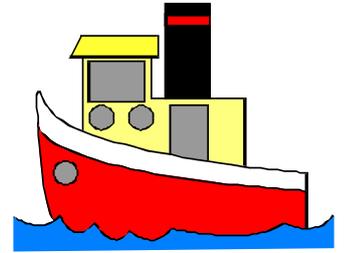




Wheels and Floats



Newsletter July 2017

TAURANGA MODEL MARINE AND ENGINEERING CLUB INC.

The Secretary
PO Box 15589
Tauranga 3112

Palmerville Station Phone 578 7293

Miniature Railway Memorial Park
Open to Public, weather permitting
Sundays in Summer: 10am to 4pm approximately
Winter: 10am to 3pm approximately
Website: www.tmmecc.org.nz

MEETINGS

General Members Meeting every first Tuesday 7pm.
Committee Meeting every second Thursday at 7pm.
Maintenance Tuesday mornings from 9am.
Engineering discussions Tuesday evenings 7.30pm.

COMMITTEE

President: Peter Jones 543 2528
Vice President: Russell Prout 5482881
Club Captain: Bruce McKerras 5770134
Secretary: Rachael Duncan
Treasurer: Owen Bennett 544 9807
Committee: Warren Belk, Shane Marshall,
John Stent, Jason Flannery
Bruce McKerras.
Boiler Committee: Peter Jones, Bruce McKerras,
John Heald, Russell Prout.
Safety Committee: Warren Karlsson, Bruce Harvey,
Peter Jones, Russell Prout, Mark
Duncan
Editor: Roy Robinson 07 5491182
royrobkk@gmail.com
NOTE new email address

CONVENERS

Workshop: John Nicol
Track : Bruce Harvey, John Stent,
Russell Prout
Marine: Warren Belk
Librarian: John Nicol
Rolling Stock:
Website: Murray de Lues
Driver Training:
Club Captain: Bruce McKerras

OPERATORS 2017

30 July N Bush
6 August M Duncan
13 August W Karlsson
20 August M de Lues
27 August G Barnes
3 September B Fitzpaterick
10 September B Harvey
17 September P Jones
24 September W Karlsson
1 October R Salisbury
8 October B McKerras

Greetings Members

I start this month's notes on a sad note again by advising the passing of two of our long serving members have passed away, Bill Bloomfield and John Treloar.

Bill Bloomfield joined our club in August 2003 as a country member. Bill attended working B's in the early years of his membership but was restricted in his activities due to his location at Pukehina Beach. He had a strong interest in Military history and members will best remember him supporting our displays over the years with his military models which he finished to a very high standard. A message of sympathy was sent to Bill's wife Alice and family on behalf of our club.

John Treloar joined our club in May 1995. His back ground was as a time trained panel beater, owning his own Panel and Paint business in Putaruru for over 20 years. Not long after joining our club John got started on his first model, a stationary steam plant finished to a very high standard. This led to his next project a 5" Sweet Pea locomotive he named Jay Dee (his first initials) again to a very high standard. His locomotive was gas fired, John was fastidious in whatever he did, no way was he having soot all over his engine. After a few years in our club he joined the committee and was secretary for a few years then later trained as Railway Operator. John remained active in our club until health issues prevented him from being involved.

Johns funeral service was well attended by members representing our club, to Eleanor and family I extend our sincere sympathy, it was a real pleasure knowing John and so pleased he chose to spend his valuable time with us.

On a happier note, Lloyd Breckon was unanimously accepted as a life member at our last club night in recognition of the service he has given our club since joining in February 1988. This was the time that plans were in place for the first ground level track, Lloyd was involved in the construction of the first two tunnels carrying out the block work and directing the team of periodic detention workers who assisted. Lloyd joined the committee and was vice president for two years then President in 1993. He purchased a 5" gauge Evening Star locomotive and that was used for many years carrying passengers on our miniature railway. In 1996 the second ground level track extension commenced then in 1998 organisation of our clubs first National EXPO, Lloyd was very active in both these project and in the last number 3 track extension. Lloyd trained to be a track operator and carried out duties until he retired in 2009. His involvement with our club has continued and over the last few years has been our club Welfare Officer, keeping our members and committee up to date with the Welfare of our members. Apart from all the club activities, Lloyd has managed to complete a 2" scale model Traction Engine and tender to a very high standard winning the Norm Decke Memorial Trophy, and a 3 ½" Gauge Britannia.

