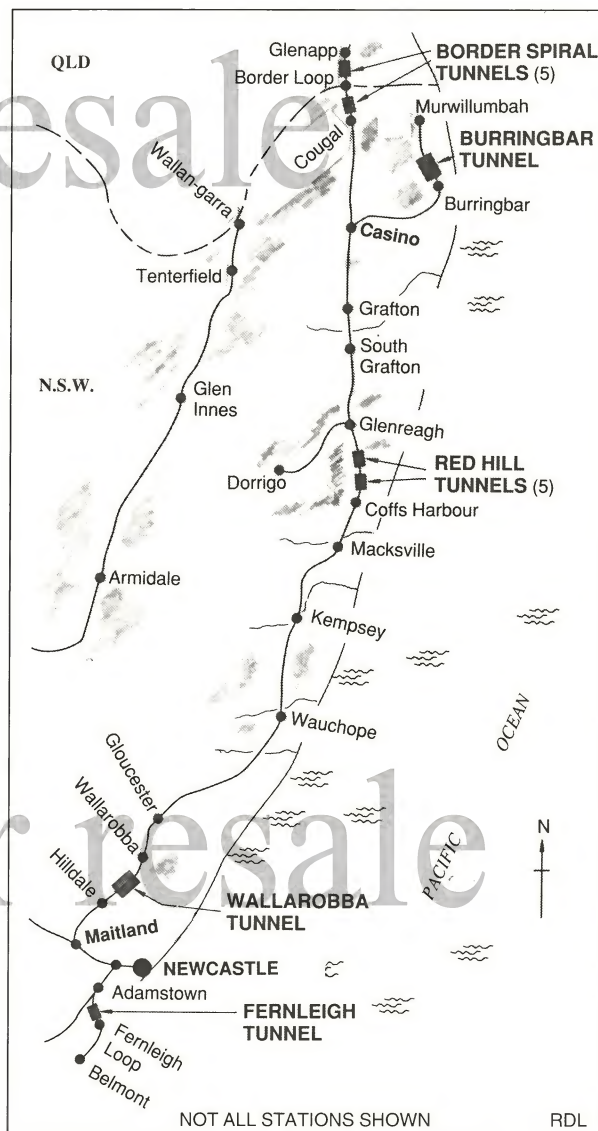
respirators were dropped off by the engine crew to the SM at Cullen Bullen, who then dispatched them to the pumper at Capertee. The pumper was responsible for maintaining water supplies, pump engines, pipelines as well as shovelling out any ash pits, etc. The pumper at Capertee now had some added chores.

A Lithgow driver recalled: *"… all trains in the up direction were handed a bag of respirators at Capertee, dropped them off at Cullen Bullen and they were then returned to Capertee. The Capertee tunnel was very hot, especially on double-headers."*

It can be seen that, by early 1928, respirators had been provided at three locations endowed with single-line tunnels on steeply rising grades, Ardglen in the Liverpool Range to the north, Pine Range/Brooks Bank tunnels on the Bombala line and Capertee tunnel on the Mudgee line.

Soon after, other locations were issued with respirator equipment.

At the LOC, April 1932, a case which had occurred in March 1932 was dealt with.

"Driver Herbert Clegg, Thirroul (depot),overcome by heat and fumes when passing through Coal Cliff tunnel on 2.3.32. This driver went off duty on 3.3.32 and resumed on 7.3.32."

In answer to the Chairman, the Secretary said he that: "... *had been in touch with Loco. Thirroul on this, who stated the case was a perfectly legitimate one. It was alleged driver Clegg suffered injury to his throat and lungs due to excessive heat in the tunnel, the direction of wind being such that the fumes were kept on the engine while traversing the tunnel. It was understood that respirators were in use at the time*".

The Secretary had called for all the papers on the case and the Chairman directed the Secretary to show him the file as soon as possible. In reply to the Chairman, Senior Locomotive Officer Mr Mecham said that: "... respirators were available for all enginemen operating through this tunnel and there had been no complaints from the staff lately".

This was not the end of the problem in the tunnel, variously referred to as Clifton, Scarborough or Coal Cliff tunnel. At the Locomotive Officers' Conference held in the Chief Mechanical Engineer's Office in Redfern on 24 September 1934, with CME Mr H. Young in the chair, the Secretary of the Conference, Mr G. Jordan answered a question from the CME on a recent incident in the tunnel. Mr Jordan replied that: "... the two cases of enginemen being overcome by heat and fumes were those of driver Frappel and fireman Hadson, working engine 5227 on No.61 goods through the Coal Cliff-Scarborough tunnel on 22.5.1934. Respiratory equipment was on the engine and both enginemen wore respirators. The fireman removed his respirator to fire the engine and almost immediately collapsed, but regained consciousness after emerging from the tunnel and was relieved on arrival at Thirroul about 6.00pm. Driver Frappel continued on duty until 6.40pm. but on signing off at the loco office, Thirroul, he collapsed and was taken on a stretcher to the barracks and afterwards to the Bulli Hospital".

In answer to the Chairman, Mr Mecham (by

In *The Staff* of February 1929, in a section dealing with safety suggestions, it is noted: "Port Waratah depot, Standard (Goods) engines working through Redhead tunnel to be equipped with respirator nipples, piping and terminal valves ...". The Redhead tunnel referred to is known locally as Fernleigh tunnel, being situated just north of Fernleigh loop.

In *The Staff* of May, 1930 it was noted: "... Scarborough tunnel, respirators and towels provided because of heat ...".

By 1930, instructions had been issued for the fitting of respirator connections on the backhead of the boiler to locomotives of the 12, 14, 19, 21, 22, 24, 25, 27 and 30 classes. From this information, it may be deduced that connections had already been installed on 23, 28, 29, 32, 35, 36, all three classes of Standard Goods engines and the 57 class.

Continuing Problems

Even with the use of respirators and equipment, problems with heat and fumes and the effects on the engine crew in the tunnels continued.

then, Superintendent of Running and Maintenance for All Lines) said the apparatus supplied to the enginemen for use in the stuffy tunnels was always kept in good order. He thought the only thing to be done was to reduce the loads through the Scarborough tunnel and this had been done.

Mr George Elliott, (Senior Travelling Locomotive Inspector for All Lines) said: "… a reduced load would obviate any further trouble. In the case in question, a full load of hot coke was picked up which threw off a good deal of fumes and this, together with the fact that the engine had to be fired through the tunnel, was the cause of the trouble …".

Even though respirators had been provided in the tunnel as early as 1930 (initially, six sets at Waterfall), amendments to their operation were made in March 1941. In that month, crews were notified that six sets of respirator equipment were now available at both Waterfall and Coal Cliff to suit the Thirroul-Coal Cliff-Thirroul working of trains. In July 1942, this was further amended to provision of twelve sets at Waterfall and six sets at Coal Cliff.

Widespread Usage

With the issue of *Local Appendices* for the vari-
ous divisions (Suburban and Illawarra, South, West, North and Coal Roads) during the 1930s and the subsequent additions via Weekly Notices into the 1940s, instructions were given for the utilisation of sets of respirator equipment at fourteen separate locations in the state.

In some of these locations, a single line tunnel was the problem (Ardglen); in other locations, a double line tunnel was the cause of trouble (Marrangaroo); in other spots, a series of tunnels on the same grade caused problems (Cowan Bank); and in yet other locations, a group of tunnels located on separate grades required the use of respirators (Brooks Bank and the Pine Range No.1 and No.2 tunnels).

Other locations which incorporated groups of tunnels were the Karangi (Red Hill) tunnels and the Border Spiral tunnels, all on the North Coast of NSW.

In most locations which incorporated steeply rising grades and lengthy tunnels, usually with tight clearances, respirators were used to assist with crew comfort and safety.

Carcoar tunnel is located immediately south of the neat station at Carcoar, between Blayney and

The bank engine (5483) also has a clean fire as it approaches the tunnel. No doubt the experienced Murrurundi crews know how to prepare for travel through the narrow confines. Note the fettler on his trike following along behind.
Doug Askew

TABLE 1

Tunnel Name (Common)	S or D*	Respirators in Use	Opened	Length (ft)	Grade (against down or up trains)	
Ardglen	S	Apr. 1927	Aug. 1877	1600	1 in 40	D
Brooks Bank	S	Jan. 1928	Sep. 1887	960	1 in 40	D
Pine Range (2)	S	Jan. 1928	Sep. 1887	540 & 795	1 in 40	U
Capertee	S	Jan. 1928	May 1882	572	1 in 48	U
Fernleigh	S	Feb. 1929	Nov. 1892	594	1 in 40	U
Marrangaroo	D	1929	Oct. 1923	3200	1 in 80	U
Clifton	S	May 1930	Oct. 1888	3290	1 in 100	D
Border Spiral (5)	S	May 1932	Sep. 1930	630-3810	1 in 66/150	U/D
Illawarra Range (2)	S	Aug. 1934	Aug. 1932	335 & 2060	1 in 33/120	D
Zig Zag (10)	D	1930s	1910	168-2590	1 in 90	U
Wallarobba	S	May 1943	Aug. 1911	933	1 in 120	D
Karangi (Red Hill) (5)	S	Oct. 1941	Jul. 1922	300-780	1 in 80	D
Cowan Bank (4) (Boronia 1-4)	D	Dec. 1941	Apr. 1887	246-1975	1 in 40/55	U
Carcoar	S	May 1944	Feb. 1888	922	1 in 88	D
Burringbar Range	S	1940s	Dec. 1894	1717	1 in 50	D
* S - Single Line D - Double Line						

Cowra. Opened in February 1888, it is a single-line tunnel 922 feet long, located on a rising 1 in 88 grade facing down, or Cowra-bound trains. Respirator equipment was needed in this tunnel and in a Weekly Notice for May 1944, it was announced that sets of respirator equipment were immediately available. The station master at Carcoar issued a set of respirators to enginemen of down goods trains, on both train and assistant engines, if so requested. The SM at both Carcoar and Lyndhurst (where they were dropped off after use) were each to be responsible for their care. The DLE at Bathurst had overall charge of these devices.

Details of respirators and their usage are shown in Table 1.

Instructions For Use

When respirators were brought into use at a specific location, strict instructions were issued regarding the equipment, method of use, its return and maintenance. These instructions were usually issued via the Weekly Notice.

A typical set of Instructions, applicable to the initial use of respirator equipment at Capertee tunnel, is shown in Table 2.

When the respirators had been in use for a period of time, the instructions applicable to their use were then added to the Local Appendix for a particular district.

Instructions for use of respirators in the Burringbar Range tunnel on the Casino-Murwillumbah branch, as noted in the Local Appendix (North), are shown in Table 3.

Description Of Respirator Equipment

The respirator equipment, which later became commonly used in steam days at fourteen locations in NSW, consisted of:

1. Two identical face masks, constructed of a tin-plate-type of material (actually resembling a large jam tin), open at one end and suitably shaped to fit snugly over the nose and mouth. Within these masks was a small, hinged wire gauze cover located near the bottom, or closed end of the mask. A flexible rubber tube, approximately 3'0" long and ¾" in diameter, was attached to the closed end of the mask. A threaded coupling was then attached to the opposite end of the tube, permit-

Table 2

Page 170—
Capertee Tunnel Working—Use of Respirators—Commencing on Monday, 23rd January, 1928, the Station Master at Capertee will deliver to each set of Enginemen on the Up journey a container in which will be two (2) respirators, two (2) hoods, and four (4) gauntlets for use of Driver and Fireman when working through the Capertee Tunnel.
The respirators are fitted with flexible tube. The nut at end of this tube is to be connected to the air valve of pipe line on the front of the boiler, and the respirators placed over the mouth and nose. The Enginemen can insert a wet sponge cloth over the air inlet in the bottom of each respirator. An additional cloth will be specially issued to each man at his home Depot, and retained by him for this purpose alone.
The air supply for the respirators is to be controlled by the Driver and Fireman respectively, by opening the air valve to suit their own requirements, and ensure a regular supply of air.
The gauntlets, hoods, and respirators when finished with are to be replaced in the container by the Enginemen, and handed to the Fitter in charge at Wallerawang on arrival. In cases of engines going through to Lithgow or Bathurst it will be encumbent on the Driver to hand the container to the Traffic Staff at Wallerawang. The containers are to be collected twice a day, or more often if necessary, by the Loco. Staff at Wallerawang. The Fitter in charge at Wallerawang will be responsible for sterilising the respirators and airing the gauntlets and hood, and forwarding the requirements daily to the Station Master at Capertee for re-issue.
(C.M.E. 26—15,072—312.) (W.N. 4—1928.)

ting connection to an air supply.

A wet sweat rag could then be placed inside the mask behind the gauze cover for filtering the air. The mask was held in position over the nose and mouth by hand.

2. Four gauntlets, or long leather arm-length gloves.

3. Two 'granny' hoods or capes. These were shaped canvas, coat-like coverings which could be draped over the head and shoulders. They were fitted with hand straps and ties, allowing the user to hold the cape in place.

A set of respirator equipment was then placed in a leather bag, similar to a soldier's kit bag and was then ready for use. Some kit bags had a large steel ring fixed to the top of the bag, which then made it suitable for picking up by the enginemen without stopping the train.

Sterilisation

Cleanliness of the respirator equipment has always been of prime importance, even from the earliest days of their introduction in 1927. Instructions regarding cleaning were included as well as naming of the responsible officer in that particular location or district to oversee the procedure. Subsequently, a special material and method for cleaning was included in the instructions, as noted in the example for Burringbar Range tunnel, shown previously.

The liquid 'Zephiran' was used extensively in the cleaning operation and had to be employed strictly as shown in the instructions.

When the author raised the question of 'Zephiran' with a pharmacist recently, his reply was: "It is an old sterilising agent used many years ago for cleaning and sterilising doctors' and

Table 3
BURRINGBAR RANGE TUNNEL.

Use of Respirators by Enginemen.—Enginemen working Down goods trains from Casino to Murwillumbah will, on request at Casino, be supplied with respirator equipment for use when running through the Burringbar Tunnel. In addition, enginemen working Goods and Cane trains between Murwillumbah and Byron Bay will be supplied, on request at Murwillumbah, with respirator equipment for use in this tunnel.

The following instructions concerning the issue and sterilising of the respirators must be strictly observed:—

The Loco. Chargeman at Casino and the Examiner at Murwillumbah will, when requested, deliver to enginemen concerned, a container in which there will be two (2) respirators, two (2) hoods and four (4) gauntlets, for use of Driver and Fireman when running through Burringbar Range Tunnel. Each respirator is fitted with a flexible tube, and the nut attached to the end of this tube is to be connected to the air valve of pipe line on back plate of boiler and the respirator placed over the nose and mouth. Enginemen should insert a wet sponge cloth beneath the wire frame which covers the air inlet of each respirator, and this additional sponge cloth, which will be specially issued to each employee at his home depot, must be retained by him solely for this purpose.

The air supply for the respirators is controlled by the respective driver and fireman by slowly opening the air valve to suit their requirements.

A special branch pipe fitting for attachment to the air line and an additional respirator has been provided at Burringbar and Murwillumbah for the use of Pilotmen and/or Travelling Officers when riding on engines.

After use the respirators and other equipment are to be placed in the containers by the enginemen and handed back to the issuing Officer who will arrange for sterilisation and re-issue as required.

The Loco. Chargeman at Casino and the Examiner at Murwillumbah will keep a record of the equipment issued and received in the following form:—

Equipment Issued.					Equipment Received.		
Date.	No. of Container.	To Whom Issued.		Train Time.	Date.	No. of Container.	Train Time.
		Name.	Grade.				

The District Locomotive Engineer, Casino, will arrange for a stocktaking of the equipment at least once a week to ensure that all containers are complete and the contents in serviceable condition.

Method of Sterilising.—The method to be adopted for sterilising respirator equipment shall be as follows:—

The sterilising agent to be used is a liquid substance known as "Zephiran." It may be obtained in pint bottles in concentrated form by requisition from the Comptroller of Stores, in the usual way. Full directions for the use of "Zephiran" as a steriliser will be included on a printed label pasted on each bottle, and includes:—

Direction for Dilution and Use.—Do not use soap on articles prior to sterilising.

"Zephiran" contained in this bottle is concentrated, and must be diluted as directed before use.

Dilute.—One tablespoonful to 5 pints of water (i.e., 1 part "Zephiran" to 200 parts water).

Respirators.—Wash metal and rubber parts thoroughly in the solution, rinse carefully, and dry.

Gloves.—Immerse in solution for five (5) minutes. Dry thoroughly.

Hoods.—Wash in solution. Dry thoroughly.

The containers for the above equipment shall also be washed in the solution and dried thoroughly.

The District Locomotive Engineer, Casino, shall arrange for the requisite supply of sterilising agent to be maintained at Casino and Murwillumbah.

A closer view of the train engine, 5456. The fireman has his boiler water and fire in good order as the train approaches the tunnel mouth. When all was well, he could then put on the respirator equipment and sit on his seat. The respirator hoods and masks were usually donned just as the engine was about to enter the bore.
Doug Askew

Above Left: *With the Capertee Valley in the background, 3306 crests the grade and rolls toward Capertee tunnel on the Mudgee line. The train is No.67, Lithgow-Mudgee passenger, deputising for the normal two-car diesel train, and the date is 27 December 1966.* *R.D. Love*

Left: *Carcoar tunnel, located a few hundred yards south of the station, was opened in 1888. Respirators were made available to crewmen working down trains through the tunnel during World War II. On a bright, spring morning in 1962, Bathurst engine 5311 approaches the tunnel, heading for Cowra on No.55 goods.* *Mick Ewer*

dentists' instruments. It hasn't been seen for many years."

The Practical Side

The respirators as described were used in steam locomotives on the New South Wales Railways for about forty years. Their use was not always straight-forward. True, they were simple devices provided to assist with the safety and comfort of crews when passing within the confines of railway tunnels, but it must be remembered that the combination of a confined space, poisonous gases, heat, lack of fresh air and workmen battling on a heavy grade with a labouring steam locomotive were the ingredients for things to go wrong.

Most enginemen had involvement with this equipment during their careers whilst working on steam locomotives, quite simply due to the fact that promotions usually meant changing depots at some stage of their lives. Nearly all of the depots on the eastern coast, plus quite a few northern and western depots provided the men to work the trains through tunnels where respirators were in regular, everyday usage.

The following examples illustrate the use of respirator equipment from a practical viewpoint.

Cowan Bank

Respirators and equipment were made available on the long and famous Cowan bank in December 1941, as noted in the Weekly Notice. (These tunnels are known officially as Boronia No.1 - No.4, the No.1

tunnel being closest to Cowan.) At the time, the equipment was only available for use on bank engines by the banker crew, if requested. Obviously, the equipment was much in demand and the continual cleaning of the kits made it necessary to change the procedures. In December of the following year, 1942, a new notation in the Weekly Notice (WN) stated that seven sets of respirators were now available, issued by the station master at Hawkesbury River and the issued set was to be retained by each banker crew for the duration of its shift.

In mid-1943, their use at Hawkesbury River was further extended. Respirators were to be issued to crews of both bank engines and train engines of up goods trains conveying 1000 ton loads. The SM at Hawkesbury River was to issue the respirators and they were to be handed back to the SM at Cowan on arrival, there to be returned to the 'River for sterilisation and re-issue. The District Locomotive Engineer at Hornsby depot was the responsible officer.

It should be noted that, at the time, only respirators and gauntlets were specified for issue, the hoods or capes were not mentioned.

