

Since 1928 extra work has been undertaken each year for the relief of unemployment. During the period April to December, 1930, about forty men were employed on road and drain construction in the Torehapa and Waitakaruru districts. Works undertaken in advance of requirements for the relief of unemployment certainly increase the cost of a scheme, which has to bear accumulated interest charges; but if they are productive works, that will in time produce a return on the investment, they effect more real economy than non-productive works, which are an increased cost to the community at large. These considerations, together with the fact that it is more than ever necessary at the present time to provide word to relieve distress due to unemployment, appear to warrant the commencement of further works ahead of the normal programme of progressive construction by stages. A suitable work that could be undertaken now is the ballasting of peat roads with clay in the Waitakaruru-Torehapa area.

#### DREDGES.

As in previous years, power excavation occupies a central place in a *résumé* of construction performance. Though all the dredges have not been continuously employed, a considerable amount of canal and stop-bank construction has been accomplished, and the river-improvement works have advanced a long step.

Between 6 m. and 11 m. 8 ch. on the Piako River the channel-enlargement is completed, with the exception of some further deepening near the Horohia Wharf and the removal of some shoaling due to bank-caving near Ngatea. The stop-banks have also been strengthened, and, with the exception of a short section near Ngatea, are completed. Between Kerepeehi and Kaihere Landing (11 m. 8 ch. to 14 m. 45 ch.) a considerable amount of channel-enlargement has been done. The stop-banks on left of western bank of river are completed, and the bank on the eastern side is now being strengthened with spoil dredged from the river. Two machines are now engaged improving the river between 15 m. 47 ch. and 20 m. 9 ch.

The following schedule gives the quantities excavated by the dredges during the past eleven years:—

Year.				Cubic Yards.	Cost per Cubic Yard.
1920-21	..	..	..	158,865	7·42d.
1921-22	..	..	..	246,022	7·29d.
1922-23	..	..	..	440,092	8·20d.
1923-24	..	..	..	508,654	7·27d.
1924-25	..	..	..	822,286	5·86d.
1925-26	..	..	..	856,653	6·32d.
1926-27	..	..	..	647,182	7·42d.
1927-28	..	..	..	652,413	7·32d.
1928-29	..	..	..	619,911	6·54d.
1929-30	..	..	..	595,565	6·25d.
1930-31	..	..	..	536,692	8·32d.

The reduced output and increased unit cost last year is accounted for by the fact that dredge operations in the case of four plants has been intermittent, and interest and depreciation charges for the whole year are included in the cost. Since the first week in December all dredges have been working only eight-hour shifts, instead of ten-hour shifts as formerly, and this has reduced the total output and to a slight degree increased the unit cost.

No. 1 Priestman dredge has been employed deepening the upper reaches of the Piako River between 17 m. 30 ch. and 20 m. 9 ch. Apart from stoppages for minor repairs, and the loss of some days when the dredge had to be beached to repair a leak in the pontoon, operation has been continuous and progress good. Generally easy dredging material was encountered, but some hard bars had to be removed. In 264 working-days this dredge excavated 40,949 cubic yards of material at a cost of 9·22d. per cubic yard.

No. 2 Priestman dredge has been deepening the Maukoro Canal between 4 m. 15 ch. and 6 m. 10 ch. Where there was originally 17 ft. to 24 ft. of peat the dredge is now bringing up clay, which will be used as ballasting for road-construction through the adjacent peat lands. Following the usual practice, dams placed in this canal maintain a high water-level. The lateral support afforded by the water in the bank-full canal is sufficient to prevent excessive bank-caving, excepting in very wet and unstable country. Prior to 1931 the banks of the upper reach of the Maukoro Canal held remarkably well. Unfortunately, while closed down for Christmas vacation the dredge sank in deep water, and when the water in the canal had been gradually lowered about 4 ft. to facilitate salvage operations extensive bank-caving occurred, and it became evident that any further lowering of the water-level might cause general collapse of the canal-banks. The dredge was successfully raised, and recommenced work on the 16th January. Owing to the inaccessible position in which this plant has been working for the past twelve years, it has not been possible to dock the dredge for repairs to the pontoon, which has not been out of the water since it was launched twenty-one years ago. Though the hardwood timber hull is perfectly sound, the caulking is perished. In 243½ working-days this dredge excavated 29,331 cubic yards at a cost of 6·26d. per cubic yard.

No. 6 Priestman dredge was engaged during about eight and a half months of the financial year deepening the Piako River above Kerepeehi (11 m. 8 ch. to 13 m. 8 ch.). The plant was idle for the periods 17th July to 19th August and 20th January to 31st March, when the crew was transferred to No. 11 dredge in the Awaiti Canal. In 175 working-days this machine excavated 29,331 cubic yards at unit cost of 9·06d.