Lloyd will be presented with his Life Membership Certificate at the next appropriate occasion.

Happy modelling

Peter Jones.

Another “EXPEDITION!”

I have finally accepted that I am afflicted by British machinery. What with a Parkson mill, Myford lathe, Land Rovers, and now a Lister gen set!!!!

I came home early from a meeting a couple of weeks ago, jumped onto the computer and went to TradeMe (as you do). For whatever reason went to Generators, Diesel, Used.

There's not usually hundreds so I was soon nearly through when I saw Lister Generator and to find out more clicked onto the ad. OK, start price \$1.00 (that's within my budget) better have a closer look!! Pics weren't the best as the machine had a cover on it. The description advised not going but “would be a easy fix for a mechanically minded person”. With pulse racing I read further “at Whareponga” where the hell is Whareponga????????? To hard, keep reading, Buy Now \$100.00!!!!!! OK, no time to find out where it is and what is wrong with it, just hit the Buy Now button!!!!

Now, that mightn't have been very smart Roy..... Whareponga OK, around the East Coast, a little south of Ruatoria..... People go missing down there.....Too late now.

The seller, Wirimu was easy to contact and said that he was going up there the next weekend as he lived in Linton Army Camp. Barb booked a Motel at Te Kaha and I sat down to figure out just how I was going to get it onto a trailer and Wirimu, not being mechanical minded wasn't able to give me too much info least to say it was outside a shed and there was no loading facilities eg a tractor available, it was at a Marae.

It was arranged that Barb & I would travel down on Friday, stay at Hicks Bay, then on to Whareponga on Saturday and load the gen set, back to Hicks Bay again for Saturday night and travel back to Kati on the Sunday. A text late Thursday through a spanner in the works. Wirimu would only be at the Marae on Friday!!

With chains, come a longs, ropes, high lift jacks, blocks of wood and ramps aboard the tandem trailer we headed out of Katikati early Friday morning. We arrived at Whareponga Road at 1.30pm. Not knowing where the Marae was we stopped a passing motorist and asked where the Marae was.

“Which Marae do you want?” was the reply.

“I don't know” I replied!!!! “I'm to collect a Lister gen set” I said.

“That way” was the reply as he pointed behind.

Off we headed for I guess another 15km on one of those old, one way, winding, wet, rough metal roads.

Arriving at the Marae a guy was walking down the road so we stopped to seek assistance. The walker was Wirumu and recognised us as “the buyers” saying “Hi Roy”. We were led to where the gen set was stored behind a small shed which housed the replacement set. The site was on a slight slope and I needed to pull the Lister out from behind the shed into the clear so I could get the trailer up to it to load. This was completed successfully although as the unit was dragged off the posts it was sitting on onto the sloping ground it very nearly overbalanced.

With a high lift jack I slowly lifted the front of the gen set nearest the trailer packing it with timber blocks as it was lifted as a safety. (see, who said I wasn't Site Safe and OSH compliant!!) With the front

higher than the rear of the trailer I backed the trailer under so the skids of the gen set were sitting on the trailer back. With a chain around the tow ball of the trailer I connected a come along with another chain to the cross member of the gen set skid base. Whilst slow and the need to reset 3 times the come a long soon had the gen set where I wanted it on the trailer. I now had time to ask Wirimu "What is wrong with it. Is it the motor or the gen set?"

"We think one of the brushes has worn out but it stopped generating that's all we know. It was easier just to get a new one as this one had served us well." I was told.

All the bits and pieces were reloaded back onto the trailer, the gen set strapped down and off we trundled back to Ruatoria and on to Hicks Bay for the night arriving there at 5.00pm. If you haven't been there or it's a long time since you were Hicks Bay Motel / Hotel is a real neat place to stop and stay. Rooms were adequate; view, is out of this world, meals fantastic, it was all one needed.

We left Hicks Bay 8.30 am next morning and trundled home with a fairly heavy load of British cast iron. A couple of stops for lunch and coffee (and toilet x 3) we arrived home at Katikati just on 5.00pm.

