

QUALITY OF LAND.

Approximately 3,000 acres along the banks of the Whakatane River is good alluvial land, and much of this was worked to a greater or less extent before the drainage operations commenced. A good deal of it now comes under the B and C classes. There are some further areas of good alluvial deposit on the banks of the Rangitaiki River and at a few other spots. It is difficult to estimate just what these areas would amount to, but we should imagine 3,000 acres altogether, which, with the 3,000 acres on the Whakatane River, would make, say, 6,000 acres of first-class alluvial flats. The remaining 74,000 acres consists of pumice flats, or peat mixed with pumice to a greater or less extent, and mostly on a pumice foundation. The peat varies in depth very much, and would originally range from 1 ft. or 2 ft. to as much as 20 ft. This peat, however, has gone down or sunk as the drainage has progressed and the water has been taken out of it. Much of it shrinks from 75 to 80 per cent. when drained. The area of pumice flats will be somewhat greater than the area of land of a peaty nature. A considerable area of this peat land is so low that it cannot be profitably drained. A reference to the map No. 1 shows the existing levels. On the peat areas these levels are now considerably below what they were before the drains were put in. Much of this peat land on the lower levels is still wet, and would shrink further if it were possible to further drain it. We believe that the area of land that cannot be profitably drained will be not less than, say, 10,000 acres. As far as we can see, this low-lying land cannot be used for anything except summer grazing. It is possible that some of it might be used for flax-growing, but only experience and time will show whether this can be profitably carried out or not. Apart from this area of low-lying land which we consider undrainable, a great deal of the peat land would be difficult to drain, and will be very slow in coming into profitable use. When it does come in it will not be rich land, and will require top-dressing with fertilizers and lime to make it productive. The pumice flats will come in more quickly than the peat lands. Some of these pumice flats on the higher ground are now coming in fairly well where the water has been got off, and they have been top-dressed with fertilizers. When this land is dried, however, it is at the best only pumice land, no better in quality than much of the pumice lands of the Auckland Province which have responded so well to top-dressing. These Rangitaiki pumice flats, however, have the disadvantage of being at a low level and having to be drained, whereas most of the pumice lands in the Auckland Province require no artificial drainage. Only a small portion of the area has been brought into a proper productive state. The great bulk of it, probably between 80 and 90 per cent., requires a large amount of expenditure and development work to bring it into a productive state, in addition to which a considerable time must elapse before this result is arrived at.

FLOODS.

Possible flooding from the Tarawera River is one of the most difficult problems in connection with the Rangitaiki Swamp drainage. As a glance at the levels will show, the river itself is on the highest part of that portion of the swamp lying between the Tarawera River and the Rangitaiki River. The water-level of the river itself is from 2 ft. to 3 ft. higher than the average level of the land almost immediately adjoining it on either side. It is kept in this high position at normal times by natural banks created by its own floods. These natural banks are only a foot or two above normal water-level, and until recently, or previous to the river being stop-banked, flood-waters overflowed and ran across country towards the Rangitaiki River, and thence right down the plain, until they eventually found an outlet into the sea either by way of the Rangitaiki or mouth of the Tarawera River. The Tarawera River itself flows right through pumice country, and carries with it a continuous stream of pumice sand. To prevent the escape of the flood-water across the plains on the east bank of the river a stop-bank has recently been erected almost the full length of the east bank. This has been built with the only material available—namely, sand—and it is questionable whether it will stand any severe test. Quite apart from the risk of flooding, the high elevation of the bed of the river, together with the pumice subsoil of the whole plain, means that