A long-time Hornsby driver, whose normal duties included Hawkesbury River bankers during the late 1940s and 1950s, said: *"I used the respirators a lot between Hawkesbury River and Cowan. They were issued by the station staff at Hawkesbury River and dropped off at Cowan, from where they were returned by a suitable train back to the 'River for cleaning and re-issue. The engines I worked were mostly fitted with two air outlets on the backhead of the boiler, but to permit a travelling officer (Locomotive Inspector) to also use a respirator, a tee piece was in use, giving a third air supply, even though there were only two control valves.*

"I preferred to use a sweat rag (sponge cloth) soaked in clean water over my face as sometimes the air supply was a bit foul and warm, since the air was coming from the air brake reservoirs which often contained some water.

"When the 60 class Garratts first came out, the Hawkesbury River banker used to be attached in the lead to assist to Cowan. On one occasion, I was the driver of the banker attached leading, with an Enfield crew on the Garratt. We both slipped to a stand in No.3 Boronia tunnel (short curved tunnel) and neither of the two crews had respirators. We were almost 'out to it' on our engine and the crew on the Garratt not much better. We had to back out and recover ourselves. That was the end of steam bank engines attached to the front of Garratts, as the Enfield driver was an AFULE (union) official and assisting in that manner, attached in front of the train engine, was then banned. Not long after that incident, I was the driver on a bank engine pushing up a 60 class and we had a high-ranking Loco Inspector armed with a thermometer to test the heat on the banker. We had respirators, but the Inspector did not, claiming 'no need for such luxuries'. We pulled to a stand in No.2 tunnel and the thermometer blew up. I estimate the temperature to have been in excess of 150°F. We all had yellow sulphur deposits over the skin from that episode.

"It was usual for the bank engine crews to be issued with respirators when the engine ran light from Hornsby depot to the 'River and the crews retained them for the duration of their shift.

"In the early days of the diesel-electrics, we also assisted them in the lead from Hawkesbury River up the 'River bank to Cowan and with the wind blowing from the wrong direction, the combination of diesel fumes and our bank engine exhaust was almost as bad as having a Garratt on the train."

Assisting diesel-electrics in the lead was banned soon after, but not due to the effects noted above. The diesel-electrics were found to be adversely affected by the steam and cinders exhausting from steam bank engines, so all assisting had to be carried out by rear-end banking.

Zig Zag Tunnels

Prior to the opening of electrification of the main Western line to Bowenfels in 1957, the District Locomotive Engineer in Lithgow had overall responsibility for the issue, maintenance and record-keeping of respirator sets for three separate locations in his area. By the 1950s, respirators were in use in Capertee tunnel on the Mudgee line, Marrangaroo tunnel between Marrangaroo and Wallerawang and the ten Zig-Zag tunnels (known locally as the ten 'ratholes'), between Newnes Junction and Zig-Zag Signal Box.

These ten 'rat-holes' were opened in October 1910, built on an extensive deviation to replace the original Great Zig-Zag. They are of various lengths, between 260 feet for No.9 tunnel (the shortest), up to 3192 feet for No.10 tunnel, the longest of the ten. It is a double track section, the tunnels are all on a rising 1 in 90 grade facing up trains and all but two of the tunnels are on curved alignment.

NOT ALL STATIONS SHOWN   RDL
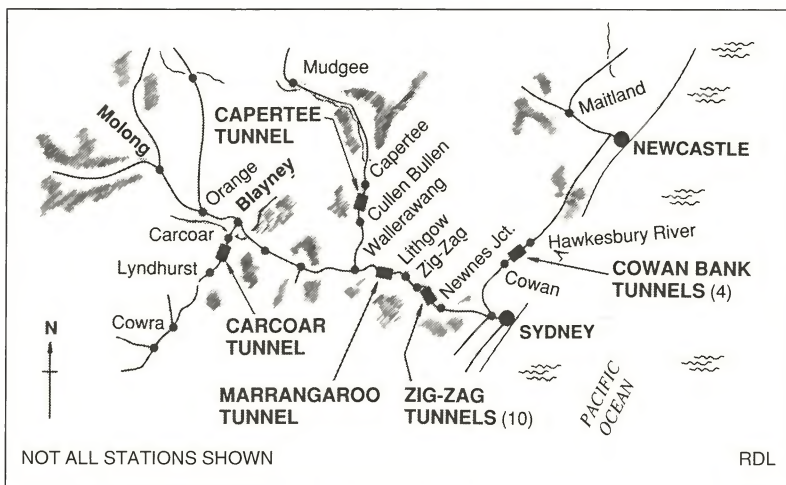
Double heading of up goods trains through Ardglen tunnel was permitted, as the tunnel was virtually over the grade and downhill toward Murrurundi. Rear-end banking from Willow Tree to the tunnel mouth was still common, mainly to suit rapid return of the banker engine to Willow Tree. 5439 has pushed the train as far as the tunnel mouth and will return tender first to wait for the next job.   *Mick Farrell*

A Lithgow driver noted: *"The respirators were mostly used on 57 and 58 class engines and some-times when working oil-burning 55 class engines. Generally, they were not required for crews on pas-senger trains or when working Standard Goods en-gines, as the heat and fumes were not severe in the double line tunnels. Tunnel No.4 (1325 feet long) and No.7 (735 feet long) were the hottest and No.10, the longest, was also pretty bad on some trips. The respirators were picked up at Lithgow loco and dropped off at Newnes Junction for return to Lithgow."*

The Border

The group of tunnels located near the NSW - Queensland border on the North Coast line was opened in September 1930. The five tunnels (Spiral 1 and 2, Border and Running Creek 1 and 2) are in the ranges between Cougal and Glenapp. They are located on various inclines and are of differing lengths. Respirators were provided for the use of enginemen working trains through these tunnels in either direction in May 1932. The fitters-in-charge issued the respirators, three sets being available at each of Casino and Yeerongpilly steam depots. The overall responsibility for these devices at the time was the Steam Shed Inspector at Lismore depot, the 'headquarters' for locomotive operations on the North Coast at the time. A few years later, the DLEs at Casino and Yeerongpilly were nominated as the responsible officers, Lismore by then having lost its status.

Belmont Line

The Redhead tunnel on the Belmont branch (also known as Fernleigh tunnel) was opened in Novem-ber 1892. It is 594 feet long, on a 1 in 40 rising grade facing up or empty coal trains. (Trains heading out along the line are actually running in the up direc-tion as far as traffic is concerned). Respirators had

been in use since the early 1930s and remained there for the duration of steam haulage on the line, which ceased in 1971.

The signalman at Adamstown, the junction for the branch, issued the sets to the engine crew as they passed the signal box en-route to the Belmont branch with a train of empties. The engine crew then returned the used equipment to him on the return trip with the loaded train. The DLE at Broadmeadow sent an employee to the signal box daily to collect and sterilise the respirators and return the cleaned sets to Adamstown 'box. Former Locomotive Inspector Harry Wright remembers: *"I was going out to John Darling Colliery tender-first on a 'spewy T' (saturated 50 class) and with a fireman 'in training'. Both driver and fireman had respirators, I had to use the wet sweat rag. We had just enough water in the boiler, a very sick boiler. We cut the feed (injector) off entering the tunnel and inside, the safety valves lifted slightly and the old girl started to spew (enginemen's term for priming, boiler water gushing out of the chimney with the exhaust steam). And oh, the heat! The new fireman got panicky, and in order to calm him, I had to get him low toward the floor. I had to remove the sweat rag to talk to him. The heat burnt into my face and lungs. Lungs 'sore' if that's the word, for hours afterwards. That's the worst experience I have ever had. It was enough too! Usually no problem when only two men."*

In everyday use, Harry Wright describes the normal operation of the respirator: *"Blow out the rubbish from the nozzle, then let the air flow gently - in normal running, that air was hot, coming directly from the main reservoir ... yet, when coming through the mask in a hot tunnel, the air was lovely and cool."*

Ardglen

Ardglen tunnel was opened in August 1877, is perfectly straight and located at the summit of a four mile climb from Murrurundi. The grade is almost continually 1 in 40 for the long climb, so the train speed, by the time the tunnel is reached, is minimal.

Respirators were introduced there in 1927 and remained in regular use for forty years, until steam was withdrawn from the area in 1966.

In August 1926, a Weekly Notice was issued with explicit instructions to the effect that, under no circumstances were down goods trains to be assisted in front between Murrurundi and Ardglen. All assistance of down goods trains was to be by rear-end banking and only 50, 53 and 55 class engines were to be used. In addition, only bogie brake vans were to be used on these trains. (This was later amended to note that brakevans were to be no less than 10 tons in weight.) These instructions were obviously issued as a result of the problems encountered in and around the tunnel in earlier years.

By November 1927, since respirators had been brought into use some months beforehand, the use of double-headed Standard Goods engines on down goods trains was again permitted, providing certain

requirements were met. (As noted earlier, in 1916 the operation of double-header goods trains on the down journey from Murrurundi to Ardglen was prohibited, all banking was to be by push-up engine only). By 1927, restrictions were eased a little, and double-headers were authorised.

The load of such a train was to be only 75% (i.e. ¾ of the load normally allowed for two engines). For the conveyance of this reduced load, both engines had to be fitted for respirators. If either engine was not fitted for this equipment, only a severely reduced load could be hauled. As a result of further problems with heat and fumes from the two engines on the heavy grade, all double-heading of down goods trains was again banned at a later date. From then on, all assisting of down goods trains reverted to rear-end banking exclusively and the bank engine had to be either 50, 53 or 55 class 2-8-0s only. Even a double-headed mainline goods train, proceeding from Broadmeadow to Werris Creek, had to detach the lead engine in Murrurundi, which then went on the back of the train to push through the tunnel to Ardglen. At this latter station, the rear banker would then re-attach to the front of the train for the remainder of the trip north. If an engine was 'light attached' to a train engine on a down goods (i.e. a single load with two engines in the lead), they could only stay coupled in the lead through the tunnel if both were fitted for respirators. These requirements illustrate the severe problem with the exhaust gases in the confines of the tunnel.

A long-time Murrurundi driver estimates that there were 30 to 35 sets of respirators in regular use through the tunnel during the 1950s and 1960s period, all requiring the customary cleansing and sterilizing each time they were used. When questioned about the use of the 'T' piece, (the cab fitting allowing three respirators to be connected even though there were only two air valves on the backhead of the firebox), he replied: *"I have heard of them, but I have never seen one"*.

On the everyday usage of the respirators, he said: *"... Most enginemen just used a damp sweat rag folded up and held by hand over the nose and mouth, but they always had the respirators connected to the valve just in case, especially on the bankers. Sometimes, they could be seen connected to the valves, but with the masks dangling out of the cab window of the bankers"*.

A Werris Creek driver recalled: *"I went through Ardglen one winter's night, 36 class engine, we had respirators on and got a train length inside the tunnel and we were both on the floor gasping for air. We could feel the skin on our arms and face burning. We got through, but only just. When heading up the range toward the tunnel, the last fire was put on at the Starr Bridge (New England Highway) to allow sufficient time to burn through and eliminate heavy smoke within the tunnel."*

When asked about the possibility of an extra person in the cab, such as a Locomotive Inspector, he replied ... *"In most cases, the Travelling Officer or Locomotive Inspector went back to the van or*

Self-rescue air breathing apparatus is in use on the Ulan line to provide safe working conditions in the event of an engine failure in the long No.3 Ulan tunnel. A box containing the breathing equipment is shown on Muswellbrook platform waiting for issue to the next coal train. R.D. Love

carriages for the trip through the tunnel, or sometimes, depending on the temperature or which way the wind was blowing, would only use the damp rag over his face. We were entitled to an extra sweat rag (sponge cloth) when working through the tunnel. The 'T' piece was not in use in my time there."

Down passenger trains could be double headed through the Ardglen tunnel if required, the increased speed and usually reduced weight as compared to a slow goods train compensated for the discomfort. Nevertheless, both engine crews had respirators, 'just in case'. Up trains did not need to take on respirators, the tunnel being 'over the peak of the grade' from Ardglen. However, if a crew was a bit uneasy about travelling through the tunnel, the driver usually whistled the signalman at Ardglen whilst approaching the station and was handed a set with the staff.

Continuing on, the Werris Creek driver said … *"A small number of enginemen were terrified of Ardglen tunnel, knowing of its reputation, and would swap jobs so as to avoid travelling that way. I knew quite a few men who had to climb down the engine steps whilst travelling through, just to get some cool air. It is quite dangerous to do so, as it's a pretty tight fit. When Werris Creek crews, working a goods home from Muswellbrook, took over the en-*gine, they had to check to see that it was fitted up with respirator valves in the cab, especially if it had recently come out of workshops. If the valves were not fitted, it was necessary to request time at Murrurundi, whilst the fitter added the valves."*

Illawarra and Wallarobba

The Illawarra Range No.1 and No.2 tunnels, between Unanderra and Robertson, were opened in August 1932, with the opening of the single line Unanderra - Moss Vale cross country link. The Illawarra No.1 tunnel is 335 feet long, on a 1 in 33 grade, whilst No.2 is 2060 feet long and on a 1 in 120 grade.

Four sets of respirator equipment were soon made available for enginemen working down trains (i.e. trains proceeding up the hill toward Moss Vale), as indicated in the Local Appendix of 14 August 1934. They were issued to enginemen by the Steam Shed Inspector at Thirroul, 'on application'. The same Steam Shed Inspector and the Station Master at Moss Vale were each responsible for their care.

In May 1943, the Weekly Notice brought to the attention of all staff, "… that six (6) sets of respirator equipment were now available for the use of enginemen when working down double-headed goods trains on the North Coast line through the

Wallarobba tunnel, between Hilldale and Wallarobba". The equipment consisted of two respirators, two 'Granny' type hoods and gauntlets and would be supplied by Broadmeadow depot prior to departure and handed back to the station master at Dungog. The Steam Shed Inspector at Broadmeadow was the responsible officer for this equipment.

Wallarobba tunnel was opened in August 1911, was 993 feet long and was located on a rising 1 in 120 grade. The difficult approach to the tunnel, more than two miles of 1 in 80 on continuous curves, caused most goods trains to be working exceptionally hard at a reduced speed by the time the tunnel was reached.

According to a Taree driver of the period "... *We used the respirators on most double-header goods trains through that tunnel; sometimes the hoods were not available, only the face masks and air nozzles. Sometimes we picked them up at Maitland instead of Broadmeadow and usually dropped them off at either Wallarobba or Dungog.*

"Wallarobba tunnel was the cause of a lot of illness with the men, through inhalation of fumes, etc., I have had to stop my train on number of occasions in Wallarobba platform and sit on the station seats until we both felt well enough to resume the trip. A lot of men working that line had to do the same.

"For some years, Bulliac tunnel (60 miles further north) caused us problems. Each school day, the pick-up goods had an extra carriage attached near the brakevan in order to convey school kids to and from school at Gloucester and Pitlochry. On the home trip, some kids lived in the gate-house on the south side of Bulliac tunnel and in order for us to steam up the grade toward the tunnel, stop and drop the kids at the gate, the engine was either right at the tunnel entrance or even just inside. It was usually better to steam through the tunnel, with the engine coming to a stand just on the north side, which then would leave the carriage and van on the south side. Sometimes, an idiot guard would assume we had forgotten to stop and pulled the air tap, leaving us to cook in the tunnel."

Last Days

Diesel-electric locomotives arrived and commenced main-line working in 1952 and by the late 1950s, the number of locations still issuing the respirators was reduced to about ten.

Electrification of the Western line to Lithgow in 1957 removed the need for the respirators through the ten 'rat-holes' on the Blue Mountains eastward out of Lithgow, whilst, with dieselisation of the North Coast line in 1958, Wallarobba, Karangi (Red Hill tunnels), and the Border Spiral tunnels no longer needed them. By January 1960, 46 class electric locomotives took over most of the main-line goods and all of the bank-work through the Cowan Bank tunnels and the need for the respirators was removed from there also.

The use of respirators diminished over a number of years. This was due to the gradual withdrawal of steam locomotive operations from the various locations where respirators were in regular usage. It is difficult to say where or when the last of the respirators were in use, most likely to have been Carcoar tunnel or Fernleigh tunnel, in the 1967 - 1970 period. In any case, when diesel or electric locomotives took over an area, many sets of respirators were forwarded on to the nearest large steam depot for storage. They were then used for the occasional special steam tour train and so on, until, eventually, the few respirators remaining were to be found only in the railway museums.

Ulan Tunnel

In 1982, the Ulan line was opened to traffic. This 78½ mile line, between Sandy Hollow on the Muswellbrook - Merriwa branch and Gulgong on the Mudgee - Binnaway line, is mainly a coal-haulage route linking the coal mine at Ulan with the port of Newcastle. In the 66 mile section between Sandy Hollow and Ulan there are four tunnels, the longest being the No.3 Bylong tunnel. This single line tunnel is the longest on a government railway in Australia, at 6480 feet.

In the early days of operations, various combinations of mainline diesel-electric motive power were used on coal haulage, but by 1986, the 81 class 2240kW diesels were normally to be found on the coal trains. As coal production increased, the size of the trains also increased and as a result, by 1987, the normal train size comprised sixty-three 100-

The breathing equipment is provided in sealed metal containers, two of which are supplied in the box shown previously. The containers are sealed for security reasons, and should the seal be broken, indicating use, the equipment is withdrawn for reconditioning. The container is shown at Muswellbrook.   *R.D. Love*

tonne coal hoppers hauled by triple 81 class diesel-electrics. Soon after, four 81 class hauling eighty-four 100-tonne hoppers became a normal operation.

It was soon realized that four 81 class on such a heavy train in a tight single line tunnel on a heavy grade consume a lot of air, create copious amount of poisonous fumes and pose a safety threat to crewmen.

Weekly Notice No.12, March 1987 brings the attention of all staff to the provision of "... respirator equipment in Ulan No.3 Tunnel". The respirator equipment was actually "approved self-rescue air breathing apparatus" and was to be issued to "each person required to travel in the leading locomotive cabin of trains hauled by three or more coupled diesel-powered locomotives through the No.3 Ulan tunnel, etc.".

The Weekly Notice goes on to state the requirements and limitations, the degree of pre-training required of the crew members and all the emergency arrangements should a train fail or stop in the tunnel.

In Weekly Notice No.25 of June 1988, the instructions were modified to explain that the breathing equipment was in fact noted as 'SSR 90 Rescue Apparatus' and had to be issued to all crewmen on trains 'powered by two or more' locomotives. The instructions applied previously to 'three or more locomotives'. Minor amendments were also listed to the practical application of the equipment. The breathing equipment is issued to each crewman of a down train in Muswellbrook station by the station master or one of his responsible officers and returned by the enginemen of up trains as they enter the yard in Muswellbrook. The

In November 1989, a load test was conducted through the Ardglen tunnel. As a safeguard, the engine crews were issued with SCUBA type breathing equipment. Werris Creek driver Bob Proctor received training in Willow Tree yard prior to the test and displays the equipment.
R.D. Love

equipment is issued in sealed containers and if unused, is returned to Muswellbrook with the seal intact. Should the seal be broken, indicating the equipment has been used, that particular unit is withdrawn and despatched to Broadmeadow for checking and re-conditioning.