A quick look seems that all is in excellent order with no damage and it is complete including genuine Lister fuel tank AND manual. A couple of the brushes are well worn but checking the electrical system shows no earth grounding.



It is Lister HA3 28hp at 1500rpm with a Brush 15KVA generator.

Would I do it again, sure would, you never know just what the outcome will be but it will always be a "EXPEDITION" and there will always be some fun.

Roy Robinson

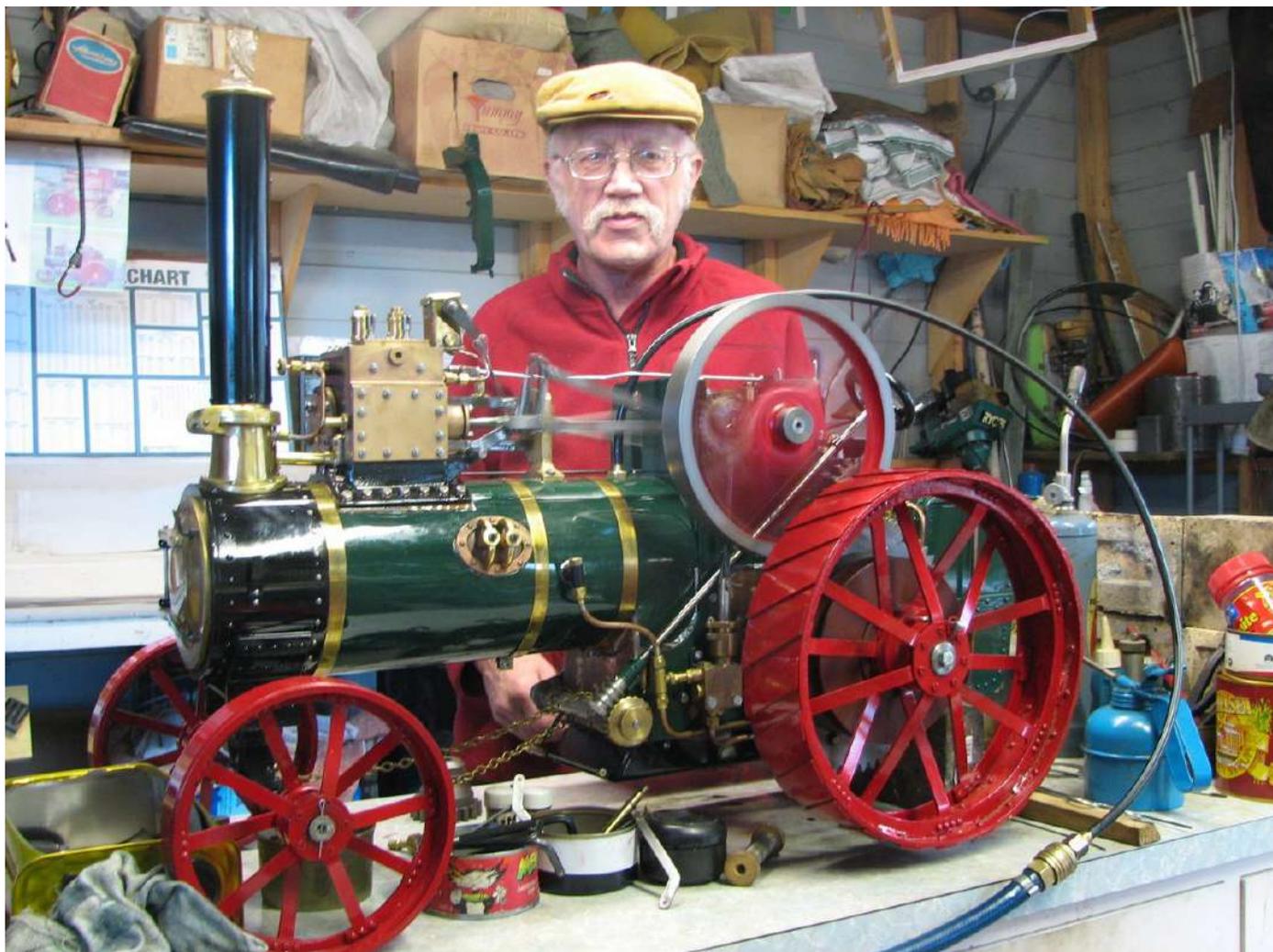


Above left : Jacking up the front of the gen set so I could back to trailer under it to slide it on.

