

Slow progress through clayey country at the southern end of No. 6 tunnel at 67 m. 64 ch. was made at the start, but has since improved, and to date 468 ft. have been completed. No. 7 tunnel at 70 m. 1 ch. is well forward, 246 ft. being completed, as is No. 8 tunnel, where 243 ft. have been done. The four last-mentioned tunnels are being worked by bottom heading and hand methods, as their short length hardly justifies their economical mechanization. Nos. 11 and 12 tunnels are partially mechanized and are being lined from a central concrete-mixing plant between the two. Of the former, 210 ft., and of the latter, 23 ft. have been lined, while 197 ft. have been opened out, but not lined. Parties are working at both ends of No. 13 tunnel and have lined 38 ft. No. 14 tunnel, 376 ft. long, has been enlarged and lined during the year, with the exception of 15 ft. and the northern portal.

No. 15 tunnel at 72 m. 50 ch. has been completely mechanized throughout, and 600 ft. have been lined.

At Goose Bay, the one suitable place in the vicinity, 23,000 cubic yards of stone were quarried for the stone protection of the highway, and although a large quantity of rubble has had to be handled some of this has been profitably used on road and railway embankments.

The Claverley Subway at 59 m. 63 ch., two 40 ft. reinforced-concrete spans, has been completed, and with the erection of the Limestone Creek Bridge at 57 m. 70 ch. now in hand, formation will be completed to the Stockyard Creek Bridge at 60 m. 66 ch.

Generally speaking, the outstanding feature of the year on the Oaro Section has been the organizing of the various tunnelling parties and the provision and layout of the necessary plant and machinery to enable the work to be carried out expeditiously.

In the early part of the year there was a shortage of experienced tunnellers, but this has been made good partly by the transfer of men from other places and partly by the training of men who, though inexperienced last year, have developed into more useful tradesmen.

The rate of progress is increasing monthly and should now keep in step with the rest of the other operations, so that the work generally can be finished to schedule.

With the virtual completion of the Parnassus-Hundalee Section it was necessary to shift the machine-shop, stores, and general transport headquarters from Parnassus to Oaro. This was quite a large undertaking, but is now completed.

The average number of men employed during the period was 472.

WESTPORT-INANGAHUA RAILWAY.

Cascade Section (5 m. 70 ch. to 8 m. 78 ch.; length, 3 m. 8 ch.).—This section has been maintained during the year. A daily works train was run between Westport and Cascade Creek for the purpose of transporting men, and 18,740 tons of coal were transported from the Cascade Coal Co.'s bins to Westport.

A 5 ft. by 5 ft. reinforced-concrete culvert was constructed at 6 m. 55 ch., where a washout occurred.

Cascade-Inangahua Junction Section (8 m. 78 ch. to 23 m. 62 ch. (Westport chainage) and 58 m. 30 ch. to 62 m. (Stillwater chainage); length, 18 m. 34 ch.).—The average number of men employed throughout the year has been 263, with a maximum of 290, and at present 240 men are employed.

The work on this section has progressed as fast as conditions permitted, bridge-construction being the governing factor. The heavy rainfall, 211.5 in. per annum, has also increased the difficulties, but in spite of the natural difficulties satisfactory progress has been made.

The bridge-building programme was rendered difficult to adhere to on account of the unprecedented demand for skilled tradesmen for work in the main centres of population, which prevented the Department from securing this type of labour at the usual award rates.

This shortage was successfully overcome by employing semi-skilled workers on co-operative contract for bridge-building and letting private contracts for the construction of culverts.

Modern plant has been used as much as possible on formation work, but its use is considerably restricted owing to the wet conditions caused by the very high rainfall which necessitated the plant being laid up or transferred to other work during the adverse operating period.

Formation: The formation work, which is nearing completion, was considerably advanced during the year, the principal features being the removal of a 50,000-cubic-yard slip near Slaty Creek, the formation of a 65,000-cubic-yard bank at 20 m. to 20 m. 22 ch., and the approach to the Buller River Bridge at 63 m. 30 ch. Except for a 40,000-cubic-yard bank between 21 m. 61 ch. and 22 m., the only uncompleted formation is a length between 60 m. 30 ch. and 62 m., and this work is in hand.

Tunnels: The whole of the tunnels are now completed, the two remaining tunnels at 13 m. 26 ch., and 13 m. 42 chs., of lengths of 180 ft. and 851 ft. respectively, being completed during the year.

Bridges: The distinct feature of this railway is the large number of bridges required, there being twelve bridges with a total length of 3,603 ft., or 55 chains, on the 18½ mile section.

Of this length, 1,885 ft. are completed, 1,227 ft. under construction, and it is anticipated that all except 275 ft. will be finished by the end of the current year.

The details of the bridges are as follows:—

Cascade Creek Bridge (9 m. 3 ch.): Five 80 ft. and one 40 ft. steel-plate-girder spans on reinforced-concrete piers. Completed.

Bridge at 10 m. 24 ch.: Three 30 ft. steel-plate-girder spans on mass-concrete piers and 82 ft. of mass-concrete retaining-wall. Piers of retaining-wall completed, girders being fabricated.

Redmond Creek Bridge (11 m. 41 ch.): One 85 ft. reinforced-concrete-arch span, three 40 ft. reinforced-concrete-girder spans on reinforced-concrete piers and foundations. Completed.

Stable Creek Bridge (15 m. 51 ch.): Ten 40 ft. and one 20 ft. reinforced-concrete-girder spans on reinforced-concrete piers and abutments. Eight piers and three spans are completed.