Test Load Over Ardglen

On 28 November 1989, a load trial was carried out over the Liverpool Range through the Ardglen tunnel. The test was conducted to determine the suitability of, and set loads and conditions for, 48 class engines hauling thirty-nine wagon wheat trains south from Werris Creek, through to Bullock

On Tuesday, 28 November 1989, the test train gets under way from Willow Tree with five 48 class and Dynamometer Car leading, assisted in the rear by three 35 class bank engines. Some day, respirators (or the modern equivalent) may return to the spot where it all started, some 65 years previously. R.D. Love

Island, in Newcastle. The aim was to permit through operation of 48 class engines from the wheat branches in the North-West to the port without an engine change at Werris Creek. Various combinations of motive power were tested, using arrangements of 48 class train engines and 35 class (modified 45 class) as bank engines. The test load was a 3200 tonne coal train, since a suitable wheat train of that weight was unavailable at the time. The test train was operated from Willow Tree to Murrurundi and return to Willow Tree. The test was then repeated from Willow Tree to Murrurundi. There was a very real possibility of the test train having problems during the trials and coming to a

stand with the locomotives in the tight Ardglen tunnel. As a consequence, the crews on the test train were given a 'crash' course in the use of breathing apparatus in Willow Tree yard prior to the test. The equipment issued to each man on the train was of the SCUBA style with pressurised air tanks, together with appropriate face masks, etc. The load tests were a success and fortunately the breathing apparatus was not required on the day.

The standard motive power arrangement was then set: four 48 class engines, with three 35 class bankers.

Return of the Respirators - Where It All Began

For some years, coal trains of 4200 tonne gross loading (forty-two 100-tonne hoppers) have been running regularly from the coalfields in the Gunnedah area to Newcastle. Normally, these trains are hauled by two 81 class diesel electrics as train engines throughout, being rear-end assisted by three 35 class bank engines from Willow Tree towards Ardglen tunnel.

Originally, the bankers were coupled to the rear of the train during this operation and they remained attached through Ardglen tunnel, to a point on the Murrurundi side. A few hundred metres on the Murrurundi side of the tunnel mouth, on the downgrade, the train would come to a stand and the bankers would detach. At that stage, 1989 - 1990, no breathing apparatus was supplied for use

through the tunnel. An incident occurred in which a train 'broke in half' whilst traversing this section thus causing the rear portion of the train, including the three 35 class bankers, to come to a stand within the tunnel. As with the Ulan tunnel situation, this created a potential disaster for the crew, multiple diesel-electrics stationary within the confines of a tight tunnel with little chance of escape. From this incident, the Werris Creek-based banker crews requested the provision of respirators or self-breathing apparatus. Training of the crews in the use of the SSR-90 breathing apparatus followed during 1990 and Authority Cards were issued to the men, although the particular cards issued were still lettered for use in the Ulan tunnel. The actual introduction of the SSR-90 breathing apparatus in Ardglen tunnel working was then delayed as instructions on emergency procedures to be adopted had yet to be formulated. As an interim measure, the 35 class engines were fitted with an emergency engine shut-down feature, so all locomotives could be shut down simultaneously to lessen exhaust fumes should they come to stand in the tunnel.

A change in working saw the introduction of front-end assistance of coal trains from Willow Tree through to Murrurundi, i.e. three 35 class leading the two 81 class train engines. This also posed some fume problems for the crew on the 81 class and, as a result, these men rode in the leading 35 class for the trip over the Range through the tunnel.

Some months later, the working was again changed. Coupler lifting pins were fitted to the 35 class, so enabling the bank engines to push to the tunnel mouth without actually coupling to the rear vehicle. The bankers could then drop off the rear of the train without entering the tunnel. This working still applies at the time of writing (1992).

Botany Line

Another form of respirator is currently (1992) in use in the Sydney area. These respirators are issued by the signalman at Cook's River box to all train crews entering the industrial sidings in the Botany area, and returned as the trains pass back by the box. They resemble the style of mask used commercially by spray painters, etc., covering nose and mouth, and fitted with a filter canister through which the operator breathes. The

respirators are issued in small, sealed canvas satchels and, if unused, are returned sealed. About ten sets are in service. This type of equipment actually 'fits' the Oxford Dictionary definition.

Epilogue

Respirators were introduced at Ardglen in 1927 due to operating problems with the single line tunnel through the Liverpool Ranges.

Former Inspector, Harry Wright summed up the situation … *"Even though respirators were used in many places over a long period of time, my thoughts go out to the men of yesteryear, working the 2-6-0s and 0-6-0s on the extremely slow goods trains during those far-off days. What did they go through when passing through these tunnels?"*
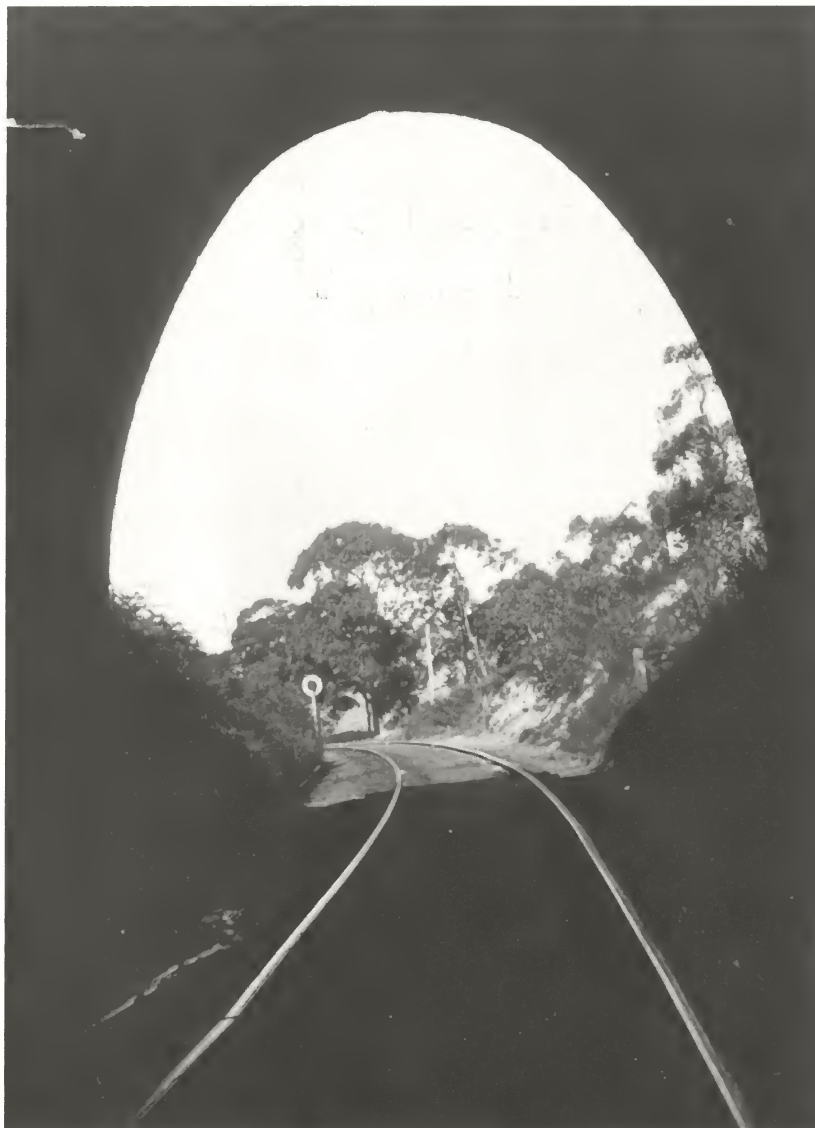
A sight to bring a smile to smoke-blackened faces of crews on labouring steam engines: the 'fresh air' end of Fernleigh tunnel on the Belmont branch.   *SRA Archives*

Above: *A sight not often seen in the 1950s was a 35 class engine at the head of No.7 North-West Mail departing Sydney station. Here, right on time at 3.30pm on Monday, 14 December 1959, Broadmeadow engine 3524 starts the Mail on its northward journey. Behind the leading CX 'dog box' side-loading car is an ACX composite sleeping car, common for many years on the North-West Mail, although it did not proceed onto a branch line and was used solely for sitting passengers.*

Unless otherwise mentioned, all photographs by the author.

Above Right: *3133 lends a hand to 3046 in bringing to Sydney station, from Macdonaldtown car sidings, a number of cars for attachment to mail trains. The end-vestibule Mann-type EAM sleeping car immediately behind 3046 is showing its age. Sunday 19 March 1961.*

Left: *Ticket collector Fred Saxon photographed whilst sheeting collected tickets at Sydney station in 1956. This involved sorting tickets according to line (North Coast, South, West, Illawarra), station, number order, class and single/return. Details recorded included how many collected, how many missing and reasons for any missing. This practice, for audit purposes, was suspended in the 1970s.*

Working at
SYDNEY RAILWAY STATION

Fred Saxon

Introduction

Sydney's railway station has been given several names over the years including, for some time in its history, the name Redfern. Similarly, the old Sydney yards were once termed Redfern yards, which can be confusing to the present-day reader of historical accounts. This confusion has not been helped by there actually being three Sydney terminal stations at various times since the original opening in 1855. Sydney terminal station has always been some distance south of the main business centre of the city of Sydney, towards Redfern. The present station has been the terminal station serving Sydney since 1906. It was not until 1926 that the long-planned connection from Sydney railway station to the city heart occurred with the opening of the electrified underground railway. The electric train part of the station has been termed Central since its opening. It would appear that the correct terminology is for the current terminal station (platforms 1 to 15), to be called Sydney and the electric train platforms (16 to 25) to be called Central. Various working timetables, including that for the Illawarra Line from 1 December 1957, referred separately to Central (as the electric train station) and Sydney (as the 'steam station'). The term 'steam station' was commonly

used in the 1950s and 1960s but, as steam motive power waned, the term Sydney Terminal Station was reintroduced. Common usage has tended to apply the name Central to the entire station complex but, for the purposes of this essay, we will stay with what appears to be the correct nomenclature.

The first Sydney railway station goes back to the earliest days of the railway system in New South Wales, being opened on 26 September 1855. The terminus was located in the Cleveland Paddocks which were bounded more or less by Devonshire Street to the north and Cleveland Street to the south. The historical development of Sydney's terminal station and Sydney yards was documented by C.C. Singleton in 1966, R.F. Wylie in 1968 and R.G. Preston in 1980. The history of the electrified railway was covered by I.A. Brady in 1976. These references are cited at the end of this publication.

As described by Ron Preston, *"the first Sydney station was not the elaborate stone mansion originally planned but consisted of a single platform on the down side of the track surmounted by a 100ft by 30ft. galvanised iron shed with several rooms"*. At essentially the same site, Sydney's second station was constructed. A new brick building was erected on the site in 1874 giving a total accommodation of

This is a view of the exterior of Sydney railway station taken from the Parcels Post Office building in Railway Square on 20 November 1954. It shows the ramp adjacent to the western facade of the sandstone building and clock tower. The clock tower and upper levels of the sandstone building at Sydney station were added between 1915 and 1920 to the structure opened in 1906. The old Tivoli theatre at extreme left and the advertising hoardings at right depict the era.

Above Right: At the head of No.49 Moss Vale passenger, 3802 threads its way through Sydney yard late in the afternoon of Friday, 6 January 1967.

Right: Doing what members of the 32 class did for many decades, 3294 stands at the head of an eight-car LUB set, a Wollongong passenger service due to depart Sydney at 2.27pm. Behind 3294, a rebuilt, high-framed engine, construction works are in progress on the platform. Tuesday, 3 October 1961.

two platforms and two docks. This enabled separate platforms to be used for arrivals and departures. Various additions were made over the years until, in 1896, there were ten platforms, denoted by number, plus two others, termed 'A' and 'B'. By the turn of the century this station complex could not cope with the increasing traffic and was becoming something of an embarrassment to the thriving metropolis. A new station was considered a necessity. After deliberation on alternative sites, it was decided to develop the new site some distance to the north of the original site on land which was occupied by the Devonshire Street cemetery, some open ground and several public buildings. The old tramway which brought commuters to the busy Sydney station had to be re-routed, buildings had to be demolished for the new works and bodies had to be relocated from the old Devonshire Street cemetery, mainly reinterred in Botany cemetery. The new Sydney station and Sydney yard were then constructed. This time a more substantial stone building, using the finest Pyrmont sandstone, was constructed, giving the city of Sydney a worthy terminal station. However, when opened on 4 August 1906, the intended structure was not complete. The attractive clock tower and additional floors around three sides of the central concourse were added between 1915 and 1920, thus completing the imposing structure. These later extensions necessitated the opening of a government sandstone quarry in Storey Street, Maroubra to supply the stonework. The distinctive clock tower, which has a total height to the top of its flagpole of 245 feet above street level, has been a prominent landmark in the area for decades, but particularly

Looking towards the south-east, this aerial photograph shows Sydney station and Sydney yard as they were in the late 1940s. At left of picture are the elevated electrified lines from the Sydney underground railway which lead to Central (electric) platforms 16 to 23 and, beyond, to the electrified suburban network. In the centre is the imposing structure of Sydney terminal station with its clock tower. Platforms 1 to 15 extend beyond the sandstone station building, the platforms being numbered from right to left of picture. Beyond these platforms lies Sydney yard, bounded by the eastern and western car-cleaning sheds. The goods line to Darling Harbour curves to the right at extreme right of photo. The extensive network of crossovers and flyovers for the suburban lines can be seen at top right of photo.

SRA

before the recent construction of high rise buildings.

According to Singleton, the dead ends of platforms 1 to 10 of the new (1906) terminal were only 852 feet north of the dead ends of the two principal platforms of the second Sydney station (1874). Today's pedestrian subway from Devonshire Street to Central Square marks the place where that street, carrying the Botany steam tramlines, once

continued right through. The old (1874) dead ends were only 50 feet or so beyond the row of skylights at the outer ends of the present platforms. In 1926 the electrified city railway was opened, thus linking the centre of Sydney with the extensive railway system just to its south. The area formerly occupied by country platforms 16 to 19, together with the Brewery siding and the horse docks, was recon-

Main Western Railway Line
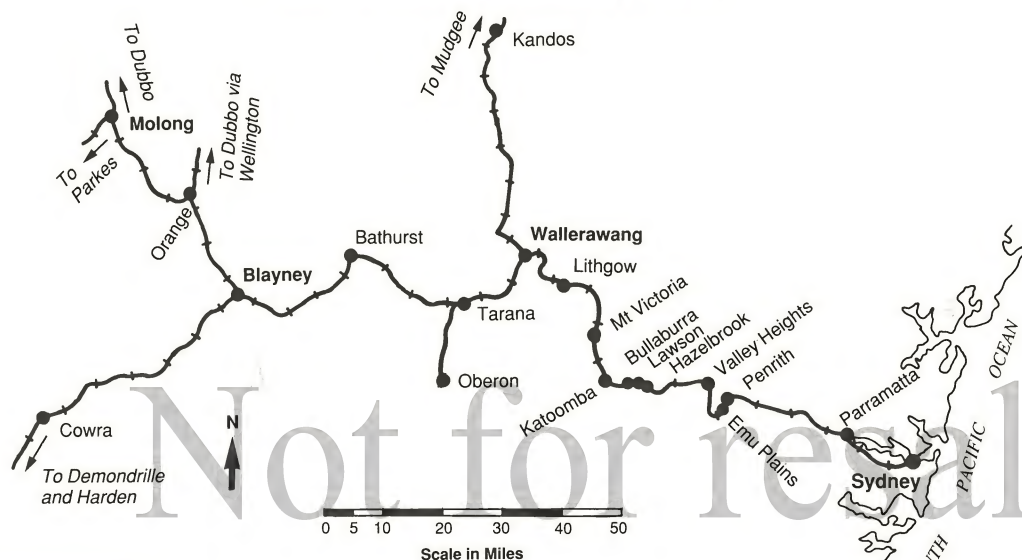
NOT ALL STATIONS SHOWN

SC

At the head of No.19 Southern Highlands Express, 3803 stands at Platform 1 in Sydney station prior to departure on Thursday, 27 December 1962. The impressive sandstone clock tower in the background has been a prominent Sydney landmark for many decades. No.133 evening commuter to Wollongong, formed of the Budd car set, waits at No.2 platform.

structed to form Central electric station, namely platforms 16 to 23. In 1979 the long-awaited Eastern Suburbs Railway became a reality, Sydney Central being served by its platforms 24 and 25, constructed beneath Chalmers Street.

Sydney yard also contained within its confines two carriage cleaning sheds, the larger eastern sheds having a claimed capacity of 108 cars while the western sheds had a capacity of 54 cars. The yards were served by two signal boxes, also denoted East and West, between 1914 and the commissioning of computerised signal controls in 1979 and 1980. Throughout most of its history, Sydney station has been a very busy place indeed, for many decades serving a major, growing city that depended largely on public transport. It was at Sydney station and the adjacent carriage cleaning sheds that I spent most of my time, in various roles, while employed by the New South Wales Railways. My career in the railways spanned forty-three years, from 1934 until 1977. During this time I witnessed a great many changes.

During my railway employment, I developed a keen interest in photography, particularly public transport photography. Over the years, I have taken many thousands of photographs of various forms of public transport including ferries, trams, trolley-

buses and buses but railway photography has been my major interest. My railway employment afforded me many opportunities to pursue this hobby. It was not until 1952 that I started seriously taking photographs of trains. This was while I was at Sydney terminal station and was just after the first mainline diesel locomotives, the 40 class, were introduced into regular service. In the early 1950s most of the working in and out of Sydney station, as well as the shunting in Sydney yard, utilised steam motive power. In the mid to late 1950s, diesel-electric and electric locomotives were being used to an increasing extent. Fortunately, I was able to photograph a lot of this steam action before it was replaced. What follows is a compilation of some of my memories from my days at Sydney railway station. It is not intended to be a definitive account but rather a series of my recollections and experiences, accompanied by a selection of photographs. These photographs illustrate the typical life at the station and in Sydney yard, encompassing the extensive facilities, the numerous railway employees going about their work and the train working I experienced over many years. I have been encouraged to publish my recollections and photographs to ensure that these details are recorded while it is still possible. I hope that readers will find them of interest

This is a view of Lawson taken in the mid 1950s. On the right is Lawson station and the railway line, looking west. The Great Western Highway, with negligible traffic, can be seen, as well as the shops of that era. The shop on the extreme left was the grocery store at which Fred Saxon was employed as a youth, before he joined the Railways in 1934.

No.9 mixed, or paper train, to Orange was typically worked by a 36 class engine from Sydney to Bathurst. Here, in the early morning of Friday, 4 November 1955, a 32 class engine, attached at Valley Heights, assists the 36 class train engine in the ascent of the Blue Mountains. It was common for empty stock vehicles to form part of the load of No.9. The fibrolite pipe conveying water for locomotive purposes can be seen at right.

Electrification of the western line to Lithgow is not far distant as 5316 assists train engine 3647 at the head of No.25 Bathurst passenger. Enfield engine 5316 was on loan to Valley Heights depot, where it was attached to the 36 for the climb to Katoomba. The additional marker lamps, on the front buffer beam and smokebox, of 5316 are of interest. The train was photographed near Springwood on Wednesday, 19 September 1956.

and value.