Above right ; Dragging the gen set onto the trailer with a Come a Long.

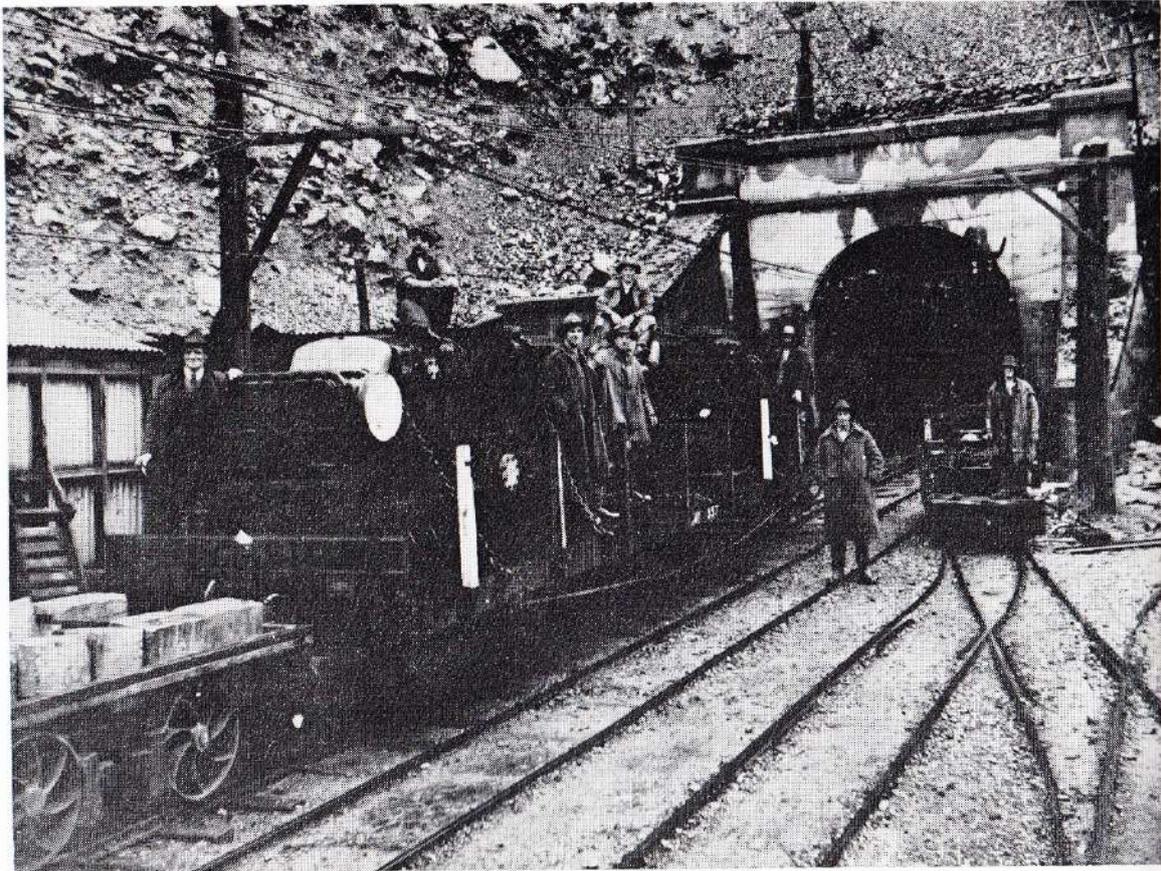
Below.

Peter Lawn invited me to see the first run on compressed air of his Durham and North Yorkshire Traction Engine. I didn't tell him I was bringing the camera.....



