

Volcanoes in SW Victoria & SE South Australia

Ken Grimes June 2011.

The volcanic plains of western Victoria form a belt 100 km wide which extends 350 km west from Melbourne nearly to the South Australian border. In addition, several volcanoes occur near Mt. Gambier. The gently undulating plains are formed of lava flows up to 60 m thick, and are studded with volcanic hills. About 400 volcanoes are known within the region, which has been erupting intermittently for the last five million years. The youngest volcano appears to be Mt. Schank, in South Australia, which erupted about 5,000 years ago. Latest ages for Mt Napier are 32,000 years or even 45,000 years. The Aborigines would have watched this and some of the other eruptions, and they have stories of burning mountains. Further eruptions could happen, but are not likely in our lifetimes.

Volcanoes erupt when molten material (called *magma*, in this state at about 1200°C) is forced up from great depths. On reaching the surface this may flow across the ground as lava, or be blasted into the air by gas pressure to build up cones of fragmentary material (including scoria and ash). Most of the local volcanoes erupted for only a few weeks or months, and never again – the next eruption was at a new site.

In the Western District there are mainly three types of volcano, though combinations of these also occur:

- About half of the volcanoes are small steep-sided *scoria cones* built from frothy lava fragments thrown up by lava fountains.
- A group of about 40 *maar craters* near the coast were formed from shallow steam-driven explosions that produced broad craters with low rims. These now often contain lakes.
- Most of the remainder are broader but flatter *lava volcanoes* formed from relatively gentle flows of lava welling out of a central crater and covering the plain with a sheet of basalt. The source of a given flow is often hard to pin-point.

Photos

Tower Hill – an explosion maar crater, with layers of tuff and coarser material deposited in various active phases (the layers in the rim of the crater were revealed as a result of quarrying in years gone by, and subsequently eroded by wind and rain).

Mt Napier (*Tappoc*) – a scoria cone with ramparts of ‘welded’ lava on the rim.

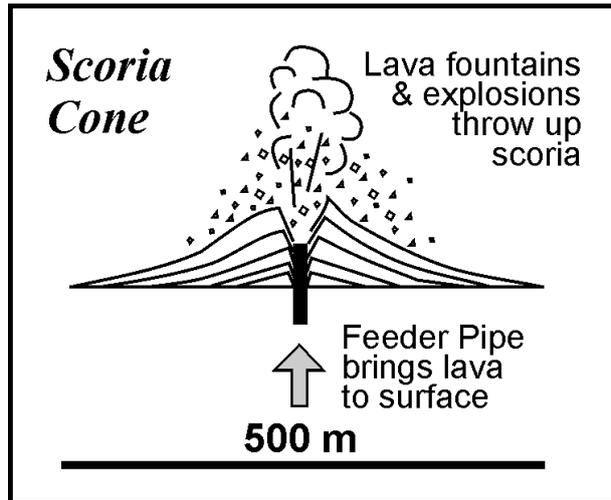
Mt Eccles (*Budj Bim*) – scoria hill on the far (windward) side and crater lake resulting from an explosive phase.



Volcanic rocks

The *lava* in this region formed *basalt*: a dense dark rock that may be solid, but more usually has gas bubbles (called *vesicles*) embedded within it. This lava has flowed across the surface as a stream or sheet of molten rock.

Closer to the eruption we find mounds of scoria and spatter. *Scoria* is a light weight, frothy type of basalt formed where molten lumps of lava are thrown out of a vent and solidify as they fall back to the ground where they accumulate as loose clinker. *Spatter* forms in a similar way, but the lumps are still soft when they land and spatter and stick together as a welded mass.



More explosive eruptions create lots of volcanic *ash* or *tuff* – finer fragments of lava and other rocks that settle in sheets on the surface. In the eastern part of the region the rocks contain an attractive green mineral called olivine and other large crystals carried up from deep beneath the surface.