The Early Days

In 1927, my parents, my brother and sister and I moved from our previous home in Balmain, an inner Sydney suburb, to our new home at Lawson in the Blue Mountains of NSW. I was a ten year old lad at the time and soon attended Lawson primary school. When I went to high school, I originally attended Granville Central Junior Technical High School for a short period but transferred to Katoomba High School, where I stayed until 1932. During my school days at Katoomba High, I travelled on 'the Squib', also known as 'Stumpy', which had a 30 class 4-6-4 tank engine hauling three 'dog box' side-loading carriages. This train (No.215) travelled from Penrith to Mount Victoria, stopping at all stations and taking children to the various schools on the way. I used to travel on it between Lawson and Katoomba and got up to all the usual schoolboy capers. I remember the train being worked frequently by 3111, then still a tank engine. As No.216, this train returned to Blacktown on weekday afternoons. My interest in trains and railways was acquired almost from the time we first moved to Lawson. We lived near the railway line and a goods train could not pass without me counting all the trucks on it. In the early days these were mostly S and D trucks as well as the many coal hoppers travelling to and from the coal mines around Lithgow.

I recall the first 57 class engine to arrive at Lawson to take water in 1929. We schoolboys, marvelling at the sight of this huge engine, scaled the gate in the fence of the goods yard, while the headmaster tried to call us back. Also etched in my memory is the Royal Train in 1927, with two blue 36s and a crown placed in front of the funnel of the leading engine, stopping at Lawson for water. At that time the main road through Lawson was being sealed for the first time, with sticky black tar. There was a note in the daily press referring to a 'ragged urchin' running alongside the train waving to the Royal couple. That happened to be me!

I left school in 1932 when I turned 15. The country was suffering the effects of the great depression at the time. I worked on a milkman's cart for a period and spent some time as an assistant grocery boy and paper deliverer. Early in the mornings, we used to unload the newspapers from No.9 paper train just before the arrival of 'The Fish', the fast business commuter train from Mount Victoria to Sydney. No.9 was hauled by a 35 or 36 class engine, typically assisted by a 50 or 53 class engine from Valley Heights, while No.10, 'The Fish', was hauled by a 36. We only had sufficient time to cut the ropes around the bundles of newspapers and sell them to the hordes of passengers who surrounded us. What a panic there was when the driver of 'The Fish' blew his whistle! After that, I became a 'lolly boy' on the station, carrying a tray with fruit, chocolates and ice cream in the summer and hot pies in the winter. I then decided to join the Railways, applying for a job as a junior porter. After a couple of applications, I was advised to present myself for an examination in Sydney. I'll never forget receiving my pass to

attend the Railway Institute in Castlereagh Street, where I had all the colour light and 'confetti book' tests for colour blindness as well as an examination in mathematics and dictation. I then had to wait for the results when I got home. After about six months I was advised I had been accepted and on 29 January 1934 I commenced duty at Lawson station as a junior porter. About a week later I received my new navy blue rough serge uniform, including waistcoat with brass buttons and two brass badges to be clipped on. One badge had NSWR on it and the other had No.3451, these to be worn on the opposite lapels of the uniform. We had to keep these brass badges polished. Nickel buttons were restricted to the officers, whose uniforms were similar but had braid on the sleeve cuffs.

My first jobs were to sweep the subway, scrub the waiting room and ladies' room floors, clean the toilets, issue tickets before trains, collect parcels from the guards of trains, enter details of all parcels in the parcels book and deliver same and obtain signatures. The station subway was covered in Virginia creeper, which appeared to be always dropping leaves and providing me with plenty of work to keep tidy. The mail bags for the lower mountain districts were left by the mail sorters on the down Forbes Mail around 10 o'clock at night and, next morning, I had to hand them to the guard on 'The Fish' at about 6.45am for distribution from Hazelbrook to Emu Plains. In those days 'The Fish' stopped at all stations between Mt. Victoria and Penrith.

Every Thursday I had to go out and collect all the signal lamps from the signals, the farthest being the up distant, a good half mile towards Bullaburra. The lamps were carried on a broomstick to the lamp room at the eastern end of the platform. There were at least ten signals and several dwarf signals for yard shunting. All the lamps had to be filled with kerosene, their glasses cleaned, wicks trimmed and the copper tops had to be cleaned with acid and polished with Brasso. I remember once, when I was bringing in some lamps for cleaning, the signal for the loop line was cleared for an up goods train, so I decided to walk down the main line. Unbeknown to me, the S.M. (station master) changed his mind and thought I knew the train was coming. The driver of the engine (a Standard Goods) waited until he was a few yards from me on the main line and then blew his whistle. I jumped about a foot into the air and dropped my lamps, much to the glee of the engine crew. The down second home signal was right at the ashpits for goods trains, about 300 yards west of the station, where the engines would take water. Being right above the leading engine, the signal was always black with soot. After cleaning it, so was I!

Every week the junior had to sort out all the collected tickets, 'sheet' them and then tie them up in bundles. It was in the days of the coupon tickets with one small butt to be torn off on the forward journey. Trying to tie up a bundle of them was nobody's business, as they invariably collapsed and had to be sorted again. Sheeting the tickets involved sorting them into singles and returns, first class and second class, noting how many were collected, how many were missing and giving an explanation for why any were missing. Such paperwork was used for many decades for audit purposes.

The fare from Lawson in those days (1/2d, or fourteen pence, to Katoomba) was 7/11d first class and 5/8d second class to Sydney while a cheap excursion fare for a weekend was 7/7d return. On Friday afternoons, a passenger train, No.36 from Mt. Victoria, departed Lawson at about 5.00pm. There was a Main Roads Board workers' camp at Bullaburra, which was an unattended station, and several workers would jump off this train at Lawson to buy tickets at my booth, mostly to places for which we didn't have any tickets printed. I had to quickly write out the destination, put the fare price on it (after looking it up) as well as the station's code number on the back and then stamp the date on both ends. By the time two or three wanted tickets, that delayed the train, which we were not allowed to do. Friday afternoons often had me in a frenzy!

Once a year we had the Commissioner's inspection, and that is when the whitewash and the black paint came out in gallons, especially for the doorsteps and the signal box floor. All the signal levers had to be emery-papered bright and the waiting room floors scrubbed. Then, when the Commissioner came, the juniors were sent out of the way, probably so the S.M. could claim all the credit! We also had inspections from the Traffic Inspector and sometimes the District Superintendent and woe betide us if the place wasn't clean and all the lamps extinguished in the day time. My old station master at Lawson was Denny O'Sullivan, who hadn't a hair on his body or on his head, and wore a white helmet all year round. He also owned what he said was a racehorse and was the target of some good-natured ribbing by the train crews. After a while he got used to it.

The down trains through Lawson nearly all had pilot engines to assist them up the 1 in 33 grades. They were attached at Valley Heights (1055ft. above sea level), where there was a busy locomotive depot, and removed at Katoomba (3336ft. above sea level) where they were turned on the 60ft turntable and sent back to Valley Heights. Even the big 57s generally had a pilot engine and the cacophony of their exhausts was music to my ears. I can still hear them now! Most down trains, both passenger and goods, stopped at Lawson for the engines to take water. Until the introduction of the 36 class engines in 1925, with their large turret tenders, all passenger trains had to take water at Lawson. Lawson station was 2403ft. above sea level.

I can also remember the famous Caves Express which ran between Sydney and Mt Victoria and consisted of specially-painted blue and cream car sets. This train commenced running on 11 November 1929, worked by "an immaculate 32 class engine". Five-car VUB set 75 was initially used. In 1932, the 35 class displaced the 32 class on the Caves Express and, in May 1933, a test run was

On Tuesday, 30 August 1955, a westbound goods train with 5711 in the lead charges through Emu Plains station at the foot of the climb up the Blue Mountains. Further up the mountains, at Valley Heights, 5711 will probably receive assistance from a Standard Goods locomotive over the almost continuous 20 mile long stretch of 1 in 33 grade to Katoomba, taking water at Lawson.

made with a six-car CUB set prior to introducing these cars on the express on a regular basis. Six-car CUB set 86 was specially painted blue and cream for this purpose and was hauled by a 35 class until November 1935, when the roster was taken over by the 36 class. I have fond memories of the train hauled by a big blue 35 class with a star on the front of the smokebox. At the time it was claimed to be the fastest mountain train in the world. In the working timetable from 10 June 1934, on its outward journey No.21 Caves Express departed Sydney at the leisurely time of 10.35am on Fridays and Saturdays only. Its first scheduled stop was at Hazelbrook at 12.01pm, then at Lawson for 5 minutes between 12.06 and 12.11pm to take water. It then stopped all stations to Mt. Victoria where it arrived at 1.00pm. On its return journey, as No.22, the express departed Mt. Victoria at 7.00pm, stopping all stations to Hazelbrook, then non stop to Sydney where it arrived at 9.15pm. This train afforded Sydney folk the opportunity to travel to and inspect the famous Jenolan Caves, then a major

tourist attraction, in the one day. The above times were for working by a 35 class engine. With the introduction of the 3 November 1935 timetable, the Caves Express was to be worked by a 36 class to faster running times and with the elimination of the need to take water at Lawson on the down journey. This timetable also provided for the train to run daily (except Sundays). In the early days of the express with the VUB set, there was only a small 'broom cupboard' buffet on both sides of the aisle in the end car. The buffet boys wore short white coats. One such buffet boy, Ken Hall, later became the head of the Railway Refreshment Rooms at Sydney Station.

There were quite a few characters over the years. One I can remember was an obese old guard with a slow drawl. He used to target all the new junior porters along the line and string them along. For instance, he would tell them he had some pet snakes and asked if they could get him some frogs to feed them. One day, someone took him literally and he was given half a kerosene tin full of them. He

Immaculately presented 3387 is photographed on Monday, 11 November 1929 on the first official run of the Caves Express. The tender of 3387 and five car VUB set 75 have been decorated with streamers, some of which remain. The location is thought to be approaching Katoomba. Of interest is the exhaust steam injector fitted to the fireman's side of 3387 behind the air compressor. Contemporary press reports claimed that the car set was painted 'blue and brown'.
SRA

This brochure, extolling the virtues of the Caves Express, was distributed during the time when the express ran on all weekdays. This timetable applied to its working by a 32 class engine.   SRA

Bearing a five-pointed star on the front of its smokebox, highly polished blue 3506 is photographed at speed at the head of the down Caves Express. On this day the express has an additional American suburban car in front of the normal five-car blue and cream VUB set. The centre car of the VUB set bears the Caves Express nameboard. The location is thought to be passing through Parramatta Park.   SRA


Engine 3527 at the head of the down Caves Express is photographed near Katoomba in the early 1930s. Five-car VUB set 75, painted in blue and cream, bears the Caves Express nameboard on its centre (third) car. The star appears to be missing from the front of 3527's smokebox.   SRA

A beautifully presented blue 3506 stands at Sydney station at the head of No.21 down Caves Express. At the time, the 35 class were fitted with headlights which were slightly larger and were mounted higher on the smokebox than they were in their later years. The six-car, blue and cream-painted CUB set 86 is behind 3506. *SRA*
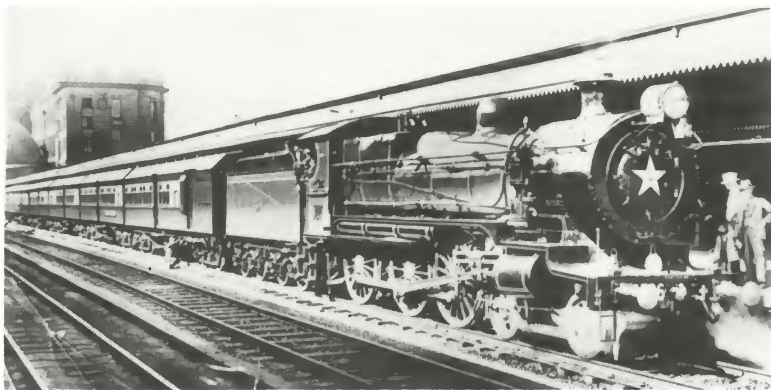
The Caves Express, hauled by 3535, photographed while it was crossing Knapsack viaduct near the foot of the Blue Mountains in 1935. Distinctive features are the large star on blue-painted 3535's smokebox, the specially-painted blue and cream, six-car CUB set 86 with nameboards on the second and fifth cars, and the original style of the 35 class, prior to rebuilding.
Late C.A. Cardew

The working of the Caves Express was taken over by the 36 class in November 1935, running to a faster timetable. Here, engine 3673, fitted with experimental smoke deflectors, conveys the down Caves Express across Knapsack viaduct in the lower Blue Mountains on its fast journey to Mt Victoria in April 1936. 3673 was one of many members of the 36 class with lined green livery. These locomotives were typically kept immaculate by the engine cleaners at the mainline depots, particularly in the mid to late 1930s. *SRA*

The curve at Katoomba is again the location chosen to photograph the down Caves Express. Here it has highly polished green 3660 at the head of five-car SUB set 108 which was used in the later years of the train's running. Set 108 was also painted blue and cream.
SRA

The mainstay of Sydney yard shunting for many years, the 30 class 4-6-4 side tank locomotives are represented here by 3105 and 3107, photographed outside the western car sheds near No.1 platform. The cars formerly used on 'The Fish', SOB set 102, can be seen at right, standing in No.1 platform in the late afternoon. After electrification of the west, SOB102 was reduced to seven cars and ran on Nos 19 and 20 South, the 'Southern Highlands Express'.

accepted them with thanks and, when he arrived at his destination, Mt Victoria, he smuggled them into the signal box and lifted the cover. There were frogs everywhere! This same guard often acted as an armed security guard, accompanying the paymaster who travelled by train each fortnight to pay railway employees at stations along the line. The paymaster and security guard travelled in a locked compartment in the centre of a side-loading 'dog box' carriage on No.23 Bathurst passenger, hauled by a 35 class engine. It was in this way that my pay arrived each alternate Tuesday. The security guard carried a gun, though, as far as I am aware, he never had cause to use it. No.23 also stopped at Zig Zag to pay the employees there on these 'pay days'. I can still remember the chiacking repartee I had with the guards of 'The Fish' when they were on duty. Regu-

lar guards on 'The Fish' during my time at Lawson were Tom Walsh and Jack Webber, while Dan Mansfield was a relief guard.

In the winter months, when it snowed further up the mountains, it was common to see two mounds of snow on the buffer beams of the engines on up trains. The snow often lasted until the train reached Sydney. I can recall Katoomba covered in snow and, of course, the inevitable snow fights. Despite this fun, I hated the cold weather.

The Lawson swimming pool is of interest. This was originally a spring-fed dam which supplied the water for the tanks used to replenish the locomotive water supplies. One of these tanks was large, of concrete construction and was located in the adjacent park (now a bowling club). The other tank was adjacent, on the up side, to the water columns at the

Yard shunters 3141 and 3124 are photographed on adjacent tracks at the western car sheds behind No.1 platform at Sydney station. Diesel-electric shunter 7923, partly obscured, can be seen to the right of 3124. It was at the carriage cleaning sheds that Fred Saxon commenced his long association with Sydney station.

In this view from Sydney station's clock tower, Sydney yard in pre-electrification days can be seen. A 32 class is departing on a country passenger service while a 30 class tank, a 79 class diesel-electric locomotive and three 26 class saddle tank locomotives are at work as yard shunters. The early 1950s landscape of southern Sydney has undergone substantial modification since this photograph was taken.

Also taken from the clock tower, this late afternoon view of Sydney yard shows three 38 class locomotives on separate trains, waiting to depart Sydney station. In No.2 platform (on the right of the photo) is No.31 5.05pm down evening Newcastle Express; in No.4 the down Southern Highlands Express awaits departure time. Over to the left, in Platform 15, No.31a 5.07pm Cessnock Express waits to follow the Flyer northward. Two of the 38s are streamlined, and all three appear to be very clean, still in green livery. Several 30 class yard shunters can be seen further up the yard. Note the old Exhibition Building in Prince Alfred Park (top left of photograph). Circa 1952.

The last in the class, 3391 departs from Sydney station's No.10 platform on Saturday, 26 January 1957 at the head of the 2.30pm passenger to the Illawarra line. The first P class engine to be fitted with superheating, 3391 retained the low frame with curved footplate based on the original P class design. 3391 was unique in many ways. Another 32 class engine, off a recently arrived train, can be seen to the right of 3391.

western end of Lawson station complex. They were fed by an old steam pump, housed in a stone building. They were in action in 1927 when we first arrived at Lawson, but were made redundant some years later when water was reticulated from a storage at Wentworth Falls. This water was conveyed

by a pipeline on the up side of the line.

Transfer to Sydney

I had to leave Lawson in January 1938 when I turned 21 as it was only a junior's job. We had a new station master by then and he managed to get his

Above Right: *Looking majestic in the afternoon sunshine just prior to departure from Sydney station's No.2 platform at 2.37pm, 3802 stands at the head of No.139 Muswellbrook passenger on Saturday,10 October 1959. This train ran only on Saturdays and returned on Sunday evenings.*

Left: *A customer receives a 'nice hot cuppa' from the ladies operating the RRR mobile buffet service at Sydney station's No.6 platform prior to the departure of a country passenger train, circa 1955.*
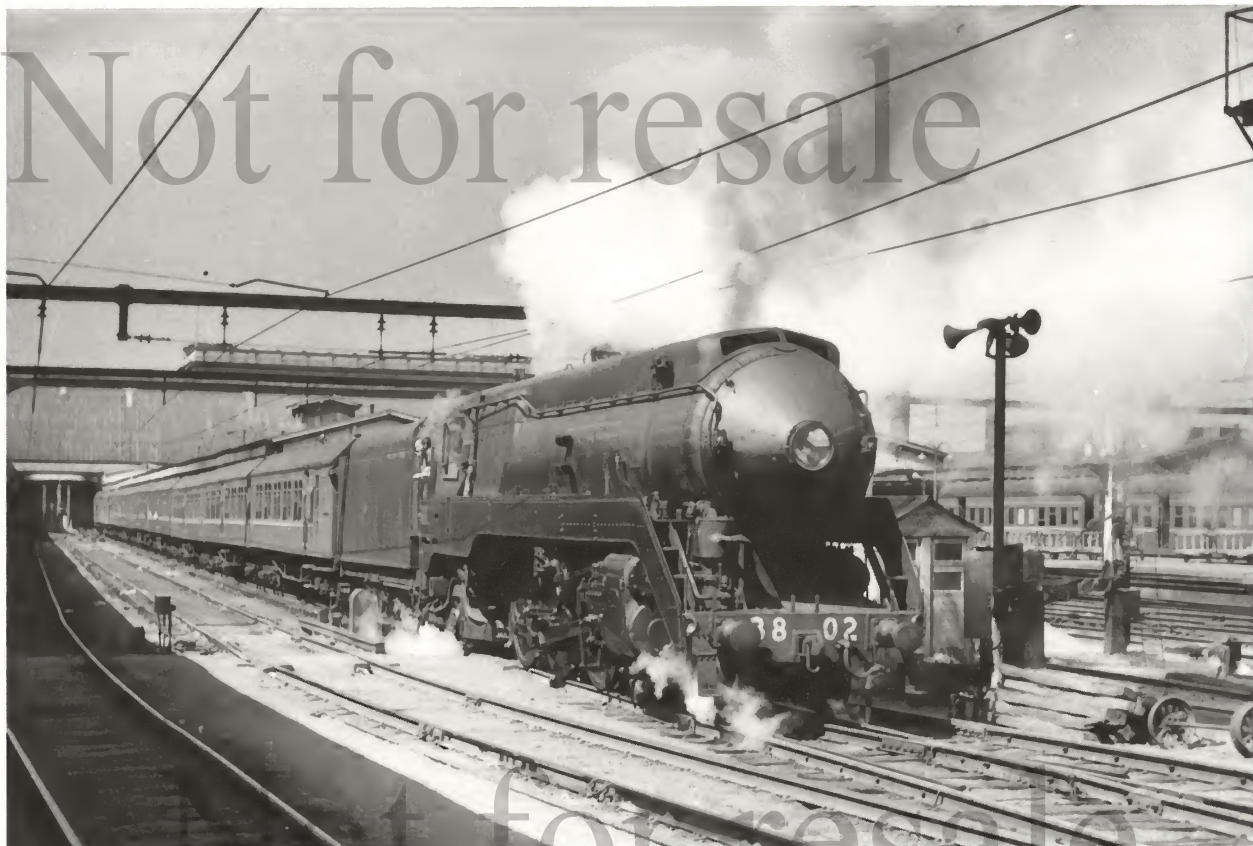
On Saturday, 26 January 1957, 'round top' 3610 departs Sydney station with the 2.27pm passenger service to Lithgow. Note the plate carrying the numbers 3610 on side of cab. Several months after this photo was taken, 3610 was reboilered in Chullora Workshops. The last of the ten 36 class engines constructed by Eveleigh Workshops, 3610 was also the last of the class to enter service, on 22 November 1928. The train consists of FR, BR, NOB set and EHO van. Just visible on the right is one of the Silver City Comet DH parcel vans, which worked through to Sydney on the Forbes Mail.