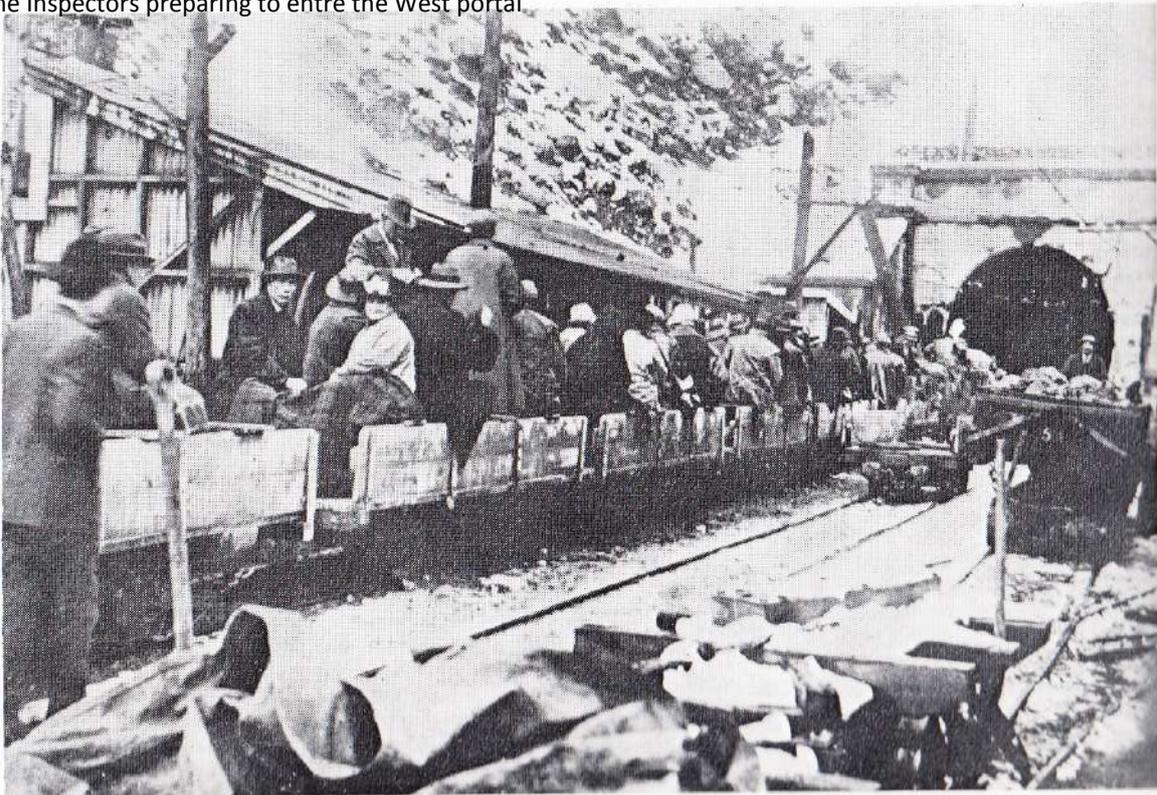
Arthur's Pass Tunnel

Part 2



Above :The 2ft 6in gauge for handling the spoil from the tunnel

Below :The Inspectors preparing to entre the West portal.



In 1902 Mr V G Bogue. An eminent American Engineer was called in by the New Zealand Government, and after considerable investigation recommended a line with a shorter summit-tunnel on a grade of 1 in 32. As he considered a line with a summit-tunnel on such a steep grade was

quite suitable, further surveys were made, and a line with summit-tunnel on a grade of 1 in 33, and in its present position, was finally located. This proposal was submitted to Mr Bogue, who confirmed the recommendation of the local engineers, and it was finally decided to adopt this route.

The eastern end of the tunnel is at the summit of the line between Christchurch and Greymouth, and is in the valley of the Bealey River, near what is now known as Arthur's Pass Station; and the western end is in the gorge of the Rolleston River, about three miles and a half above Otira Station. Otira is about fifty-two miles from Greymouth, and Arthur's Pass is about eighty-five miles from Christchurch.

The location of the tunnel having been decided, final surveys were at once made for the purpose of carrying out the construction. A line was ranged out over the mountains from one end of the tunnel to the other, a series of trigonometrical stations were established, and precise levels were carried from one side to the other. Owing to the mountainous nature of the country and the severe weather experienced at times, the whole of this work was carried out under extremely trying and difficult conditions; but, as will be seen later, it was done with extreme accuracy.

