A SCENIC BUSH RAILWAY

Impressions of a New Zealand Sawmill

By A. P. Godber, ex Assistant Machine Shop Foreman, N.Z.R.

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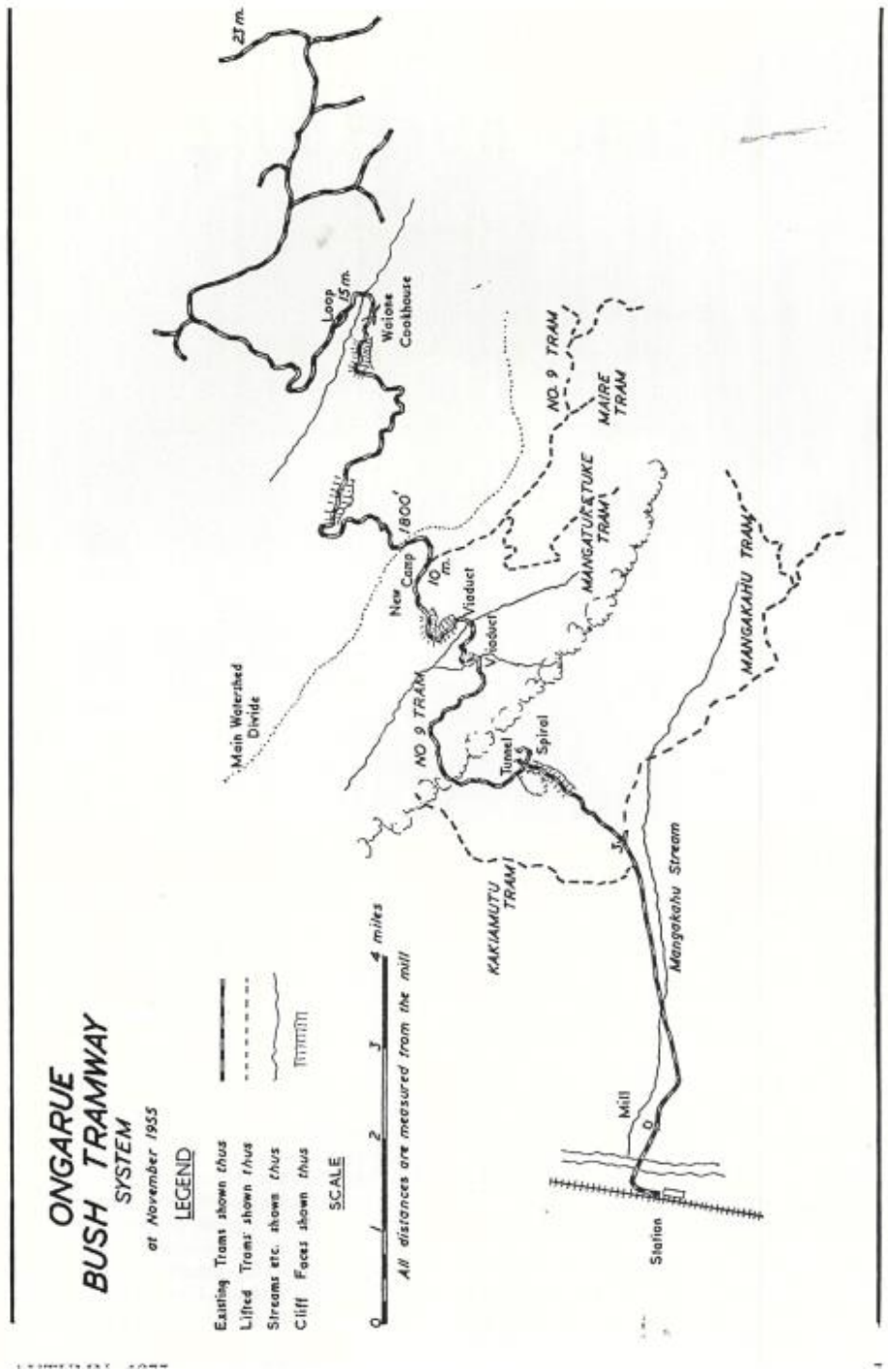
TRAIN travellers on the North Island Main Trunk Railway are familiar with the sight of country sawmills; have observed the employees' settlements; the yards stacked with timber ready for transport; the puffing locomotives of strange design, but perhaps have not given more than a passing thought to the important industry being carried on in the background. One of the largest sawmills of the kind in the North Island is owned by Ellis and Burnand Ltd. It is situated near Ongarue, about one mile from the station of that name.

