

for the most part metamorphic, and probably consist of old and highly altered volcanic.

Just west of this central crystalline belt is a series of rocks, presenting a considerable variety of character, embracing slates of various colours—purple, black, green and grey sandstones—often so highly quartzose as to form hard quartzite-quartziferous schists and conglomerates. These are usually regarded as of Cambrian formation. A narrow belt of somewhat similar rocks appears south-east of the crystalline belt.

Flanking these are rocks referred to as of the Cambro-Silurian age. On the west they are fossiliferous limestones and associated graphite and calcareous shales. To the east of the ridge, and probably underlying the whole of the central and eastern part of the area, are a series of ochre-spotted slates and sandstones. These latter, although much obscured by a covering of drift, are apparently partly crumpled, or possibly have formed overturned synclinal basins, in which apparently calcareous beds appear; the slates and sandstones possibly representing denuded crests of small anticlinals. The writer wishes to acknowledge his indebtedness to Mr. A. W. G. Wilson for the geological facts above given.

The gauging of the river and the subsequent reductions form part of the regular surveying school course, and the writer, as one of the demonstrators appointed for the school, was in immediate charge of the fieldwork under the direct instructions of Professors McLeod and Kerry. He is indebted to them for information as to the methods of reductions, and for general advice and assistance in the preparation of this paper.

The work of the survey included—

- (1) Regular readings of the height of the river.
- (2) A sounding survey for the river channel for a distance of about $\frac{3}{4}$ of a mile.
- (3) A determination of the flow of the river as given by the current meters.
- (4) Rating the current meter.

EQUIPMENT.

The special equipment consisted of two current meters (see Figure A), one of the Amsler and the other of the Price type. The Amsler meter consists of two propeller blades mounted on a hori-