NO. VI.—NOTES ON A SERIES OF SPECIMENS ILLUSTRATING THE EFFECTS OF DIFFERENTIAL WEATHERING ON SOME SCOTTISH METAMORPHIC ROCKS. By G. W. TYRRELL, A.R.C.Sc., Assistant in Geology, Glasgow University.

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LIST OF SPECIMENS EXHIBITED.

1. Loch Tay Limestone, 1 mile west of Crianlarich.
2. Limestone with Actinolite, Glen Elg.
3. Limestone, Glen Tilt.
4. Junction of Limestone and Gneiss, Gilbert's Bridge, Glen Tilt.
5. Quartz veins, in folded Gneiss, Gaick Forest, Inverness.
6. Compact Limestone, showing irregular weathering.
7. Cordierite-Actinolite Schist, Dubh Visge, Garabal Hill.

Many of the specimens have a banded appearance, with sharp, salient, more or less parallel ribs on the weathered surface, due to the differential weathering of alternations of harder and softer layers. In 1, flakes of mica are distributed through the more resistant layers. On weathering, these stand out as sharp, parallel ribs, an appearance characteristic of the Loch Tay and other Scottish metamorphic limestones. In 3, the alternations are layers varying slightly in degree of purity. In 2, 4, and 5, bands of actinolite, gneiss, and quartz constitute the harder layers.

No. 7 is a specimen of a peculiar schist found as a block in the bed of the Dubh Visge, a burn near the Garabal Hill igneous complex. Its weathered surface shows large nodular lumps, often an inch across, separated by deep indented depressions. A thin slice shows that the rock consists mainly of biotite and cordierite, the latter being quite fresh, with the characteristic trillings and yellow pleochroic halos. A few crystals of actinolite break across the foliation of the rock. Sillimanite, apatite, and iron ores occur as inclusions in the cordierite. A section across one of the nodules, however, shows an almost total absence of biotite, whose place is taken by tough matted aggregates of actinolite. It is therefore sug-

gested that the irregular distribution of biotite and actinolite is the cause of the differential weathering shown by the specimen.

The rock is undoubtedly a Dalradian schist metamorphosed by the Garabal Hill igneous intrusion. It is probably allied to a rock described by Messrs. Dakyns and Teall in their paper on the rocks of Garabal Hill.* They ascribe the nodular appearance to the differential weathering of "patches of felspar about the size of a pea, which weather out as roundish lumps, and give the rock somewhat of the appearance of a pebbly grit."

This is not the explanation of the nodular weathering of the rock here described, for it contains no felspar. The nodules are much larger than those on Messrs. Dakyns' and Teall's specimen. Moreover, the latter came from the slopes of Ben Daimhain, on the north side of the intrusion, whereas the rock here described came from the south side.

* Q.J.G.S., xlviii. (1892), p. 104.