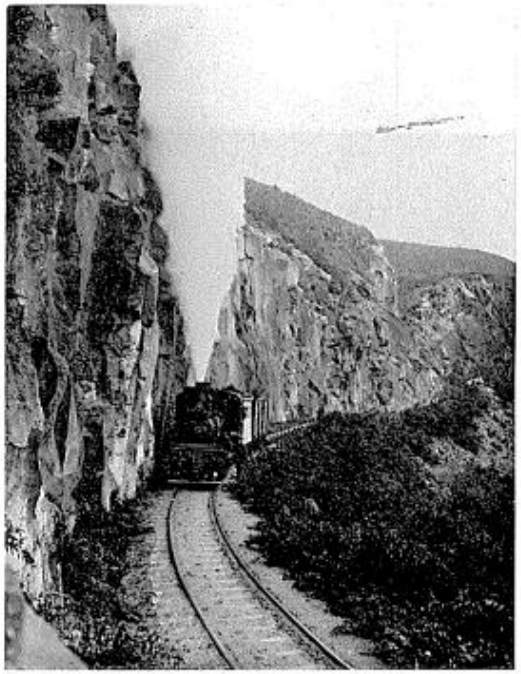
(The author then quoted a lengthy extract from a booklet published by the company, before commencing the following description of the railway that served the Ongarue mill.)

The Bush Railway

Such, briefly, are the activities within the mill itself. It is the bush railway, however, serving this up-to-date sawmill, which has particular interest for railwaymen.

The bush railway starts from the mill, and traverses a hilly district already denuded of bush. Some four miles out, it branches in two directions. The right-hand branch continues a further six miles into the bush (to the hauler) where the logs are brought to the railhead skids. Near the junction is a series of deep cuttings through pumice formation. These cuttings are decidedly interesting, showing as they do, stages of several volcanic eruptions. At the base of the cuttings can be seen the original earth. On top of this is a 12 to 15 feet deposit of pumice. Sandwiched between the lower deposit, and the upper one carrying the present-day vegetation, are the charred remains of a former forest. From here the line commences to rise with grades varying in steepness up to 1 in 15. A short spur line to the river bed branches off here. From a point higher up the grade one looks down on to the spur line skids, and observes a team of patient bullocks slowly but surely hauling a log to the skids. It was not considered worth while to install the usual steam hauler there, and so the earliest form of colonial transport was





LEFT: A "Climax" geared locomotive hauls logs from the bush. Note the well-kept track. This was not the Ongarue line, but it had the same atmosphere.

RIGHT: Passing the rock cutting on the climb into the hills from Ongarue.

Photographs: A. P. Godber (courtesy Alexander Turnbull Library)

brought into requisition. At the terminus of the short branch lines comfortable dwellings have been provided for the bushmen and their families. For the convenience of the single men, cookhouses are also installed, and competent culinary experts see to it that the needs of the inner man are well provided for.

It is on the left-hand branch line leading to No. 9 camp that the engineering difficulties met with, and surmounted, cause the visitor to metaphorically "take off his hat" to the engineering talent of the firm, which took the line successfully to its objective into the far away bush. The grades on this section are equally as steep as on the line to No. 1 camp, but much longer. The first difficulty met with was to get the line past a high rocky bluff several chains long. It was only by blasting a shelf wide enough for the permanent way that the track could be laid to enable the locomotives to negotiate this portion of the road.

