THE GEOLOGY OF WILSON'S PROMONTORY NATIONAL PARK

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Geologically, Wilson's Promontory National Park is composed of two separate units: granite and Recent deposits.

(1) Granite outcrops over the major part of the National Park, forming the bedrock of the area. The rock can be described generally as a grey, coarse-grained, well-jointed porphyritic granite containing felspar crystals up to four inches long and two inches wide. Quartz, orthoclase (commonly showing Carlsbad twinning) subordinate plagioclase (often zoned) and biotite are the main minerals. Black tourmaline is widely distributed, especially in quartz veins in the granite. Cassiterite is sometimes associated with the tourmaline, but also occurs as an accessory mineral in the granite, together with monazite, zircon and garnet. In certain parts of the Promontory, weathering has liberated and concentrated the cassiterite in quantities sufficient to form small tin deposits. These deposits are mostly too small to be of any economic use, but were once mined near Mt. Hunter. Xenoliths are abundant in certain localities. These are mostly biotite rich, and occur in all sizes up to three feet across.

The granite is uniformly coarse over the whole of the Promontory; fine-grained rocks do occur, but are relatively scarce and probably represent late phase differentiates of the granitic magma, being intruded into the already solid granite during the final stages of cooling. The most common of these late stage intrusions is aplite, which may be seen in various parts of the National Park, usually injected in small dykes about one to three feet wide along the well developed joint planes in the granite. Occasional dyke-like masses of fine-grained muscovite granite occur, for example, near the south end of the Five Mile Beach, and a very fine-grained grey granite, which was used to build the lighthouse, occurs at South East Point, where it forms a thick band. Apart from these, however, there is little variation in the texture of the granite over most of the Promontory.

The granite intrudes rocks of Silurian age, as shown by a contact on the Corner Inlet coast near Yanakie to the north of the National Park. Together with other similar granitic intrusions in Victoria, it is considered to be probably of Devonian age, but there is no direct evidence to establish the age more precisely.

(2) Recent Deposits occupy relatively small areas of the National Park. They consist of sand dunes, and alluvial and swamp deposits. The development of sand dunes is greater on the western side of the Promontory than on the east, where they are usually restricted to one or two fairly low ridges running parallel to the coast, e.g. Five Mile Beach. On the western side of the Promontory, however, sand dunes up to 50 ft. high occur on the flat and low-lying swampy areas at the heads of bays and inlets where the wind-blown sand has been able to build up, e.g. at the heads of Leonard, Norman and Oberon Bays. Because of their steepness, there has been little accumulation of sand on the slopes of the granite hills and mountains forming the greater part of the coastline of the National Park.

Buried shell beds and aboriginal midden deposits are occasionally found within the sand dunes, indicating their Recent age.

Just outside the National Park boundary in the vicinity of the Darby River, there are considerable thicknesses of Pleistocene dune limestones showing well-developed cross-bedding, which are overlain by the Recent dune sands. These dune limestones, however, do not appear to extend into the National Park

Alluvial and swamp deposits consisting mainly of detritus derived from the weathering of the granite extend to the coast from the foot of the granite mountains and hills which form the backbone of the Promontory, forming areas of flat, low-lying and usually badly drained country. The biggest area of these deposits is that running northwards from the foot of the Vereker Range into Corner Inlet. Smaller areas are developed at the heads of Oberon Bay, Norman Bay, Waterloo Bay, Sealer's Cove, File Mile Beach and Three Mile Beach.

Coastline features on Wilson's Promontory show the results of coastal submergence which occurred since the last worldwide glaciation began to diminish about 10,000 years ago. From the melting of the enormous ice sheets and glaciers, there ensued an overall elevation of sea level of about 150 feet, and the coastal regions of the land were partially submerged beneath the sea. The drowning of the coast gave rise to Bass Strait and the residual granite hills now forming Wilson's Promontory became a group of islands. The Promontory was formed by the subsequent linking of these islands by sand accumulation.