The surveys completed, plans and specifications were prepared, and on the 12th August, 1907, a contract was let to Messrs. J. H. McLean and Sons for the sum of \$599,794, the time for completion being fixed at five years — a very optimistic estimate as events transpired.

In April, 1908, the work of driving the bottom heading was commenced at the Otira end; and on the 5th May, Sir J. G. Ward, as Prime Minister, fired the first shot at the official opening of the work. On the

1st July, 1909, the bottom heading at the Arthur's Pass end was commenced.

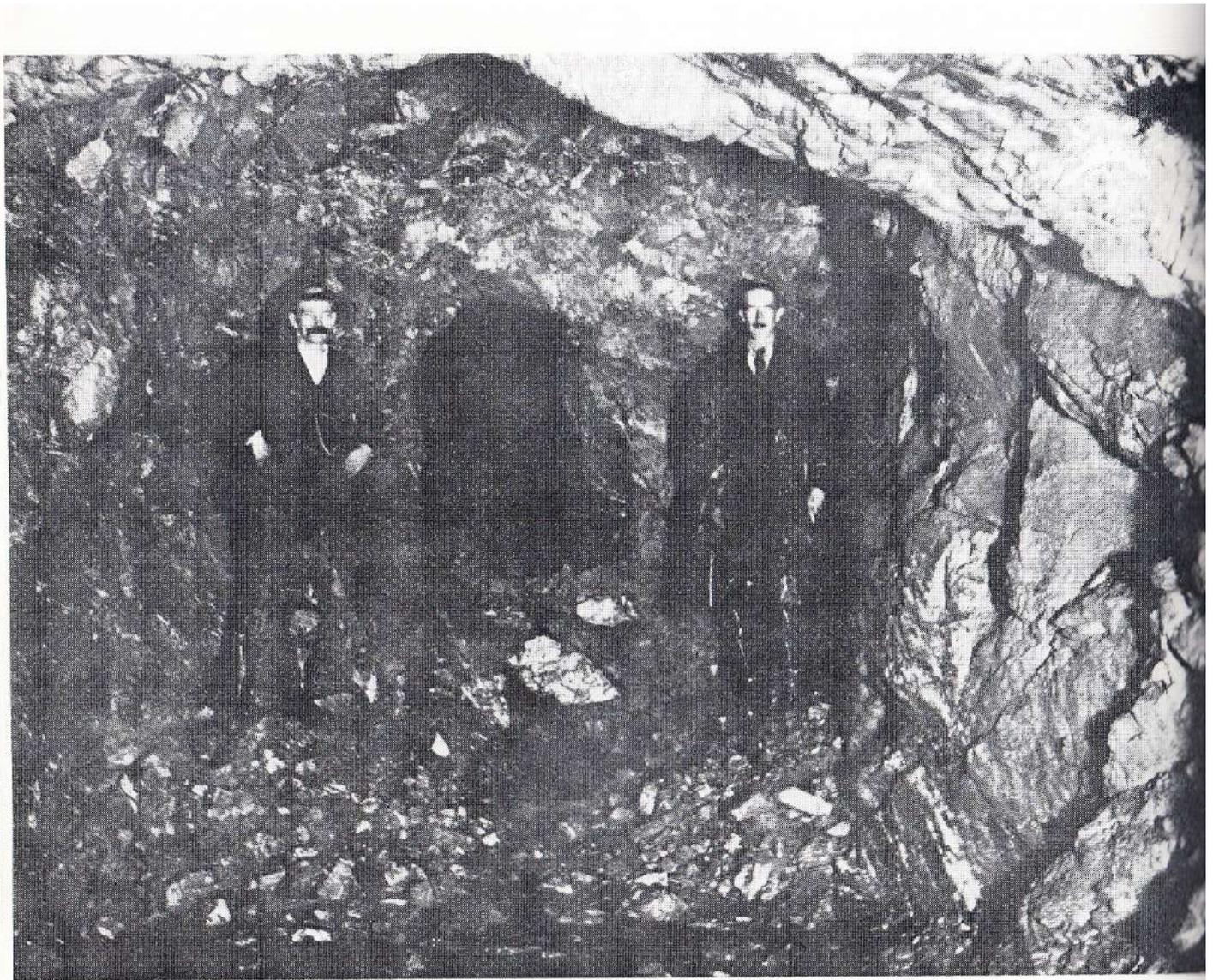
After spending about £250,000 on plant and material, and making great efforts to proceed with the work, the contractors found that they could not possibly finish the work for the contract price. They informed the Government accordingly. A parliamentary Committee looked into the whole position before releasing Messrs. McLean and Sons from the contract, and came to the conclusion that, as the Arthur's Pass Tunnel was a national work which ought to be completed, fresh tenders should be called, and the Public Works Department be instructed to continue the work meanwhile. It was fairly evident that no private contractors would face the task which the original contractors had found so difficult; consequently the responsibility for the work was shouldered by the Public Works Department, which has now brought it to finality.

