

without any glass, thus showing a distinct connection with the trachytes. The ferro-magnesian elements consist of the usual hypersthene and augite, some of the latter in fairly large crystals and beautifully twinned.

It will thus be seen that there is a very close resemblance in the rocks of White Island to those of the great volcanoes lying in the middle of the North Island, and to the rocks, recently described by Bartrum,* occurring south of Tauranga, in the Te Puke district, although these last evidently belong to a much earlier period.

ART. XLIII.—*Additions to the List of Fossils from the Lower Waipara.*

By R. SPEIGHT, M.Sc., F.G.S.

[Read before the Philosophical Institute of Canterbury, 5th November, 1913.]

THE following list of fossils is based on collections made by the author last January on the banks of the Waipara River, about a quarter of a mile below Greenwood's Bridge, and opposite to the point where Double Corner Station was once situated. The beds consist of sands and sandy clays, with occasional hard concretionary bands which strike north-west and dip south-west at angles in the vicinity of 15°. They represent one of the higher horizons exposed in the gorge, and pass up conformably into the beds exposed near the mouth of the Waipara River, which here consist of clays with occasional layers of coarse shingle, and seams of lignite which have a marked resemblance to the beds exposed on the south-eastern flanks of Mount Grey and form the Mount Grey Downs. No fossils have been found in these beds, but the lithological resemblance is so close that they may be assumed, at any rate tentatively, to be of the same age.

The greater number of the fossils enumerated in my former paper on this locality were from a lower horizon, which is well exposed on the high banks somewhat higher up the river, about a mile above the bridge. My reason for publishing this list is merely to help as far as possible in the elucidation of our Tertiary sequence, for, as matters now stand, the collection of fossils in particular localities, with due regard to zoning, is the most pressing work to be done, and therefore I have ventured to submit this list, although it is a comparatively short one. I am indebted to Mr. Henry Suter for his kindness in aiding materially in the identification of the forms.

Chione meridionalis Sowerby.

— *stutchburyi* Gray.

Cytherea oblonga Hanley.

— *enysi* Hutton.

Mesodesma grande Hutton.

Mytilus edulis Linné.

Ostrea angasi Sowerby.

Pecten triphooki Hutton.

— *hillii* Hutton.

— *crawfordi* Hutton.

Tellina deltoidalis Lamarck.†

Ancilla australis Sowerby.

— *depressa* Sowerby.

— *pseudaustralis* Tate.

Cerithidea bicarinata Gray.

Fulguraria arabica Martyn.

Polinices ovatus Hutton.

Seila terebelloides Martens.‡

Siphonalia sp.

Turritella symmetrica Hutton.

* Seventh Annual Report, N.Z. Geol. Survey, Appendix C, 1913, p. 141.

† This species has been noted previously only from the Pleistocene.

‡ This species has been known previously only from the Pliocene.