Engineering Difficulties Surmounted

A little farther on an apparent impasse was reached. The natural features of the country would cause the line to ascend so steeply in such a short distance, that the resulting grade would render ordinary steam locomotive traction a very costly operation. However, "where there is a will, there is a way." After much cogitation the engineers decided to overcome the grade difficulty by forming a "spiral"—on similar lines to the one on the Main Trunk Line between Raurimu and National Park. On this spiral one tunnel was found necessary, and the visitor cannot but be impressed with the successful way in which the line is taken through this tunnel on a curve, and round the opposite side of the hill, to eventually circle round and cross the low level line at a considerable altitude, per medium of a short bridge. From this bridge the traveller can view the low level line where it winds steeply along the side of the gully, and passes the rocky bluff previously mentioned.

Scenic Features of the Line

When the bush proper is entered, each curve of the line gives a fresh and entrancing vista of lovely scenery. The gigantic trunks of rimu, totara, matai, and other bush giants towering skywards, and festooned with creepers with varying shades of green, cause regrets that the commercial needs of man require the partial devastation of so much natural beauty. Here and there glimpses of mountain ranges are obtained whose heavily timbered heights stretch away into the blue horizon. Here, too, the sunlight is caught and reflected from an occasional waterfall, whose snowy foam forms a striking contrast to the green setting.

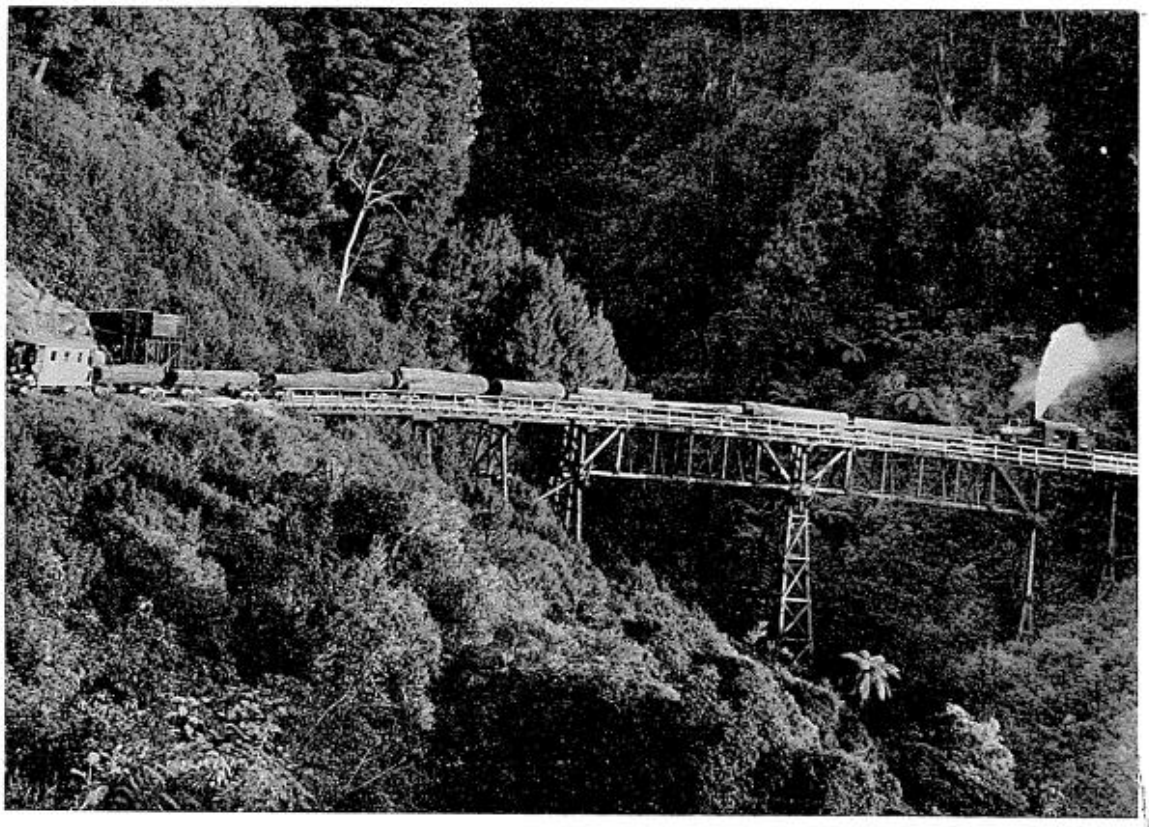
Bird life is fairly plentiful. From amid the leafy canopy of the trees float the musical notes of the korimako, or bellbird, one of New Zealand's sweetest feathered songsters. The bush wren (matuhi) and pied fantail (piwakawaka) dart quickly from bough to bough, in search of their insect food. The soft cooing notes of the native pigeon (kuku) are much in evidence, and it is a beautiful sight to see these birds flying from tree to tree or feeding on the berries of miro, tawa, and other trees, which grow in great profusion. Alongside the line, and draping the sides of the cuttings, are innumerable specimens of New Zealand's ferns, such as would delight the eye of any enthusiastic botanist.