Left: *With a 26 class yard shunter in the background, 3516 gets No.17 down Brisbane Express via Wallan-garra moving from Sydney station in October 1955. The 35 class engines were relatively rare visitors to Sydney at this time. A BKD prison van can be seen behind the leading 'dog box' carriage.*

Above Right: *Before electrification of Sydney yard, 3313 assists 3802 at the head of No.17 Brisbane Express via Wallan-garra. On this February 1955 day, the express was over the load for an unassisted 38 between West Ryde and Hornsby. This was at the time of the devastating floods on the north coast of NSW and the only 'open' route to Brisbane was via Wallan-garra.*

son to take my place. I was transferred to Blayney, transhipping. Blayney, then, was a busy station in the central west of the state and the junction for the important cross-country link via Cowra to Demondrille and Harden on the main southern line. There were three shifts, two of them backshifts and one with a two-hour break in the middle of it. In those days separate brake vans, to be detached at Blayney for the Cowra line, were not conveyed on the western line so it was necessary to tranship luggage and parcels for the Cowra line at Blayney. I remember particularly the huge cane baskets, approximately 5' x 4' x 3' which conveyed the samples for commercial travellers, who then did their travelling by train. Blayney is located in the floor of a broad valley, surrounded by rolling hills. It is well noted for its extremely cold, bleak winters, but I was there in summer and it was hot. There was a plague of grasshoppers at the time and they were like a curtain up to five feet from the ground. Trains were slipping on them and cars were squashing them, so you can imagine what the smell was like! I stood this

Below Right: *Late in the afternoon of a sunny day in 1952, the Southern Highlands Express departs No.1 platform at Sydney station with 3645 in charge. The cab and rear bunker of a 26 class saddle tank yard shunter can be seen on extreme right of photo.*

Left: *'Round top' 36 class engine 3613 reverses into No.1 platform at Sydney station, dragging the cars for its train. The unusual number plate, with the numbers 3613, can be seen on the cab side. These plates were carried by several 'round top' 36 class engines.*
Late H.V. Palmer

for six weeks, during which time my mother died. This increased the burden of living so far from Sydney, so I asked for a transfer. They told me the only one available was at Sydney carriage cleaning sheds. A fellow there wanted to transfer to Blayney, so I swapped places with him. This started me on a long stint at the car sheds and the adjacent Sydney railway station.

When I came to Sydney, I went to live with my sister at her home at North Sydney. My new place of employment, the carriage cleaning sheds, was commonly known as 'the college of knowledge'; if you didn't know anything when you went in, they'd finish your education for you! They had working there every type of person imaginable, including the underworld. There were also some very nice people, some of whom became good friends. It was hard, dirty work and the unit examiners, who inspected the thoroughness of our cleaning work, could pounce at any time. If they judged our work to be sub-standard, we'd get a 'bung' (please explain) and in severe cases, a reprimand. Often, the cleaners were used as part-time ticket collectors at various stations and certain rosters were for assistance in peak hour traffic. I was one of many who worked at Wynyard, Central electric (sometimes on the indicators), Town Hall, and other underground stations. Eventually I was appointed to a permanent roster which included about 4+ hours in the car sheds. I then washed and changed into uniform and travelled to Wollstonecraft on the North Shore line where, from about 4.30pm to 6.00pm, I issued tickets on the down platform, collected tickets and started trains. I did this for about 5 years.

There were some vacancies at the Ticket Collectors' Office at Sydney station, so I applied for

one, somehow passed the exam and started there after a spell of 'light duties' owing to an injured knee cartilage caused by jumping down from platforms. The light duties entailed cleaning the offices of Train Control on the third floor at Sydney station and also the Morse code room, which was full of

Above: *Paper- and book-seller Jack Murray is pictured at work on No.10 platform, Sydney station. The publications for sale were typical of the times, as were the varnished timber seat and panelling behind, circa 1955*

Left: *No.7 North-West Mail starts its long journey headed by 3633, easing its way out of No.1 platform at Sydney station right on time at 3.30pm. The first four cars, namely CR, ACX, EHO and KP, were typical of the Mail's consist at the time, circa 1952.*

machines. These were eventually phased out after the advent of the electric teleprinter, of which I saw the first one to enter service. These new machines were a source of delight to the juniors, who sent messages to their mates in Newcastle, Dubbo and other stations. That was around 1945.

For some years I filled the position of a revenue clerk at the Ticket Collectors' Office, where all the ticket collectors and examiners paid their excess fare monies. I issued excess fare books and signed them on and off before joining the Examiners' staff, just before I retired on 3 July 1977 after forty-three years' service.

As I was always on hand at Sydney station, I was able to sneak up the yard when things were slack in the office and photograph anything that was coming or going. The yardmasters all knew me and I had their consent. In this way I took many hundreds of

Above: *On Friday, 25 April 1958, No.7 North-West Mail is overload for a 36 class between West Ryde and Hornsby. Here train engine 3675 receives the assistance of 3387 between Sydney and Hornsby as it departs Sydney station's No.1 platform right on time at 3.30pm. An ACM composite sleeper is the second car.*

Right: *Engine 5593 is at the head of a ballast train standing at No.20 platform of Central electric station on Tuesday, 24 November 1959.*

The crew of 3318 pose for the photographer on Monday, 16 July 1962 as the rubbish or 'kibble' train moves through Sydney yard. A typical consist for the train is shown here with five-ton crane locomotive 1044 at the centre and an S truck and goods brake van at each end. The eastern carriage cleaning sheds can be seen at right of picture.

photos over the years. Because I had ready access to Special Train Notices, I was able to plan to be present when a special train was running or anything out-of-the-ordinary was happening. Occasionally it would come to my notice that a construction train would be working in Sydney yard or would be passing through one of the electric platforms. Whenever possible I tried to photograph such trains and managed to capture some unusual workings. One working I was unable to capture was the day they inadvertently ran the up Goulburn day train, hauled by a 36, into No.16 platform (electric). They had a dickens of a job getting it back out again!

My first camera was a little plastic 127 model which cost about five shillings at the time. During the war I had a couple of box Brownie cameras but

film was at a premium and I remember quite often standing in a queue at Kodak's store in George Street, Sydney for film, at 2/11d, if you were lucky enough to reach the counter before they ran out. The next camera I bought early in 1952 was an Agfa 'Billy' 120 with new plasticised bellows. I suffered a number of spoiled photos due to pinholes in the bellows with that camera but I managed to take quite a few good shots. After that I bought a second-hand Zeiss Super Ikonta (120 size) then, later, a Voigtlander Bessa. For all this photography I did my own processing, even mixing up my own chemicals. This was at Mosman where I resided from 1949 to 1963. I had a darkroom built underneath the old house, which had sandstone pillars of sufficient height to enable me to walk beneath the house. This

Opposite Page: *On Wednesday 24 January 1968, crane locomotives 1034 and 1044 are engaged in lifting sleepers and lengths of rail in Sydney yard. A good deal of co-operation between the drivers of the two locomotives was necessary to ensure a safe and successful lift.*

Left: *Engine 3333 hauling a load of rail on bogie flat-top wagons passes the Railway Institute building and is about to arrive at No.20 platform, Central electric station on Monday, 4 May 1959.*

darkroom was built by a mate, and another mate built me an en-larger out of steel cyl-inders which I used for many years. When I graduated to 35mm cameras, I tried sev-eral types but, after joining the Railway In-stitute Photographic Club in the 1960s, I found most of the keen photographers had Pentaxes, as they were easy to handle and re-pair, and there were plenty of spare parts for them. Eventually I purchased a second-hand Pentax with an f1.4 lens for $90 and I've had it ever since and still use it, even though I have two other Pentax cameras. I use one of these for prints and the other for colour transparencies.

I used to record my photographs faithfully in a little memo book which I carried in my pocket. All the entries were written in ink by fountain pen. Unfortunately, in 1957, I forgot to take it out of the pocket of my pants and my wife put the lot through the washing machine. The result was blank pages. I learned a vital lesson the hard way. A number of my older photos had the date and other details on the back of the prints but many did not. Conse-quently, I cannot be precise about the date on sev-eral of the photos accompanying this essay. That explains the fact that 'circa' or simply the year appears in the caption. My apologies!

One of the more interesting trains which used to regularly visit the station and Sydney yard was the 'rubbish train'. Also known sometimes as the 'kibble train', it was commonly worked by a 32 class loco-motive, though it could have almost anything avail-able as motive power. I once photographed the rubbish train in Sydney yard hauled by Beyer-Gar-ratt 6042. The typical consist of the 'kibble train' was goods brake van, S truck, a 4 or 5 ton Dübs crane locomotive, S truck and goods brake van. The crane locomotive would travel with the train, collecting the rubbish buckets (kibbles) from the trackside at stations in the Sydney metropolitan area. Eveleigh depot had three of these 0-4-0 side tank crane loco-motives on its allotment. Two of these, 1034 and

Yard shunter 3124 and crew watch 3809 backing down Sydney yard to couple onto and depart from Sydney terminal station on No.49 South, to Moss Vale, at 3.54pm. Sydney East signal box can be seen behind 3809. Of interest is the extended bunker fitted to 3124.

Below Right: *Diesel-electric locomotive 7920, in black livery, shunts a mail train consist at No.10 platform, Sydney station while 3132, fitted with electric headlight front and rear, stands by on the centre road. Immediately behind 7920 are two delightful timber bodied 'twelve-wheeler' carriages, an MCE and an MFE. Both 7920 and its companion locomotive 7923 shared the Sydney yard shunting duties with the 30 class tank locomotives for many years. Along with sister engines 7921 and 7922, which ended up with the Commonwealth Railways, these diesel shunters commenced service in 1943. Circa 1957*

1038, were of four ton capacity and entered service in 1886 and 1887 respectively. The other, 1044, was of five ton capacity and slightly larger but was of much more recent construction, entering service in 1907. By this time, Dübs and Company of Glasgow had been absorbed into the North British Locomotive Company of Glasgow so, to be strictly correct, we should probably refer to 1044 as a North British crane locomotive. Detailed descriptions of working the 'kibble train' and crane locomotive 1034 are provided in Vol.12, No.2 and Vol.13, No.1 issues of the NSW RTM *Roundhouse*. These crane locomotives were also seen in Sydney yard from time to time whilst resleepering and rerailing works were being undertaken. On occasions, two of the cranes would combine in a single lift.

A major feature of Sydney railway station's steam platforms, and Sydney yard generally, was the number of smaller locomotives used for shunting carriages and trains between the platforms and the carriage sheds at Macdonaldtown and Sydney. For most of the time that I can recall there, the 30 class 4-6-4 side tank locomotives did the lion's share of this work. They were there right until the end of steam in Sydney yard, assisted occasionally in the later years by their 30T 4-6-0 sisters released from country depots. The two 79 class diesel locomotives, 7920 and 7923 were also regulars in Sydney yard for many years. Prior to electrification of Sydney yard in 1956, members of the 26 class 2-6-2 saddle tank locomotives shared the yard shunting duties

with the 30 class tank engines and the 79 class. Many of the 26 class were allocated, at different times, to Eveleigh depot for this work until 1956, generally two or three at a time. Immediately prior to electrification in 1956, engines 2601 and 2607 were at Eveleigh for this purpose. It is understood that the 26 class engines were transferred away from Eveleigh as they were barred from Sydney yard due to safety problems. The saddle tank engines took water in such a way that crews were in danger of electrocution from the overhead wires. On rare occasions, a small engine from a country depot would make an appearance in Sydney yard, filling in time before or after attention at Eveleigh workshops. I was surprised one day in January 1956 to see Cowra-based, superheated 25 class engine 2531 in Sydney yard at work on a construction train.

In a station complex as large and as busy as Sydney it was natural that there would be numerous 'characters' and I came across many of them over the years. In addition, there were many fellow railway workers who come readily to mind. One was the Station Policeman, 'Jerry the Irish Cop', who, in his own words (and accent), was 'the fittest man in the Farce!'. He used to seek out the drunks and metho drinkers, smash their bottle of 'plonk' and send them on their way, often with a kick in the pants and a promise to run them in if he caught them again. One evening when I was on duty at the ticket barrier at Sydney station for the down evening Newcastle Express, a passenger who was

'under the weather' from too much drink demanded entry through the barrier. He had a ticket but no seat booking. At that time, seat booking was compulsory on the Flyer and I had to refuse him entry. It became necessary to call Jerry the Cop as the passenger, also an Irishman, became very abusive. After a good deal of shouting and exchanging Irish expressions, the station master was called who, together with Jerry, bundled the passenger into a taxi and took him to the Regent Street police station.

There was a guard called Bede 'Sixer' Nash, a very big man indeed. Bede was a senior guard who lived at Lambton near Newcastle. Often he used to bring me a bunch of fresh rhubarb grown in his own garden. When I knew him, most of his work was on the Newcastle and Cessnock expresses. He was a real gentleman but not a man to trifle with! The story goes that on one evening in the 1950s, when he was on duty on the evening Newcastle Express, he was confronted by a drunken passenger who was being quite objectionable to the conductor and other passengers. After unsuccessful attempts at reasoning with him, 'Sixer' took the abusive passenger by the scruff of the neck, opened the door of the carriage as the train was racing through the countryside and, with one arm outstretched, held the passenger out the door to savour the cool night air. The passenger appeared to sober up instantly! I understand that some of the conductors on the evening Flyers used to regularly call on Bede for 'support', as alcohol was served on the train, and some passengers drank more than was good for them or the comfort of their fellow travellers. Then there was 'Tex', an unusual, tall, thin character in a cowboy hat, who had an all-lines season ticket and used to travel all over the country on the mail trains. He would often call in at

the ticket collectors' meal room for some hot water to make his tea. I also remember well the old Chinaman who, for years, sat in the entrance to the subway in Eddy Avenue selling peanuts for sixpence and one shilling a bag.

Some of the facilities, so much a part of Sydney railway station in the old days, also rate a mention. There was the RRR (Railway Refreshment Rooms) Kiosk on the tramway platform (colonnade) and, at the other end, the tramway starter's little cabin with a spare tram-car pole standing in a corner. Then there were the oak-panelled booking offices in between the colonnade and the assembly area. I recall the building of the new Interstate Booking Hall and the Italian craftsmen constructing the marble floor, with the map of Australia on it. The motifs and the train scenes on the walls above are still there, in its present role as a coffee room. Through the archway leading to the steps to the electric trains used to be an old wooden building which housed booking office windows used only on race days. The pastry and sandwich counter, with fruit at one end, the milk bar opposite (malted milks 4d in those days) and the tiny wine bar between the archway and the RRR restaurant in the corner of the main assembly area also come readily to mind.

In the early days, hansom cabs used to line up in their scores outside, where the buses now run, and move up one every time they got a fare. I remember well 'The Hole in the Wall' cafe, next to the Inwards parcels office in Pitt Street. A meal of pie and peas cost 1/3d. It was nicknamed by the staff the 'Cancertorium'. There were glass doors that used to lead from No.10 platform to the other side, where the Railway Pay Offices were. We used to line up there to get paid every second Tuesday. Then there
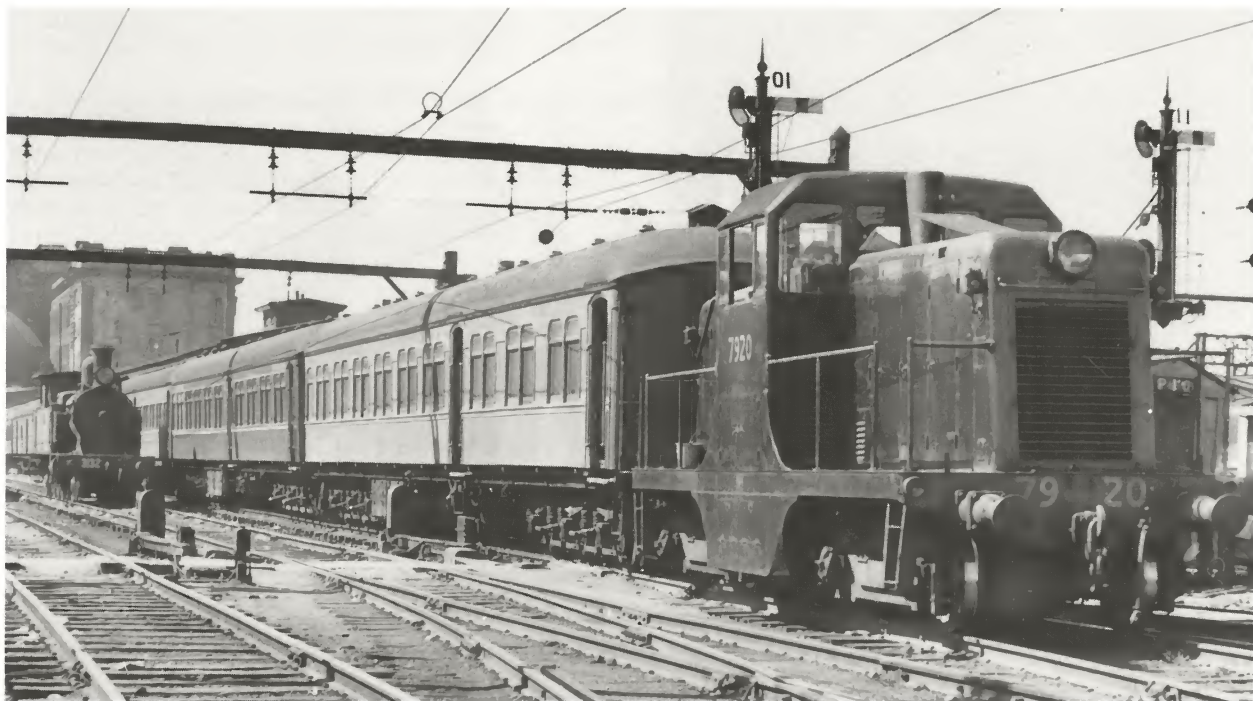
Prior to electrification of Sydney yard, members of the 26 class were allocated to Eveleigh depot for shunting Sydney yard but were banished because watering required the fireman to climb atop the tank. Here, in January 1956, class leader 2601 reverses 'The Fish' cars into No.3 platform. The marker lamps on the buffer beam and on top/front of the saddle tank on 2601 are of interest. 2601 and 2607 were the last two 26 class used for shunting Sydney yard.