The summit-tunnel, though the most notable work on the line, is but one of many notable works, for the bridges and shorter tunnels compel just as much attention. To give some idea of their frequency and character it may be mentioned that, in a short length of nine miles, there are three high steel viaducts, one of which carries the rails 236 ft. above the floor of the gorge, and no less than seventeen short tunnels, the longest of which is about 2,000 ft.; while there is scarcely a mile of level in the whole line. A tremendous amount of work has also been done in protecting the railway embankments from mountain-torrents, which run at a terrific pace in flood-time.

The exact length of the tunnel is 5 miles 554 yards, all on the straight, with a grade of 1 in 33, or 2 ft. per chain, rising from about 1,585 ft. above mean sea-level at the western end to a height of 2,435 ft. above mean sea-level at the eastern end — a rise of 850 ft. It will carry a single-track line of 3 ft. 6 in. gauge, which is the standard gauge of the New Zealand Government railways. In cross-section the clear height above rail-level is 15 ft. 6 in., with a maximum width of 15 ft. The tunnel is lined throughout. The side walls and footings are of mass concrete, and the arch is formed of concrete blocks. Except where the ground is very bad the mass concrete is carried part way up the arch, and only a few rows of blocks are used.

LEFT, UPPER: The 2 ft. 6 in. gauge tracks used for handling spoil from the tunnel are prominent in this view of the west portal during the later stages of construction. A 10-ton electric mine locomotive can be seen.

LEFT, LOWER: An inspection party preparing to enter the west portal of the Otira Tunnel. Snow on the ground attests to the severe climatic conditions.



Photograph: courtesy N.Z. Railways Publicity

A proud moment on 20 July 1918 shortly after the two bottom headings had met, 3 miles 68.10 chains from the west portal, only three-quarters of an inch out in alignment, and $1\frac{1}{8}$ inch out in level.

The tunnel is solid rock except for a few hundred feet at the portals. Those who expected some interesting geological discoveries as a result of the big drive through the range have been disappointed. The rock was found to be monotonously alike right through, varying only in degree of hardness. The rock lies on its edge in more or less vertical beds of greatly varying thickness, whose strike is more or less parallel to the tunnel. The rock is jointed in all directions and is fissured badly. It is of such a nature that explosives can be used to great advantage; but it is gritty and hard on the drill-steels used for boring the holes for blasting. In places it changes

abruptly from extremely hard sandstone to medium sandstone and indurated slaty shale. Some of the rock was so hard that the greatest difficulty was experienced in hardening the drill-bits so that they would stand the wear and not break. The greater part of the tunnel was, however, fair boring. Temporary timbering was used throughout to prevent flaking of the rock-surface, and fairly heavy timber was necessary in some of the worst places where faults in the rock-structure were encountered. The ground was sometimes dry, commonly wet, and occasionally very wet; but the tunnel was pierced without striking any very great volume of water necessitating



Photograph: courtesy N.Z. Railways Publicity

Otira railway station and yard about 1922, from the power station roof, looking down the valley of the Otira River. The station platform is on a gradient of 1 in 60, but the sidings are arranged on a level embankment.

special methods such as were employed in the construction of the Simplon and other tunnels. The greatest flow of water was about 3,000 gallons a minute, but as the lining was completed this was considerably reduced, and the present flow is about 1,500 gallons a minute.