Interesting Bridge Work

There are two bridges which excite comment owing to the high degree of skill displayed in their erection. The shorter

Photograph: A. P. Godber (courtesy Alexander Turnbull Library)

Climax 1650 poses on the big timber viaduct during a pause on the run to the bush with empty logging bogies. This must have been a special occasion, for quite a number of ladies are enjoying the view.



Photograph: A. P. Godber (courtesy Alexander Turnbull Library)

Later in the day, 1650 poses again on the same viaduct with nine large logs in tow. The little passenger car looks to be an interesting vehicle. This picture is somewhat askew, in order to get the whole train in.

Photograph: A. P. Godber (courtesy Alexander Turnbull Library)

This Climax geared locomotive was purchased new by Ellis and Burnand Ltd in May 1924 from the United States manufacturers, and was erected at Ongarue. Standing 12 ft. 1 in. from rail level to top of funnel, this locomotive measured 29 feet in length over buffer faces. The wheels were 2 ft. 6in. in diameter. Climax 1650 could move 7 or 8 loaded log sets at about 13 m.p.h. on level track.

one spans a stream which should have a prettier name than Goat Creek. The longer of the two viaducts, that spanning the Mangatukutuku stream, is an engineering triumph. It is laid out on a curve, the centre being 60 feet off the straight. The length is 282 feet, and the height 90 feet. The supporting trestles are built up on concrete piers. Costing somewhere about £4000, it is reputed to be the largest and most expensive bridge built by any private firm in New Zealand.

Strong steel wire ropes operated by steam haulers bring the logs from the positions where they are felled to the skids for loading on to the trucks. The bushmen are very expert in their manipulation of the timber jack, which, by the way, is a New Zealand invention.

The Rolling Stock

The trucks are of a four wheel pattern, each truck carrying one end of a log. The distance between the bogies is adjusted by means of connecting chains, and hand operated screw brakes are fitted to all bogies. The job of the brakeman, when descending the grades, is no sinecure. He has to step lively, adjusting the brakes to suit the difference in the grades. These logging trucks are constructed and repaired at the Company's workshop at the Ongarue mill, and special care is taken to see that they are at all times in first-class condition.