This was the method commonly employed when a 26 class engine took water, a method not compatible with overhead electric wiring! Here 2607 takes water at Lithgow locomotive depot in the late afternoon of Saturday, 11 July 1959. Complete with its S match truck, 2607 had spent the day shunting in Lithgow's then busy yards. 2607 was one of the last members of the 26 class to be stationed at Eveleigh depot for use in Sydney yard, shunting car sets. I. Wallace.

was the bottle room at the end of No.10 and 11 platforms, where water bottles and glasses were washed, bottles filled with iced water and loaded onto bottle wagons which had two tiers and held around 60 bottles and glasses. These were used to supply all steam trains departing Sydney station. At night, basket containers on wheels held clean pillows which could be hired from attendants for one shilling for use on the night trains. There were also the 'redcaps' pushing hand barrows who met all up trains crying "Porter! Porter!" They would take passengers' luggage out to the taxi ranks for 3 or 4 shillings a load.

The large indicator boards at Sydney terminal station were well known. There were two of these large indicator boards. The Arrivals indicator board was between the entrances to the tramway colonnade and the original booking office. The Departures indicator board was in front of the men's toilets, with a clock mounted above it and another

suspended above, nearby. There were several lifts from the main assembly area down to the tunnels that ran beneath the station, and also from the

Above: *A very rare visitor to Sydney yard was 2531, here photographed after shunting a construction train for commencement of electrification of Nos 1 and 2 platforms in January 1956. Sydney yard East signal box can be seen to the right of 2531's tender.*

Right: *The last day 'on the job' for a big man. Guard Bede 'Sixer' Nash is photographed at Sydney station on his retirement day, in the company of several well-wishers from the Railway Refreshment Rooms. His last official run was on No.31a Cessnock Express, which departed Sydney at 5.07pm. Circa 1955/56.*

The main assembly area of Sydney terminal station showing the Train Arrivals indicator at left, while the end of the Departures indicator can be seen at right.

The Train Arrivals indicator showing expected arrival times for country trains at Sydney terminal station. The indicator was located in the main assembly area. 21 November 1959.

platforms leading down to a long tunnel from No.1 platform to the electric platforms. Around about the entrance to platform No.10, underground, were huge steel cauldrons about 20 feet long with overhead chain pulleys and cranes for lifting and lowering foot-warmers. Gas burners were used to boil foot-warmers for several hours prior to their being taken out and used for the many evening trains,

usually the mail and express trains, departing Sydney. The smell of the foot-warmer boiling process was quite overpowering at times.

In the future I will continue my recollections of the time I spent at Sydney station, making particular reference to some special train working, fellow railway employees and the signal boxes used for train control in Sydney yard.

Above: *The country Train Departures indicator at Sydney terminal station, located in the main assembly area. 21 November 1959.*

Right: *Five car VUB set 75 is being brought from Macdonaldtown car sheds to Sydney station by 3127 on Tuesday, 23 January 1968. Formerly the car set used on the Caves Express between 1929 and 1933, in 'improved' form with enclosed end-platforms and vestibuled connections between adjacent cars, car set 75 here was to be attached to No.19 Southern Highlands Express between Sydney and Campbelltown. The electric headlight fitted to the rear of 3127's rebuilt 16 class tender is noteworthy.*

Knapsack was a short-lived safeworking and crossing place on the eastern escarpment of the Blue Mountains. A standard skillion-roof timber signal box was provided at Knapsack to house the interlocking machine and staff instruments. The main line graded at 1 in 30 climbs past the ramped platform while the down refuge siding heads to the left. The tall signal is the up home. The lamp behind the disc signal can be discerned to the right of the short bracketed doll. The outdoor lamproom / toilet and the tubular telegraph post are period pieces also. SRA

Above Right: *This early view of Knapsack viaduct shows the original single track of the western line making its ascent of the Blue Mountains' eastern escarpment. Knapsack signal box, opened in 1909, was located where the curve in the line disappears behind the trees. The down refuge siding at Knapsack extended along the post and rail fence seen beyond the viaduct.* SRA

Our Rail Heritage
KNAPSACK

Robert Booth

Track and signal arrangements for safeworking places on the railways make an absorbing study. In many ways they mirror the development of the other facets of the railway such as engines, carriages and buildings. Most track arrangements served their need for decades; some existed only briefly where the railway evolved more quickly. A number, on the other hand, were retained beyond their usefulness, while a few were devised for some quite special purpose and it is this last category to which Knapsack belongs.

Knapsack was a safeworking and crossing place opened on 29 October 1909 on a part of the original line ascending the eastern escarpment of the Blue Mountains. Knapsack was located just on the Syd-

ney side of the first Knapsack viaduct, which until last year carried the Great Western Highway.

Three attempts have been made to elevate the railway from Emu Plains to Glenbrook. The first employed a zig zag having 1 in 30 grades to gain altitude as quickly (and as economically) as possible. The Little Zig Zag, as it became known, was opened when the western line was extended from Penrith to Weatherboard (now Wentworth Falls) on 11 July 1867. The zig zag served its purpose well but as successive extensions of the western line generated more traffic, the time-consuming procedure of reversing trains plus the short length of the upper dead end, began to hinder the movement of trains.

The Little Zig Zag was eliminated on 18 Decem-

KNAPSACK
1909

Repeat Shunting: Down Refuge to Up Refuge

Down Refuge Siding

To Katoomba

Bathurst Road

Gate House

24

4

10   5

5

1

From Sydney

Main Line

22 23

13 15

12

17   15

16 9

Main Line

Knapsack Viaduct

Signal Box

2 3

Up Refuge Siding

11 12

14 16

Trestle

20

21

Repeat Shunting: Up Refuge to Down Refuge
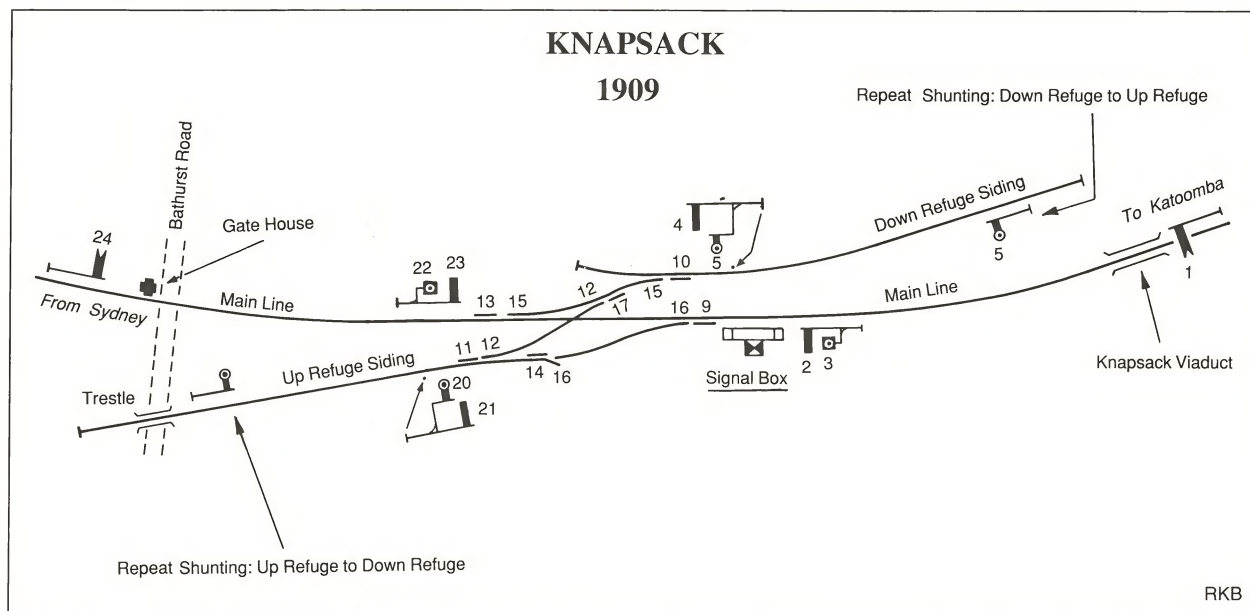
RKB

ber 1892 by extending the bottom line into a nearby gully at the close of which a 2165 foot tunnel was constructed to bring the deviated line, still a single track, into Glenbrook. The extension was graded at 1 in 33. It is to the later part of this era that Knapsack belongs. The present line, less severely graded at 1 in 60 and having two tracks, makes its ascent via Glenbrook Gorge and was opened in 1913. Glenbrook station was relocated south of its original position with this last re-routing of the railway.

The year 1902 saw the line across the Blue Mountains duplicated from old Glenbrook to Mount Victoria, leaving a single line bottleneck between Emu Plains and Glenbrook. In the same year Knapsack appears for the first time in safeworking nomenclature when a signal box of that name was opened as a follow-on and electric staff post on the *Bourke* side of Knapsack viaduct. With the section thus divided, two following trains could now run simultaneously between Emu Plains and Glenbrook, but there was no provision for crossings.

By 1909 traffic congestion made it necessary to place a crossing place in the vicinity of Knapsack. The continuous 1 in 30 grade made a conventional crossing loop undesirable and a novel arrangement having two cross-connected, dead-end, refuge sidings on the level was used instead. The new layout was constructed on the *Sydney* side of the Knapsack viaduct and came into operation on 29 October 1909.

Space was limited, resulting in the down refuge terminating in a shallow cutting on the edge of Knapsack Gully. The up refuge had to cross Mitchell's Pass road (the Bathurst road) to achieve its required length and did so by means of a trestle bridge. The up and down refuges were 1066' and 1056' long respectively, capable of holding a train with no more than 45 four-wheeled vehicles.

A train required to make a crossing headed into the appropriate refuge siding. After the opposing

train had passed, the train reversed across the main line into the other refuge siding. With a level start minimising the risk of the engine slipping or of a breakaway, the train then regained the main line and proceeded on its way. Passenger trains were not permitted to cross each other at Knapsack, but a passenger train could cross a refuged goods train.

Occupation of both refuges simultaneously was not permitted because this prevented the proper reversing procedures from being carried out. However, there was an exception with an up light engine. A goods train was then permitted to occupy the down refuge and a light engine to occupy the up refuge, both side-tracked to allow a train to pass on the main line. The light engine then reversed directly onto the main line via No.16 points before continuing on its way. Incidentally, this dispensation was permitted also for an up light engine alone refuged for a down train to pass.

The preferred method of working Knapsack was to refuge ascending trains and to allow descending trains to pass straight through. This arrangement avoided the need to lift and reset the handbrakes of a descending goods train if it was required to reverse from one refuge to the other.

The signal box at Knapsack was a standard skillion roof structure, having a short ramped platform between it and the main line. The signals employed were the standard types of the time. The main line home and distant semaphore signals had 5' wooden arms. Signals for shunting from one refuge siding to the other had 3'6" arms fitted with a red circular target. The oil lamp behind the spectacles of these signals produced a 6" diameter light at night. Repeating signals were provided near the ends of the refuges to indicate to drivers when it was clear to reverse their trains.

Signalling trains from the main line into a refuge siding was done with a revolving disc signal

mounted on the side of a short wooden doll which, in turn, was bracketed below the arm of the respective mainline home signal. The disc signals displayed a red hexagonal target for "Stop" and a green diamond for "Shunt". The corresponding night indications displayed a 1¾" diameter light at night. The use of a disc signal rather than a bracketed shunting semaphore arm to direct trains from the main line into the refuge was unusual and must have been installed with some special purpose in mind. A disc signal is not as visible from a distance as a semaphore arm and probably helped to ensure that the driver of a descending goods train in particular had his train under proper control before entering the refuge.

Knapsack had a relatively short life of 3½ years and was closed on 16 March 1913, when double track was extended westward from Emu Plains to Lapstone Hill signal box, making use of the first part of the deviated formation. The down line was transferred to the new formation via the Glenbrook Gorge on 11 May 1913 and the old single line was made the up line temporarily, until 23 July of that year, when the present double track route became fully operational.

A track arrangement similar to that at Knapsack was used later at Dombarton on the Unanderra - Moss Vale line where the single line is graded at 1 in 30 also. Dombarton differed from Knapsack in that the cross-connection between the refuges passed under the main line which was carried on an overbridge.

In 1926, the Great West-

ern Highway was diverted to follow the old railway formation in the vicinity of Knapsack so that a better ascent of Lapstone Hill could be made. The top part of the Knapsack viaduct had to be widened for the two lane roadway. Fortunately, the external concrete work was faced in stone to harmonise with the rest of the structure.

The highway approach of Lapstone Hill has followed the railway precedent of being diverted to meet ever-increasing traffic demands. The area in the vicinity of Knapsack refuge sidings will be spared a continuous procession of vehicles, allowing the heritage nature of the area to be absorbed in relative calm. The Knapsack viaduct and the ruins of the stone gate house mark the extremities of Knapsack refuge sidings.


The signalman and the children make an interesting study of the clothing fashions around 1910, although the time exposure necessary for the slow photographic emulsions of the period proved too much for the little girl. The signal box is quite clearly called a 'cabin' and the wall-mounted oil lamp has a deflector over its chimney to prevent a soot streak on the painted weatherboards. SRA

The fireman on No.132 goods looks back over the train to check all is well as 5364 drifts out of Carcoar towards Blayney in May 1966. This goods train had provision for passengers to travel in the guard's van and time was allowed to stop and pick up school children. The remains of an old stationary steam engine, a symbol of bygone days, contrast with the canvas-covered mounds of superphosphate fertiliser, unloaded from S and K wagons some time earlier.

All photographs by the author.

BLAYNEY DISTRICT
1966

NOT TO SCALE
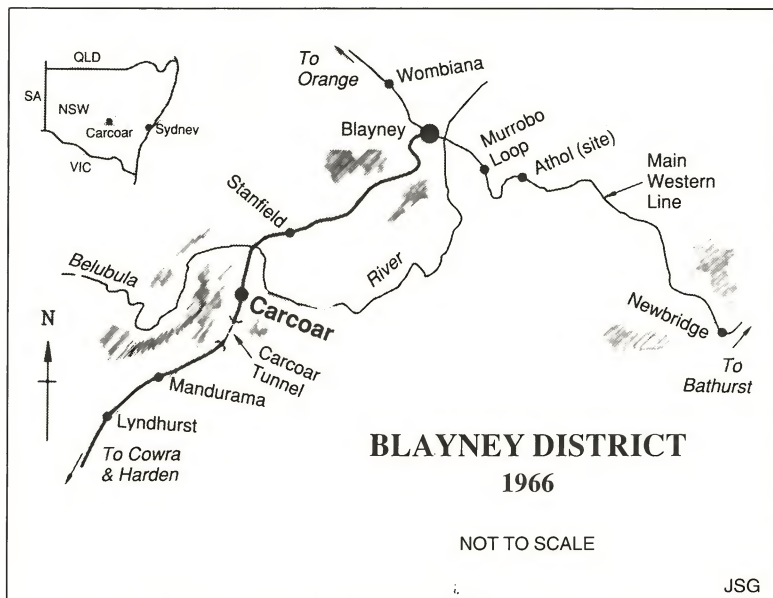
Above Right: No.11 mixed ran on Tuesdays, Thursdays and Saturdays, alternating with a two-car diesel train on other days, except Sunday. It met the Central West Express at Blayney, where intending Cowra line passengers changed into the CR composite carriage and parcels destined for the branch were loaded into the van. 5375 would take some 40 minutes for the run to Carcoar, during which time it climbed grades of 1 in 40 and worked through the unattended automatic crossing loop at Stanfield. Curves and grades on this section made it probably the most difficult for engine crews on the branch.

In May 1966, No.11 eases past the lever frame and enamelled station sign before bringing the carriage and van adjacent to the platform. Parcels and luggage were unloaded from the EHO by the guard, while the engine crew changed the staff.

CARCOAR PORTFOLIO

John S. Glastonbury

Located in the Central West of NSW, the picturesque village of Carcoar rests in a valley beside the Belubula River, some twelve rail miles south-west of Blayney, junction for the cross-country link to Cowra and Harden. Visitors will find the village is steeped in pioneer spirit, goldmining history and bushranger tales. Dating from the mid 1800s and now classified by the National Trust, Carcoar's buildings, some convict-constructed, line narrow streets bordered by verandah-posted shops, giving an old world charm to one of the west's earliest towns.

Overlooking the village from the hillside to the west of the settlement is Carcoar station, an impressive brick structure neatly complemented with enamel station signs, a platform lever frame and a large pine tree. Alongside the platform road a passing loop is provided, while a short goods siding exists to the north of the station buildings. Carcoar tunnel is located just south of the station, some 922 feet in length, on a rising grade facing Cowra-bound trains. The construction of the Blayney extension of the Harden to Cowra line was completed in 1888, providing a cross-country link from the southern line to the western line.

During the operation of the G&C Hoskins' Steelworks at Lithgow, some of the ore for the blast furnaces was mined or quarried from ironstone deposits to the south of Carcoar. A short line connecting the loading facility to the railway was used, and was known as Coombing Park Iron Ore Siding. Although the area is now used for rural purposes, some of the old track formation, as well as the remains of a timber trestle bridge and the excavated area of the loading site, can still be found. The steelworks were closed in 1930, although the remains of the works at Lithgow Coal Stage site are now preserved.

Once through the tunnel at Carcoar, 5375, with its load of canvas-covered wagons, EHO van and CR composite carriage, traverses more open countryside around Mandurama. Grades of 1 in 40 are still to be encountered, however, before Cowra is reached. Some of the goods carried to rural destinations in covered four-wheel wagons included kegs of beer, bags of cement, farm machinery parts, sawn timber and fencing wire, as well as bulk superphosphate fertiliser.

