

**IRISH GEOLOGICAL ASSOCIATION
FIELD GUIDE**

**The Avoca Mining District, Co.
Wicklow**

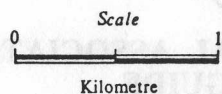
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Note : permission to enter the mine workings should be sought from Wicklow County Council and the Exploration and Mining Division of the Department for Transport, Energy and Communications.

Introduction

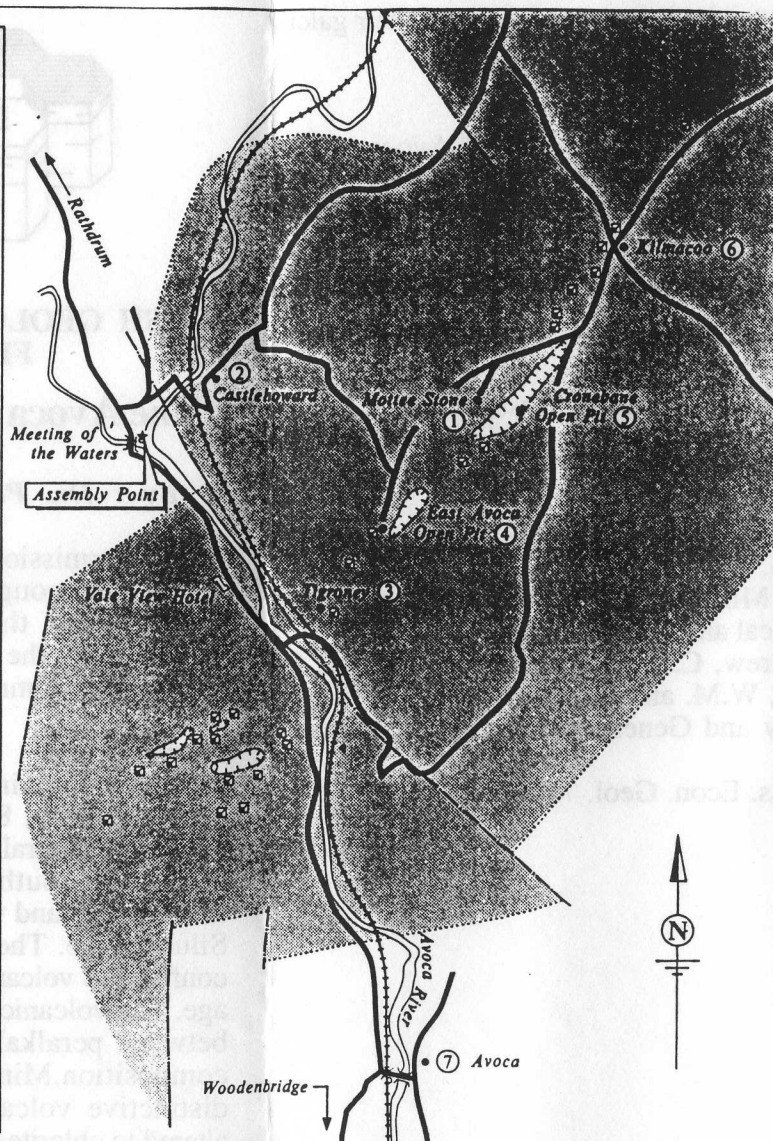
The Avoca mining district occurs 70km south of Dublin city, 8km northwest of Arklow. It lies in the central part of the Lower Palaeozoic region of southeast Ireland, underlain by sedimentary and volcanic rocks of Cambrian to Silurian age. The Avoca mineral deposits are confined to volcanic rocks of Upper Ordovician age. The volcanic ashes and lavas mainly range between peralkaline rhyolites and dacites in composition. Mineral deposits are hosted in distinctive volcanic rocks which have been altered to chlorite-quartz-pyrite phyllites. There

Geology of The Avoca District



Legend

- Assembly Point ★
- Volcanic Rocks
- Sediments
- Site Location Stage ⑥
- Open Pit
- Shafts
- Fault



are two distinctive ores present. Massive ore consists of pyrite bands containing minor chalcopryite; there are also bands rich in sphalerite and galena. Disseminated ore consists of altered volcanic rock containing significant amounts of pyrite, chalcopryite and in places, sphalerite and galena. The metals in these deposits accumulated on the sea floor from hydrothermal plumes by mechanisms which are still active on ocean floors today.

The history of mining extends back for many centuries at Avoca. In the nineteenth and earlier centuries small scale workings commonly employed up to 2000 people. During the period 1850-1880 pyrite was produced as a source of sulphur. However, copper (from chalcopryite) has been the main interest at Avoca. Modern large scale mining commenced in 1958 and finished in 1982. A total of 16 million tonnes of ore grading about 0.6% copper produced. Extensive low grade copper and pyrite resources remain.

Locality Descriptions

Locality 1

The Mottee Stone lies on the northern edge of the Crone Bane open pit. Across the valley are additional old mine workings. The underlying volcanic rocks form the higher, more rugged ground which extends southwestwards as a prominent ridge culminating in Croghan Kinshelagh. A celebrated gold rush took place here in 1790's. On both sides of the hilly volcanic terrain, the countryside is characterised by smoother contours and is underlain by

Cambrian-Ordovician sediments. To the west and northwest the line of hills forming the skyline follows the margin of the Leinster Granite batholith.

Locality 2

Outcrops of coarse grained tuffs (volcanic ashes) contain fragments of volcanic material and quartz. The main structure is the cleavage which dips steeply to the southeast.

Locality 3

Tuffs exposed below the old pump-house are similar to those of Locality 2 and they are in contact with altered tuffs (chlorite-sericite-quartz phyllites) near their western limit.

Locality 4

The East Avoca Open Pit was extensively worked prior to 1982. The main part of the pit is occupied by altered volcanic rocks. Mineralisation is in massive and disseminated forms. Examine the broken material in the centre of the pit.

Locality 5

The Crone Bane Open Pit, mined during the 1970's, was subsequently partially backfilled with spoil material. The northwestern wall of the pit consists of altered volcanic rocks with massive and disseminated sulphides. The southeastern wall contained rhyolite.

Locality 6

Kilmacoo is very poorly exposed. A number of old trials were opened here in the last century.

The spoil dumps are noteworthy for their galena and sphalerite content.

Locality 7

The wood immediately east of Avoca village contains outcrops of Cambrian-Ordovician siltstones along its roadways. These siltstones are fine grained and finely laminated.

References

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