The greater part of the work was done uphill from the lower or western end, on account of the assistance of the grade in getting rid of the excavated material, and because of the heavy pumping required to drain the tunnel at the eastern end until the headings met.

The excavation was carried out by the bottom-heading method, followed by enlargement to full section; i.e., a bottom heading or drive about 8 ft. high and 10 ft. wide was first driven; when this had advanced far enough a top heading was driven, followed by the breaking-down and excavation of the arch, walls, and footings. This method allowed more men to be employed in the workings than if the tunnel had been excavated in one face, and is in general use, except that sometimes the top heading is driven first. The best average rate of excavation was $13\frac{1}{2}$ ft. per day for



Interior of the tunnel shortly after completion showing a pin point of light at the portal in the distance. The third rail for the 2ft 6in gauge construction trucks is still in place. Height above the rail level is 15ft 6in and the maximum width is 15ft

twelve consecutive working-days. The headings were timbered as required, and when the full section was excavated it was also timbered and lagged ready for concreting. The concrete lining of the tunnel was kept as close to the full-section excavation as possible. All concrete was machine-mixed, and was in the proportion by volume of one part of cement, two parts of sand, and five parts of shingle. The concrete blocks in the top of the arch were made outside the tunnel, and allowed to mature for three months before use when possible.

About half the stone for concrete aggregate was obtained from rock excavated from the tunnel, and the remainder from deposits near each end of the tunnel. Good sand was scarce, and grinding-machinery was used for a time at one end. Most of the stone and sand obtained outside the tunnel had to be washed, and the cost of the concrete aggregate was high.

The drilling of the holes for blasting was all done by drills operated by compressed air. Two or three drills were used in each of the headings, and others elsewhere as required. The compressed air was conveyed to the working-faces by a 5 in. main at one end and a 6 in. main at the other end.

Power for the air-compressors, for lighting purposes, for driving the electric-mine locomotives, and for driving the miscellaneous machinery was obtained from hydro-electric plants at each end of the tunnel. At the western end the plant generated 600 horse-power at 500 volts, direct current. The plant at the eastern end was of similar capacity; and before the bottom headings met, power for operating the pumps for pumping water out of the eastern bottom heading had to be supplied by the plant, in addition to the power required for compressors, locomotives, lighting, etc.

The haulage of trucks from the working-faces to the completed part of the tunnel was effected by means of compressed air-driven winches and wire ropes. The

haulage of the excavated material from the completed parts of the tunnel, and the haulage of timber, concrete, etc., into the tunnel, was done by means of 10-ton electric mine-locomotives. These ran on a 2 ft. 6 in. gauge line, and in the completed portions of the tunnel power was taken from a bare overhead trolley-wire, in the usual way. As these locomotives often worked beyond the completed portions of the tunnel, each locomotive was fitted with a drum carrying an insulated cable, and a rewinding motor and brake. The cable was hooked to the end of the trolley-wire, and enabled the locomotive to run 1,300 ft. beyond it. This enabled the locomotive to run right up to the working-faces if necessary, and avoided the difficulty and danger of providing a suspended bare trolley-wire in the uncompleted part of the tunnel.

In a tunnel five miles and a quarter long adequate ventilation is absolutely necessary. In the Arthur's Pass Tunnel ventilation was effected by a system of exhausting the air from the working-faces, pure air being thus induced through the completed part of the tunnel. A Roots blower having a capacity of 4000 cubic feet per minute was installed at each end of the tunnel, the air being exhausted through a 16 in. riveted steel pipe, which extended to the completed parts of the tunnel. At the Otira end, as the working-face advanced, the blower at the end of the tunnel was found to be insufficient, and a "booster" blower was installed about a mile and a half from the tunnel-portal. The working-faces were further ventilated by the exhaust from the air-drills. When the work was first started ventilation was effected by releasing compressed air at the face, thus driving out the impure air along the tunnel. This meant the fouling of the line along which spoil had to be hauled, and a change to the exhaust system was made by the Public Works Department.

Lighting outside and in the finished parts of the tunnel was by electric incandescent lamps, using two 250-volt lamps in series at each point. This voltage was too high for lighting in tunnel working-places, and miners' acetylene hand-lamps were there used, one to each man.