Above Right: *On occasions, locomotives on transfer to or from overhauls or depots would be attached to regular trains. Such was the case on 22 December 1966 when 3008, returning to Cowra, assisted 5412 with No.11 mixed. During the latter part of 1966, Carcoar station had been repainted, losing the enamel signs and wooden platform fence. By this time, diesels of the 49, 45 and 48 class had encroached on Cowra line workings on a regular basis.*

Right: *5412 and 3008 start No.11 away from the station heading towards the 1 in 88 grade through Carcoar tunnel, not far ahead. A clean exhaust from both engines indicates fine engine management in consideration of the confines of the tunnel, which leads onward to more gentle undulating countryside around the towns of Mandurama and Lyndhurst. As the lights on the back of the carriage disappear into the cutting, and the smell of steam and hot oil fades into the heat of a summer's day, one can ponder on the future. Total dieselisation of the west is just six months away. By the end of 1987, 'Option Three' of the branchline rationalisation programme closed the Blayney-Cowra line to revenue traffic, severing the cross-country link.*
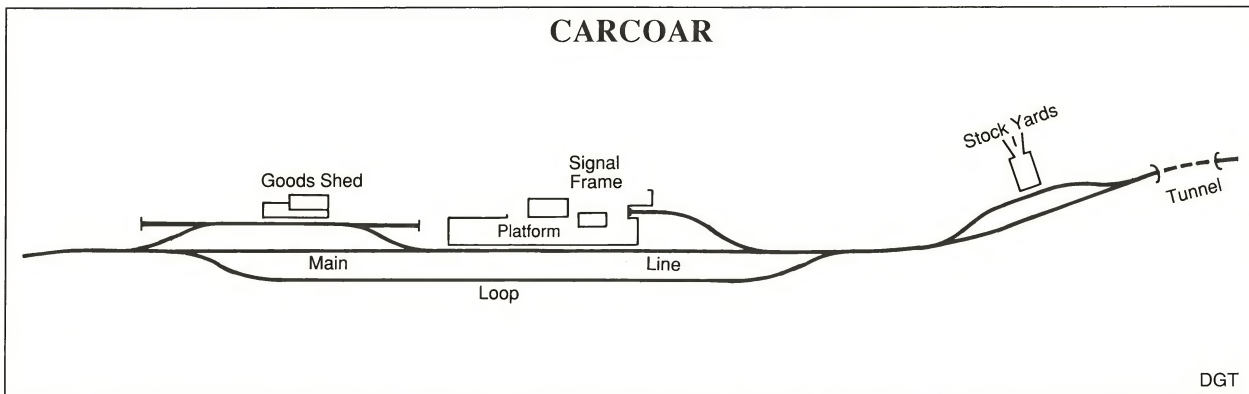

BLAYNEY TO MANDURAMA

CARCOAR

Goods Shed

Signal Frame

Stock Yards

Tunnel

Platform

Main   Line

Loop

DGT
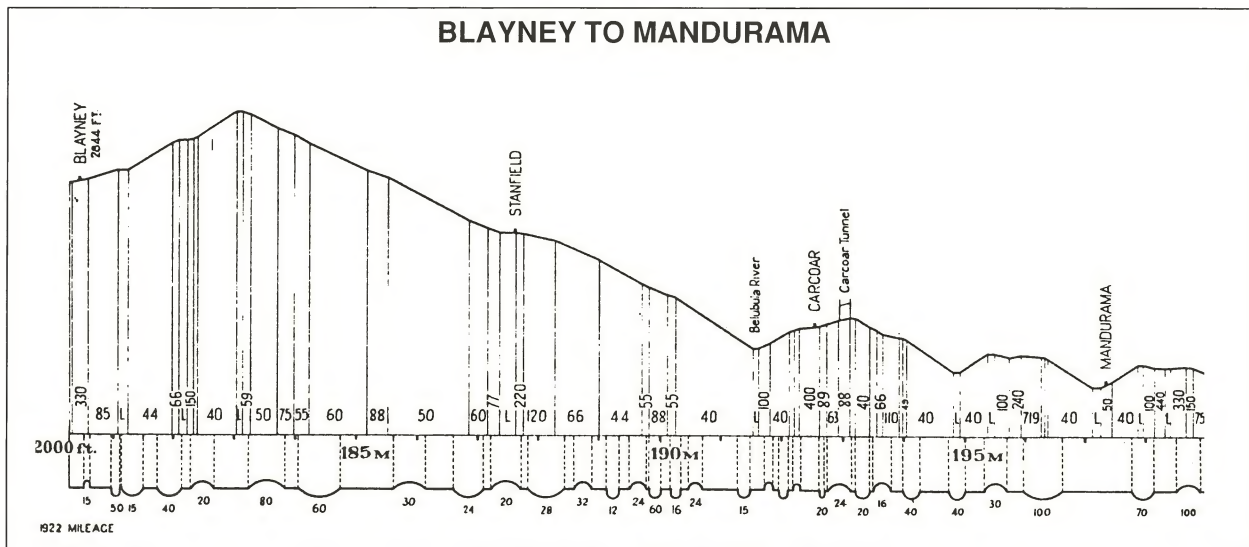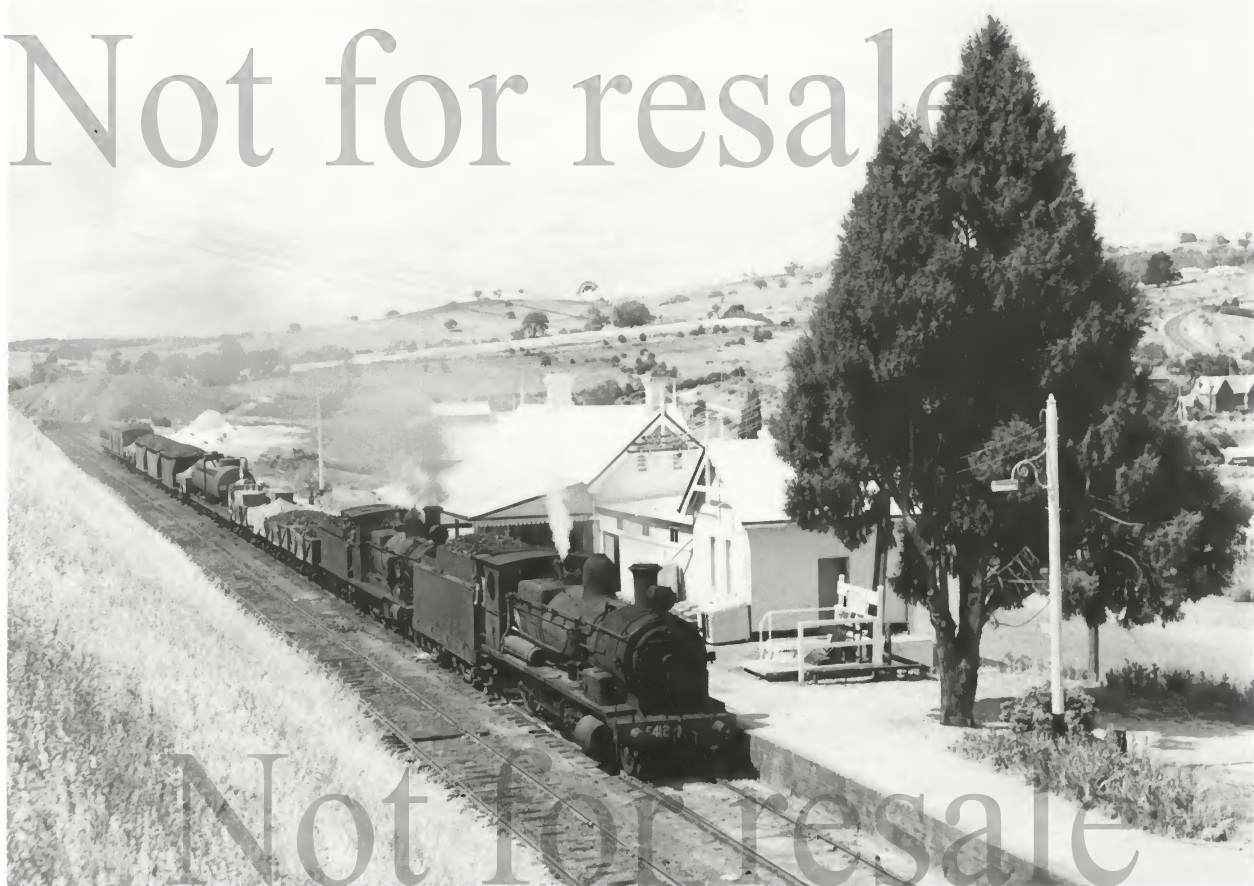
**Right:** *5375 steams away from Carcoar past the oil clearance lamp, provided at stations where signalling was basic, and indicated a safe distance back from points for a train to stand to allow another to pass. Winter nights in the Blayney district can be bitterly cold and misty, so no doubt drivers of crossing trains would welcome the reassurance of its glow.*

Below: *Light engine 5429 stands quietly simmering at Carcoar platform on a sunny Monday afternoon in May 1966. While the driver and fireman take crib, share a cup of tea and swap a yarn or two with the station master, the feeling of timelessness that embraces a country line seems only to be enhanced. No.97, the two-car diesel passenger, will by now be several sections ahead towards Cowra, carrying passengers from the Central West Express connection at Blayney. So, in due course, the staff instrument will clatter as the staff for the section ahead is withdrawn and given to the driver. 5429 is to take up working in the Cowra-Harden section for the remainder of the week, perhaps to help ailing 5595, already running with reduced loadings owing to mechanical condition. 5595 was the last of its class on the west, allocated to Cowra depot, and was withdrawn from there in July 1966.*
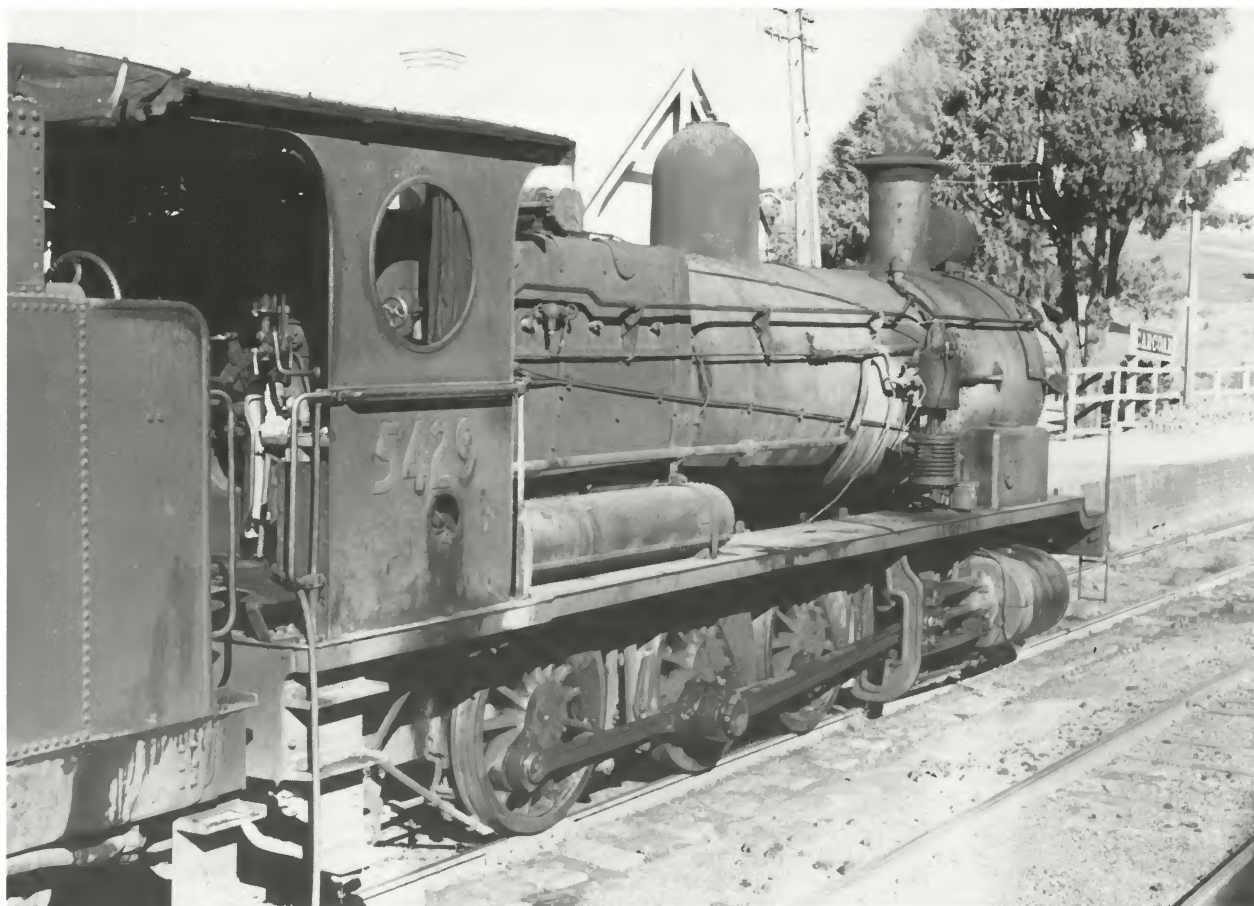
When local celebrations at Eugowra took place, the Vintage Train participated, arriving on Saturday, 18 November 1972 behind veteran engines 1243 and 1709 (renumbered 176 and 381 respectively at the time) to a fanfare of streamers and banners, while band music played. Local inhabitants dressed in period costume with swagmen, bushrangers and sheep shearers all adding their part in celebrating the fifty years of the railway to Eugowra. Late that afternoon the train returned to Cowra for the night, to be serviced. Next morning 3642 was attached for the return run to Sydney, seen passing Carcoar. 36 class engines were occasionally used on the line as far as Cowra during the 1964-1967 period, mainly on mixed goods and stock trains.

Right: *5711 creeps into Goulburn depot with steam blows coming from many fittings late in 57 class working into the city. Goulburn was a 'big engine' depot from the early 1930s.*

All photographs by the author unless otherwise noted.

Left: *Apart from all the Garratts the author witnessed passing through Goulburn between 14 January 1953 and 25 April 1968, there have been several movements involving preserved 6029 since that time. It was acquired by the Federal government in 1974 for a proposed National Museum, and the ACT Division of the Australian Railway Historical Society was able to use the engine for tour train working until its boiler condition dictated otherwise in 1981. Thus, the author was also on hand to witness 6029's very last appearance in Goulburn on 8 June 1981. The final chapter in the history of 60 class working on the south then firmly closed.*

PATIENCE IS A VIRTUE

Initial 60 Class Workings On The South

Leon Oberg

I still remember sighting my very first Beyer-Garratt locomotive as if it was yesterday.

Although just nine years old, I vividly recall my father coming home and saying over tea, "A new Garratt steam loco will be coming into Goulburn on Monday."

I was a veteran locomotive watcher, even at that tender age. I used to stand on a wooden soap box at the front of our North Goulburn home and watch the steady procession of green-painted 38 class, the oil-burning 55 class 2-8-0s with their vivid pulsating flames flashing from beneath their fireboxes, and the constant delights of the (then) elderly 57 and brand-new 58 class 4-8-2s rolling by.

And since my school was right beside my

home, I even witnessed the deliveries of almost all Commonwealth Railways' GM class and Victorian Railways' B class diesel-electrics.

Yes, I thought I knew my locomotives, but when dad spoke of a Garratt, I was totally bushed. Hadn't school taught me a 'garret' was an attic where impoverished poets or artists wrestled with their

Sunday mornings used to see a number of stock trains work out of Goulburn. This working was shared by Beyer-Garratts from the early 1950s. This view shows 6041 leaving Goulburn with an up sheep train, made up mainly of GSV four-wheelers, early in 1959.

Goulburn depot's long-time shed shunter was an old R class 0-6-0T, No.1076, a former coal grab engine in the NSWR's duplicate stock. This veteran was used almost daily, to move dead engines and tenders around the depot and to push engines from the shed to the water column outside following tender repairs. This picture shows 1076 (affectionately known as 'Fanny') manoeuvring a dead 6014 on 8 June 1959, watched by 4-6-0 3251, another regular Goulburn depot steed.

creations? "How could a steam locomotive be a garret?" I enquired.

Sensing my uncertainty, he started quoting a *Goulburn Post* newspaper article which told how a "Beyer-Garratt locomotive would be arriving in on Monday (next) at 5pm and would be performing a trial run on the southern line".

All that week-end and the following school day I eagerly awaited the appointed hour to take up my regular vigil on the soap box beside our front gate. From there, I could command an almost unbroken view of the main line from North Goulburn quarry to the southern end of lofty Fitzroy viaduct - a distance of perhaps a mile.

Suddenly, the bulk of the funniest-looking steam locomotive hove into view, erupting one of the strangest piercing whistles I had yet encountered. Armed with pencil and paper, I even managed to rush off a sketch of the sighting, putting wheels beneath the entire length of the monster.

All too soon the train had passed and all I had left was my hurried boyish drawing and memory, a memory which continues to linger to this day.

Importantly, I had witnessed history: the arrival in Goulburn, then one of Australia's most important railway cities, of a new-look locomotive.

A couple of years later, I began collecting locomotive numbers but I could never find out which 60

N.S.W.G.R. GOULBURN DISTRICT 1950 PERIOD

NOT TO SCALE

Not All Stations Shown
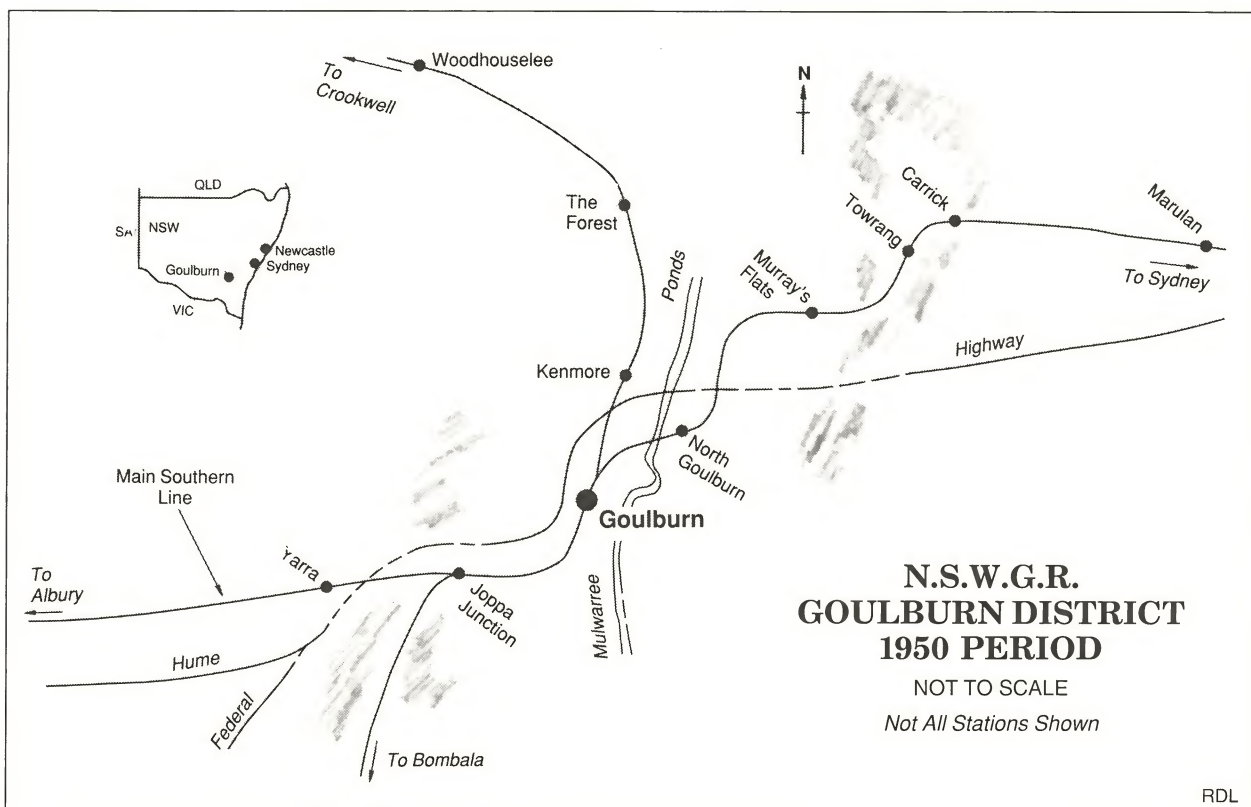
class arrived on that cold winter's afternoon. Nor, in fact, could I find out the date. It was as if no-one knew or, for that matter, cared. But I did, and it haunted me. By then, of course, Garratts were commonplace on the Main South. I saw them at their peak and I also witnessed their final fling in regular goods traffic, when 6030 steamed in from Sydney at 3pm on Anzac Day, 1968.

Thirty-seven years went by. In that time I occasionally let my thoughts stray back to that very first Garratt. I had almost given up hope.