The locomotives used to haul the timber to the mill are of novel and interesting design. They are known as geared locomotives. The steep grades, and sharp curves, bar the efficient operation of the ordinary direct driven locomotive. The bush locomotives used are particularly suitable for steep grades, without the use of a rack. The cylinders are set at a downward angle on each side of the engine, and drive on to a jack shaft set athwart the frame, in suitable bearings. Geared to the jack shaft is a square horizontal shaft, fitted with universal couplings and extending to both truck line shafts. These latter are fitted with steel pinions meshing into the axle gears. In this manner, power is transmitted equally to all wheels of the locomotive, and results in equal traction on both rails. Slipping is practically eliminated, and as all wheels are drivers, the whole of the power transmitted is available for tractive purposes. Reversing gear is provided, and enables the locomotive to be operated equally well in either direction. Steam brake cylinders are attached to each bogie ensuring ample braking power. A further up-to-date attachment is the provision of electric headlights. Should the train for any reason be delayed till dark, clear illumination of the track is assured. The cabs of the locomotives are roomy and comfortable, and an interesting feature of these engines is that they may be fired with either wood or coal. The application of universal couplings on the main drive shaft enables the engines to negotiate curves of very sharp radii, and also allows accommodation to irregularities in the permanent way, without undue stresses and strains on the engine frame.

The enormous loads handled by these small-looking locomotives, on the steep grades of this system, would astonish a main line driver. On a recent train was one log which weighed 11 tons, and hauls of logs of 65 feet or more in length are performed daily. The usual load on one of these logging trains is 36,000 super feet, or approximately 80 tons, of timber.

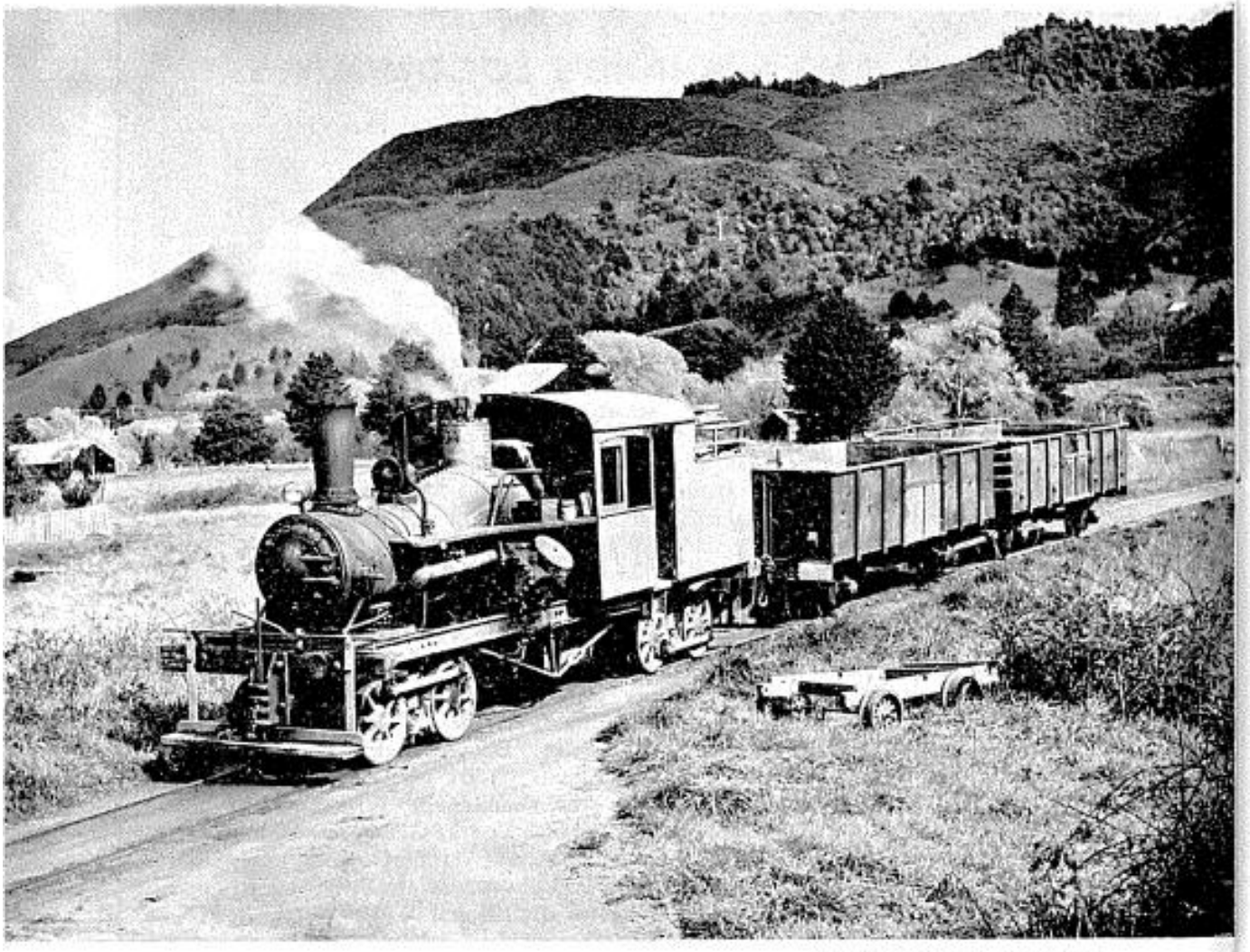
A trip on this unique railway is a profitable experience. One comes away filled with admiration for the engineering skill displayed in the construction of the line, and with wider knowledge of the operations rendered necessary to convert a standing tree into marketable timber.

