

in two thick bands, at points respectively twelve and thirteen miles east of Kaitaia Township. On the northern side of the valley they show as two lines of escarpment having vertical cliffs of exposed rock varying from 10ft. to 25ft. in height. Nowhere, however, has the actual thickness of this limestone been ascertained. On the south side of the valley and at some distance from the road-line the same limestone, dipping to the west or south-west, is seen forming cliffs at its out-cropping margin as on the northern side of the valley. Close to the roadside, where, however, no distinct cliff is formed, the limestone forms a hill of smooth outlines, and on the slope of this a quarry has been opened for the extraction of the limestone as road-metal. Passing this, along a road metalled with this material, I stopped to examine the rock, as this was exposed in the quarry itself. The nature of the rock was at first apparent, but it required an examination of the quarry to show that the stone occurred in such a manner that slabs or blocks might be obtained of almost any required size. Two thick strata of limestone resting on calcareous greensands were being excavated at the time I passed the place, and it was evident that other strata of a like character overlaid those being worked for road-metal. The stone is not of a flaggy character, but occurs in beds, without partings, of from 4ft. to 6ft. in thickness, and has backs and bedding, enabling the extraction of blocks of stone fully as long and wide as the vertical thickness of the stratum. On closer examination the stone appeared of a uniform dark-grey colour, free from flaws, spar-joints, or other defects and impurities. The exposure at the quarry clearly exhibits the lower beds of the limestone only, and, naturally enough, the lower stratum is liable to contain glauconite grains and fucoidal impressions, or be of a darker colour than beds further removed from the greensands and higher in the sequence.

The higher beds were not examined, as their exposure lay on the north side of the valley, and to the south-east in the range of wooded hills and broken hilly country flanking the Maungataniwha Range, and a special examination of the district would have been required for this purpose. Neither had I the certain knowledge that the stone was of a high quality for lithographic purposes, and other equally important work must have been given up had this exploration been engaged in at that time. Consequently, after apprising the quarrymen as to the probable value of the stone, I selected a sample, under the circumstances a small one, and which, much to its detriment, had afterwards to be considerably reduced. This I brought to Wellington, and prepared it as a test sample. On facing and polishing, the stone showed fractures, due to its being reduced to a thin slab by the hammer alone, and had to be set in a bed of cement to enable its being worked in the lithographic press. The resulting prints thus obtained show the stone to be of excellent quality. Unfortunately, under pressure, the fractures alluded to began to show more plainly, and a further and larger sample will have to be obtained to enable further tests to be made.

Similar stone is extensively developed in the district of Mongonui County, whence the sample here described was obtained, and the limestone strata usually occupy such positions that comparatively a trifling cost will be entailed in opening the quarries for the extraction of the stone.

The outcrops likely to be worked in the near future are situated sixteen to eighteen miles from water-carriage at Awanui, whence it can be conveyed direct to Auckland, or transhipped to a larger vessel at Mongonui; or it may, by Oruru Valley, be brought direct to Mongonui, and thence shipped to its destination.

As to the value of the find, so far there is the proof of the work produced and the opinions of the draftsman and lithographer that the sample tested is of excellent quality. The only objection raised by them is that for some kinds of work the colour of the stone is a shade too dark, but I am satisfied that the beds overlying the bed from which the sample was taken will be better in this respect.

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