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MEMORANDUM PETROLOGY OF MERSEY REGION ROCKS

The following descriptions apply to rocks collected by Regional Geologist I. Jennings in areas adjacent to the Lorinna Road, and covered by aerial photographs Mersey Run 5/61/52-57.

Mersey Run 5/61/52 - Quartz-felspar porphyry - Lorinna Road

Medium to fine grained dark green rock. The colour is not quite uniform as there is an occasional patch of paler felspathic material. Visible crystals consist of irregular glassy quartz and white rectangular felspar about 1 mm across.

In thin section the texture is porphyritic with euhedral or rounded or irregular and corroded quartz crystals, cloudy crystals of felspar, and confused aggregates of uralitic hornblende in a quartzo-felspathic groundmass, with chlorite and epidote.

The felspars show alteration and may have sericitic inclusions, but simple twinning along 001 and extinction parallel to the twin plane indicate orthoclase. Occasional crystals show fine multiple twinning with low extinction angles. Accessory minerals are ilmenite and magnetite.

53. Quartz-felspar porphyry - Lorinna Road

Fine grained greenish-black rock with glassy phenocrysts of quartz.

In thin section shows rounded and euhedral crystals of quartz, all slightly corroded, and lath-like and irregular remains of hornblende crystals, partly uralitic, partly chloritic, and partly altered to iron ore minerals. In between the size of the phenocrysts and the very fine groundmass is much quartz in angular and irregular grains. The groundmass is greenish and seems to consist of chlorite, quartz epidote and felspar. There are patches of iron ore and euhedral crystals of zircon. Original felspar crystals are absent or exist only as very shadowy and irregular patches.

54. Quartz-felspar porphyry - Lorinna Road

Greenich black rock with phenocrysts of glassy quartz. The ground mass is very fine grained but the rock is not uniform as there are xenoliths of lighter coloured siliceous material which seem to be associated with epidote, and some xenoliths consist almost entirely of epidote.

In thin section the rock shows plastic flow structure. There are lenticular inclusions of quartz-felspathic material containing, corroded quartz grains, multiple twinned felspar crystals and aggregates of uralitic hornblende. The very fine grained groundmass seems to consist of chlorite and epidote.

55. Quartz felspar porphyry with pyrite nodules.

Dark greenish rock with phenocrysts of quartz, and large single crystals and coarse grained aggregates of pyrite.

In thin section the rock is seen to consist of a quartzo-felspathic groundmass, not entirely uniform, some parts being of coarser grain than others, containing patches of epidote and iron ores. The quartz phenocrysts are rounded and peripherally corroded.

56. Quartz Porphyry

Medium to fine grained dark greenish rock with glassy phenocrysts of quartz and a trace of sulphides.

In thin section the quartz crystals appear corroded and have inclusions of other minerals. The ground mass is quartzo-felspathic and contains in addition innumerable small granules of epidote. Uralitic hornblende also occurs in confused aggregates. Flow structure is prominent.

57. Porphyry - Lorinna Road

Dark greenish rock with glassy phenocrysts of quartz and fewer cloudy phenocrysts of felspar.

In thin section the texture is porphyritic and glomeroporphyritic, with single crystals of felspar and quartz somewhat corroded, and groups of crystals comprising quartz, felspar, uralitic hornblende, epidote and iron ores. The matrix is very fine grained, consists of quartz, felspar and epidote, and shows plastic flow structure.

From the evidence of thin sections it is apparent that these rocks have a complex origin and a complicated history. Metamorphic textures and structures are plainly shown. However, the minerals present indicate an igneous origin. Such an origin would be indicated by a high ratio of potash relative to soda. A high silica content in such melanocratic rocks is anomalous; but under the microscope evidence appears for a high silica percentage in the groundmass. In addition the rocks in some instances are shown to be far from homogeneous and some portions are mainly quartzo-felspathic. There is evidence that the rocks are hybridised, and composed of a mixture, rather incomplete, of quartz porphyry and doleritic magmas, metamorphosed under conditions of moderate temperatures and pressures.

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