ELLIS AND BURNAND'S LOCOMOTIVES

(From a booklet published by the Auckland Branch of the New Zealand Railway and Locomotive Society on the occasion of a Society tour over the bush tramway on 3 March 1956.)

DETAILS of the early locomotives employed on this tramway are shrouded in the mists of time, but the first locomotive used was a rather weird contraption, of either 0-4-2 or 0-6-0 wheel arrangement without cab but with a large fly wheel and could have been a converted traction engine. Of the other two locomotives a little more is known. One was a Black Hawthorn 0-4-0 named *Mary* which apparently came from H. Brown & Company, sawmillers, of Inglewood. What became of *Mary* in later years no one knows but it is presumed she was scrapped. The third in the trio of locomotives working there in the early days was an ex-NZR "A" of Dubs manufacture which had several previous owners. The NZR sold her to a Mr Harrison, who was a contractor for the Kauri Timber Company, to whom she was subsequently sold. She was then sold to Ellis and Burnand Limited, and is now (1956) lying derelict at their Manunui mill.

With the laying of the "No. 9" tram, more powerful locomotives were needed, and three were obtained. One was a Price 16-wheeler transferred from the Manunui tram and was named *Martha.* A full sister, *Matilda,* was purchased from the National Timber Company. Climax "1650" followed, being imported direct from the manufacturer in the U.S.A., and was assembled at Ongarue. About 1935, a Price "E" was purchased from the Selwyn Timber Company, and a further Climax, "1203", was transferred from Manunui about 1942 when that tram was abandoned. When the Taupo Totara Timber Company closed their extensive line (Putaruru to Mokai) in 1947, their Heisler, No. 2, was added to Ellis and Burnand's fleet. The last four locomotives are still in service (in 1956), and of the 16-wheelers one lies derelict at each of the mills at Ongarue and Manunui.



Photograph: D. L. A. Turner

Acquired from the Taupo Totara Timber Company in 1947, this Heisler geared locomotive was used by Ellis and Burnand Ltd until the closure of the Ongarue mill in March 1966. Built by the Stearns Manufacturing Company, U.S.A., in 1904, their number 1082, this locomotive was acquired by the Bush Tramway Club and is now displayed at the Museum of Transport and Technology in Auckland. This picture shows the faithful old Heisler working between the Ongarue mill and the station in September 1964.

POSTSCRIPT to the Ongarue Bush Tramway

READERS who can are referred to Volume 13 of the *NZRO* (1956) at page 88 for a description of a 1956 excursion over No. 9 tram into the Waione Valley. Afterwards, the tram was lifted back to the 10-mile peg where a new bush camp was established. The end of bush tramway working came in February 1958 when floods caused so much damage that repair of the 35-year-old route was impracticable. The mill, however, with its rail connection to the NZR station at Ongarue survived until March 1966 when it too was closed and dismantled.