However, I recently received a letter from an old friend, retired Enfield driver, Ken Groves, who said he was writing a book on 60 class Beyer-Garratts and would appreciate it if I would track down the date the first Garratt passed through Goulburn. (Hadn't I been wondering that very question for several decades?) Anyway, there is nothing like a challenge to galvanise one into action. And what helped the most was Ken had a copy of a circular from Mr C.A. Cardew of the Chief Mechanical Engineer's office which was dated 11 August 1952. It gave details of a test from Enfield to Junee, names of locomotive inspectors, loads and conditions. Ken also had a copy of a memo from the then CME Mr W.H. Armstrong dated 14 August 1952, which announced "Engine 6002 will, over the five days of next week, be trialled on the Southern Division for load purposes and running time tests ...". Armed with this information, I called at Goulburn City Library and located a *Goulburn Evening Post* dated Friday 15 August 1952 (the issue my father was reading from all those years ago). There on the front page readers were told how a Garratt would be arriving in Goulburn the following Monday. Bingo ... I had located the date for Ken and, more importantly, had, with shaking hands, finally satisfied my own needs as well.

But there was more; the 21 August issue of *Goulburn Evening Post* gave additional operational details. It told how the Garratt "was completely different from anything" before it in NSW and it would be arriving back in Goulburn at 5.13pm that same day on its return journey from Junee.

Of course, that was the trial, but what about the first 'in-service' run of a Garratt south. I had been given a swag of Goulburn depot chargeman handover books which were dated 1949-1958 (with some gaps, including the mid-August 1952 volume). Every locomotive movement through the city was registered in those books, along with comments pertinent to the attention of on-coming staff.

Books like that take a while to wade through. They are not, in reality, bedtime reading. Concentration must be 100% if one is to glean any interesting trends from them.

Early in the diesel era, hardly a day went by in Goulburn without a locomotive being hauled back to Enfield in disgrace. (Remember, those were the days prior to Delec depot's opening, when all diesels were allocated to Enfield.) Such was the reward for young Leon on Christmas Day, 1958, when he looked in on train movements and caught 5701 hauling dead 4303 as part load on this goods train leaving the city during the mid-afternoon.

No.32 goods was a regular 36 class 4-6-0 roster by the late 1950s, the engines usually relaying in Goulburn station. This view shows 3634 blasting out of the city right on the dot of 8am on 13 October 1958

Sunday, 2 November 1958 saw no fewer than five Beyer-Garratts pass through the huge Goulburn locomotive depot complex during daylight hours. Among those awaiting their next turn of duty were 6033 with 6002. Also shown: 5199 and 5388.

Just about anything with a relatively light axle loading was utilised for the Goulburn depot coal stage shunting during the 1950s. Sometimes a 30T passing through on transfer or to shops could be seen; at other times a 24 or 25 class 2-6-0 lying spare in between loan periods to Southern Portland Cement (at Marulan South and Berrima) would be used; but, more often than not, a Goulburn-based 32 class 4-6-0 was the staple diet, as in this view of low-framed 3257 at work on Saturday, 6 September 1958.

Engines running in were frequently used on Goulburn depot's coal road and wheat yard shunting assignments. Here 'foreign' engine 3295, ex side rod and frame repairs, drops down off the coal stage (and passes the depot roundhouse) on 1 November 1958.

Thinking of nothing in particular, I grabbed one of the grimy titles one evening; it was dated December 1952 to February 1953. Suddenly, my eyes were riveted to an entry on Wednesday, 14 January 1953 which read, "60 class coming in No.25 to recondition and return to traffic to work No.25 (onwards to Cootamundra)". The reference said the Garratt was to be coaled "with smalls, not coast coal".

Finally, the jigsaw was coming together, I had stumbled onto the first true freight working under service conditions. Turning the dirty fragile page, there it was, in all its glory, a reference to engine number 6012 working through the city on No.25 goods - a train which at that time was a regular 4-8-2 57 or 58 class roster.

After systematically undergoing reconditioning, 6012 whistled out at 4.55am the following morning, according to the chargeman's dusty book. In what would have been sheer disappointment for the few trackside photographers of that era, 6012 returned from Cootamundra on 15-16 January 1953 during the hours of darkness. It arrived in Goulburn at 1.10am with just two tons of coal in the bunker and half a tank of water (after having taken on supplies at Fish River at the foot of the formidable Cullarin Range). But, according to that hand-over book, coaling on the return was not as simple as one would think for, despite the reference that the big interloper was to be coaled from Nos 9 and 10 chutes only (obviously the only bins carrying smalls for mechanical stoker engines), another staff member penned beneath that entry, "No coal in 9 or 10 chutes".

So the newcomer must have steamed out of Goulburn with regular coal that morning.

Another eleven days went by before any more 60 class were sent to Goulburn. On that occasion, 6006 worked the same goods service through the city, a reference in the hand-over book saying the Garrett (sic) would be working "No.25 in and out".

60 class working on the south was, from that day onwards, firmly entrenched and no further references were necessary in the hand-over book. Garratts simply came and went south on No.25 and returned on No.586. However, an improved pattern of working seemed to be introduced from early February 1953, which saw 60 class locomotives replaced at Goulburn by a fresh 60 class (relay working, the same as the 57 and 58 classes). As a result, a 60 class engine was rostered for No.105 southbound goods and that engine would return to Goulburn on No.586 and either a 60 class or a 57/58 4-8-2 relay onwards to Sydney. But the records indicate on any given day, only two 60 class would be operating on the south.

Unlike many other locomotive types, very few problems seemed to present themselves with the 60 class on early south running, except for some very

3625, just out of Chullora shops, climbs Goulburn depot's elevated de-ashing pit after working No.13 passenger in from Sydney on Monday, 16 November 1959.

5717 and 5593 line up at Goulburn's giant coal stage after working trains in from Junee and Cooma respectively early in 1959.

close calls with engines running out of coal in the Cullarin Ranges, or as they neared Goulburn. (The NSWR later increased 60 class bunkers from 14 to 18 tons, which tended to correct the problem.)

However, on Wednesday, 11 February 1953, 6001 disgraced itself between Fish River and Breadalbane while working No.588 up goods. Its problem was so severe, it left its train standing and the engine dashed to Breadalbane, where its fire was dropped in the refuge siding. The chargeman's book stated how 5813 was hurriedly despatched tender-first to haul the Garratt's train into Goulburn. There was no record of how 6001 returned to Goulburn but on Thursday, 12 February 1953, there was a notation, "6001's tubes to sweep and expand". Obviously, its tubes were leaking badly and putting its fire out. By Friday, 13 February, it was deemed an 'OK engine' and was sent back to Enfield on No.590 during the early hours of the morning.

Interestingly, at that very moment, there were three 60 class in the depot for the very first time, passing like ships in the night.

So much for the 60 class. What else was running during that period? What else was I watching from my trusty soap box?

The hand-over book tells all and memories just keep flooding back. Things such as the regular passing of veteran 24 and 25 class 2-6-0s across North Goulburn viaduct. Every week or so I would notice these little engines ambling by my home, the ones trav-

elling in the down direction always being white, and the ones running the other way seemed clean. I did not then know that Goulburn maintained a brace of those elderly former mainline goods engines to hire out to Southern Portland Cement's Marulan South limestone quarry and the Berrima Cement Works. After a week or so at those locations, the dust-covered engines would be returned to Goulburn for repairs and wash-outs and fresh steeds would take their places.

The priceless book tells how the 24 and 25 classes used regularly to work the (then) newly created Goulburn Abattoirs shunting trip to Joppa and return, in addition to shunting the coal stage.

Another regular soap box favourite of mine was No.78 pick-up, which used to steam out of Goulburn a little after 11am every day. Dad would often walk me the mile to the then-manned North Goulburn station signal box to watch at close quarters the pick-up shunting the adjacent Shell Oil siding. Motive power could be anything from 'foreign' 30T or 32 4-6-0s en route to workshops, or Standard Goods 2-8-0s, usually oil-burning 55 class.

While we were at the station, No.15 Riverina Express would always streak through in the opposite direction with an absolutely pristine green-painted 38 Pacific leading. It was frightening for a youngster to witness the express charge by at full cry, just ten feet away, particularly after I saw one 38 strike the platform right in front of where we stood, scatter-

Garratt Here On Monday At 5 p.m.

A Beyer Garratt engine, on a trial run on the southern line, will arrive at Goulburn at 5 p.m. on Monday.

It will be on public display near the locomotive depot, adjacent to Braidwood Road, before departing at 9.40 a.m. on Tuesday. It will return at 5.13 p.m. on Thursday and remain until 10.20 a.m. Friday.

The engine is one of 50 ordered from England. Only two have so far been delivered in New South Wales.

The engine was built by Beyer Peacock and Co., England, and assembled in Eveleigh shops.

| 12C | 14¢ 15 – 1 – 53 | | | | | | X 2885 |

	Engine No.				Repairs carried out to boiler.		PILOTS
1	3640			1	3640	11.9	3647 x 19 Leave.
1	3827	T.		3	3666	1153	3635 "
				14	3635	12.6	3307 "
3	3666						3312 "
3	3816	T.	Y537	563	5705	1.0.	
				11	3214	147	W. O.
14	3635			11	3210	147	6 am
				196	5505	210	5199 5716
6	3807	T	X 48	59	5511	3.35	5595
8	3824	T		JOPPA	2532	4.20.	2 L 831
11	3214		Y25	25	6012	455	
11	3210						W.O. DUE
			NYD	SHT	5049	5.50	5716 3257
D16	Diesel	T	NYD	SHT	5132	550	5182 5199 5517
				527	5421	625	5568. 5595. 5596
23	3822	T		22	3828	635	
7				23	3382	640	
10	38			23	3307	640.	
			Y529	D 32	DIESEL	7 11	
2	3829			COALRD	3377	810	
				25A	5019	825	REPAIRS
H	3804			SHT	5190	835	5425 5724
22	3828	Y11		529	5805	935 Y588	5592 5545.5542
							5566. 5444 5134
9	36	T	Y113	78	5549	1630	3326.
				37	3355	11 19	
37	3355		Y153	67	55	125	
			Y329	180	55.	12.5.	
15		T		573		1234	COAL RD
				34	3312	1. 27	3377.
34	3312			92	3618	2 55	
			Y566	156	5718	3.15	
13	36	X19	Y19	13	36	317	
			Y16	33		345	
			Y190	SHT	5199	350	

Two pages (above and right) from Goulburn loco's Chargemen's Hand-over Book for January 1953. The first column shows the train number, T in the 3rd column indicates the loco worked through Goulburn, X shows what train a loco came off. The 4th and 6th columns indicate locos departing the depot to take up the trains noted in the 5th column.

14 & 15 - 1 - 53   X 2885 12

X COOTA   X ENF.

Engine No.			Repairs carried out to boiler.			
563.	5705		48	5511	527	5705	LE 58
505	~~5717~~		578	5717 825	113	5549	LE 58
25	6012	X25	585	5805 1230 890	41	5505	153
527	5721	X	D16	T.	D505	4010	
529	5805	X585	32	36	25	6012	
			566	5718	D524	4014.	
573		XLE	LE	5595 210wo	329		
			16	3249	105		
			20 24	3382	41		
			Thur 4	5019 3377	167 D503		

5701	20		5710	E	5719	585	5803	E
2	E		11	E	20	E	4	E
3	R		12	E	21	527	5	529.
4	E		13	E	22	COOTA	6	E
5	X370 563.		4	E	23	SHORS	7	E
6	E		15	K	24	Reps	8	E
7	E		16	156 & W.O.	25	Reps.	9	E
8	E		17	565	5801	E	10	E
9	E		18	X566	2	E	11 12 13	E E E

3618 OK to work Goods trains or 32. Warn Dr that R Big End & Dr Coup Rod have been repaired both have been hot.
K 22 762 & Bulli TAR £ 9. 13. 2. Send to Cooma 60 Class X 25 to be coaled with Small Coal not Coast Coal this end chutes. works 25 X 25. 60 min & Loco. reconditi...
5716 to stop on return for stays & W.O.
3307 Still a Blackout.

ing bricks and dust all along the platform.

According to the register, much of the goods working on the south at that time was in the hands of 57 and 58 class engines. In fact, up to 15 separate 'big engine' movements could be seen in any full day period.

And, for the camera toting enthusiast of the day, it would have been sheer paradise, for the book reveals that, between the hours of 6.30am and 6pm, there were on average no fewer than 28 locomotive departures each working day. That would include all types of steam locomotives and, on rare occasions when the need arose to send engines from depots further down the line, absolutely anything from 12, 13, 17, 19, 24, 25, 30T, 32, 34, 36, 38, 50, 53, 55, 57, 58 and 60 classes graced the depot.

According to that tome, coal problems seemed to be plaguing the NSWR at that time and, remembering the reference as to how No.9 and 10 bins were out of coal when that very first 60 class passed through, other references here and there mentioned how "the coal position is critical", and again on 26 January 1953 (Australia Day), "The following eight engines are stored to save coal and oil". It listed eight Standard Goods road numbers.

Searching through the pages, one can only drool at the roster dated 31 December 1952, telling how 2-6-0, 2417 was specially booked to work No.59 goods to Harden (engine was to take up Boorowa line working, the title said). Its 3.35am whistle-out

Some of the 61 steam locomotives on hand at Goulburn locomotive depot on Sunday, 2 November 1958, included this mixture: (l-r) 5609, 3637 and 5433.

would have put the train in perfect light by the time it reached Coolalie, Goondah, Galong and Cunningar. Imagine having motorcaded that movement with the camera gear of today!

Then there was the reference dated 4 February 1953 which told how 5722, working No.529 Cootamundra-bound goods, was in trouble at Joppa Junction with stoker failure (probably had to contend with big coal). The big 4-8-2 stowed its train in the refuge and returned to Goulburn to be replaced by 5721 several hours later.

Depot derailments were in plague proportions at that time also. Hardly a day went by without at least one mentioned. On 1 January 1953, 3377 derailed beneath the sandbins when a rail rolled over. The following day 5537 derailed on No.5 road in the roundhouse. The third day of that year saw 3821's front bogie leave the track on road No.26 (within the roundhouse).

3816 stands in Goulburn's No.2 platform with Sydney-bound No.34 passenger on 24 January 1959. This train had just become a regular 38 class roster, the opposite number, No.13 Sydney to Goulburn day passenger, continuing to be a regular 36 class 4-6-0 job.

Other problems were surfacing at that time too. Take, for instance, 5 January that same year. The book tells how 5718 ran out of water at 12.30am whilst nearing Yarra, just seven miles short of Goulburn, while working No.586 from Cootamundra. It seemed the crew did not take water at Fish River. Indeed, I learned in recent years how crews tried to avoid taking water at that location, due to the abundance of weed in the system. Many crews elected to make for Goulburn with what they had, rather than stick up anyway with blocked injector strainers. Anyway, with No. 586 goods a failure at Yarra, the engine was placed in the refuge and its fire drawn, while 5724 was sent out from Goulburn depot to clear the section. Meanwhile, No.6 Mail with 3807 and No.8 Mail with 3816 were blocked 52 and 38 minutes respectively. A reference in the book tells how the daywork Joppa Abattoirs shunting engine, 5049, was extended to Yarra to haul the disgraced 5718 back to civilisation.

Yet another 57 class failure graced the pages on Christmas Eve, 1952. It told how the Goulburn Control phone rang at 5.56pm to advise that 5723 working No.578 was a total failure between Gunning and Fish River because its centre cylinder slide bar had broken at its leading end, causing the centre piston spindle to bend. There was absolutely no relief anywhere in the depot and, although 57s sat around savouring a promised festive spell, no-one on duty was qualified to drive a 4-8-2 on the main line. Time slipped by and eventually, on Christmas morning, 5724 was sent light engine, tender-first to haul the consort home.

Imagine a decent picture of double 57s roaring towards Cullerin that morning, something that did in fact happen, because the crew had firstly to disengage the centre cylinder before the train could be moved. With the Christmas traffic downturn, all traffic was rerouted around the obstruction on the down line between Breadalbane and Gunning. 5723, accordingly, went into repairs only to have its situation upgraded to 'C repairs' a few days afterwards. But the problem with the centre cylinder must have been beyond Goulburn, for on 30 December it was rostered to work No.38 goods to Sydney "on two cylinders only". A notation in the book read, "to work to Chullora Shops".

Accidents also happened, for on 4 February 1953, streamlined 3804 collided with goods engine 5366 at the coal stage. Both were damaged and 3804 was derailed. In fact, 3804 must have suffered quite a jolt, for the next notation, written in a different hand, probably after the engine was fully examined, told how the brick arch had to be replaced. Fitters and boilermakers no doubt worked like dogs, for 3804 was made ready to work No.14 Mail the following morning. A notation pointed out the loco was to face repairs at Eveleigh. However, the engine failed on the apron with a bad leak at the main reservoir union. It eventually left the depot at the head of No.34 Cootamundra to Sydney day passenger, having relayed with a 36 class. In those days it

While Beyer-Garratt workings in and out of Goulburn were largely at night, following the withdrawal of the 58 class in 1957, more and more were being seen in daylight. Typical of the working was this view of 6003 stuttering out of Goulburn with a Junee-bound No.629 goods on 17 August 1960. The adjacent Mulwaree Ponds had two weirs across it to store locomotive water.   *R.K. Booth*

was extremely rare to see a 38 on that train. 3804 was not noted back in town until early on Sunday morning, 8 February, when it worked No.51 from Sydney and returned on No.18 that night. She was back in good health once again.

Finally, perhaps the most interesting notation of all was an intelligence report for staff on Tuesday, 9 February 1953 which said, "Mr Winsor (the then Commissioner of the NSWR) will be travelling in Car 4 of No.3 (the Melbourne Limited) on Thursday. Crew working No.3 to be advised and pilot engine to be ready in case of emergency."

Turning over two pages, No.3 was given a pilot that night in the guise of 3659. Depot staff must have been so overwhelmed with the aura of that occasion, that they failed to record the number of the 38 which worked the express through. (Unlike other loco types, practically all 38 class movements through Goulburn saw those engines shovelled forward at Goulburn station, fires cleaned and assistant engines added when loads dictated.)

Yes, that tattered hand-over book certainly brought back memories - and told so many stories.

Damaged 6027 at Goulburn on Christmas Day 1958, after it had been involved in a collision with 4-6-0 3282 at Mundy Street bridge the previous day. 6042 off an up goods was parked at right. Interestingly, Goulburn depot was full of damaged locos that day, for apart from 6027 and 3282, the author's diary notes how 5604's front buffers and bufferbeam were badly bent inwards and 5463 had run backwards down a ditch at the southern extreme of the rear storage area.

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Units of Measurement

Since the essays in this book deal with a period when the Imperial system of measurement was used in Australia, that system has been retained. As an aid to conversion for those who are so minded, the factors in the accompanying table may be used.

Furthermore:

A mile could be divided into 80 chains (ch) of 22 yards (66 feet) each.

At the date of currency conversion (14 February 1966) £1 equalled $2. (There were twelve pence to the shilling and 20 shillings to the pound.) However, inflation both before and after this date makes conversion of monetary amounts meaningless unless various economic indicators, including such inflation factors, are known.

1 inch	=	25.4mm
1 foot	=	305mm
1 yard	=	0.914m
1 mile	=	1.609km
1 gallon	=	4.546L
1 pound (lb)	=	0.454kg
1 ton	=	1.016t
1 horsepower	=	0.746kW

The publishers of *Byways of Steam* welcome additional information expanding or correcting details in the various essays.