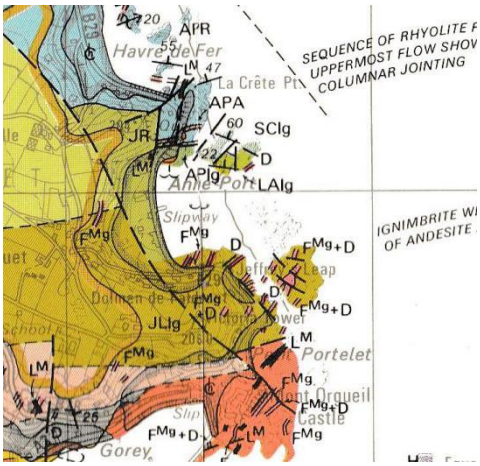
Anne Port Bay to La Crête Point Geology Trail.

Volcanic breccias, spherultic, flow - banded and columnar - jointed rhyolites.

The bay and point or headland are situated some 2 km to the north of Mont Orgueil, Gouray, the point forming the north side of Anne Port Bay on the east coast of Jersey. The safest approach



is from the Anne Port slipway from mid to low tide, walking north east across the sand to the first, or southern most cliff outcrops which consist of St. John's Rhyolite Formation ignimbrites and Bouley Rhyolite Formation flows **(Fig. 1, green & blue).** This trail was first described and photographed by Nichols and Hill (2004, p.19) and revisited with the Friends of the Sedgewick Museum and the Open University, Wessex Branch, in 2017.

Fig. 1.

In the wide gully immediately to the north of these cliffs there are excellent outcrops of the Anne Port Rhyolite which consists of five rhyolite flows overlying the Anne Port Ignimbrite. The first flow in the gully is agglomeratic and exhibits large, scattered angular fragments in a finely crystalline groundmass **(Fig. 2).**

The fragments are of various coloured country rocks and minerals. This is overlain higher in the adjacent cliffs by red-brown, obviously flow-banded rhyolite, the upper part of which is autobrecciated (rubble-like due to weathering).

Fig. 2.

In the next small embayment there are several layers of variable thickness, formed of volcanic breccias dipping to the northeast. They contain fragments varying from small, lapilli size pyroclasts to larger angular agglomerate size ones.

A thin andesite breccia (Anne Port Andesite) 30 - 50 cm thick, crops out at the base of the next cliff to the north and contains an interesting pillow -like structure **(Fig. 3)**. It is not a submarine feature and is interpreted as a gas bubble structure near the surface of the layer .

Fig. 3.

The upper parts of the flows are brighter red and rubble - like and again, represent surfaces weathered subaerially to produce autobreccias.

Continuing north, one is confronted by an outcrop showing a very uniform structure of angular columns inclined away from the viewer. This is our own Giants' Causeway (La Chaussée de la Crête), a columnar jointed rhyolite flow with columns varying irregularly

from pentagonal to hexagonal in section, and seeming to be stacked at an angle dipping southwards **(Fig. 4).** If formed vertically through the flow about cooling centres, they indicate a

northerly dip to the flow varying from 30 to 60. How much is tectonic and how much is original flank dip is unknown as the vent(s) have not been found and stereo - net studies have not been done.

Fig. 4.

In addition, this flow exhibits excellent white and red - brown, banded flow folds which cut across the columns, plus small areas of 1 - 3mm, white crenulated spherulites **(Fig. 5).**

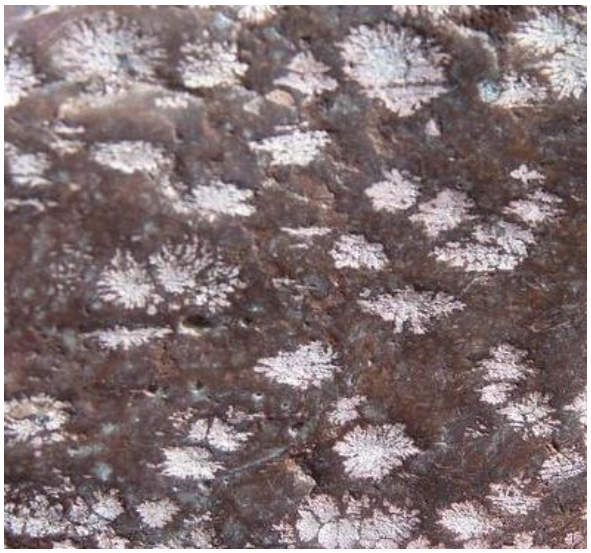
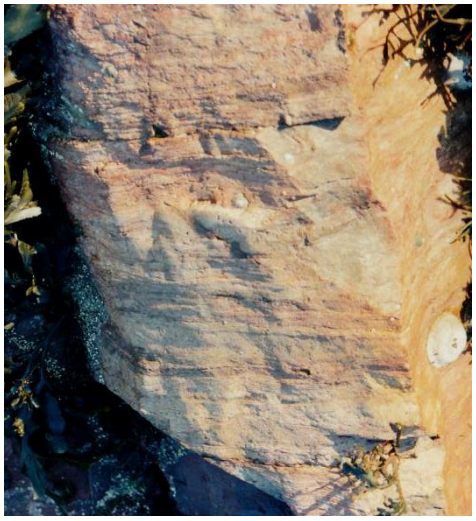


Fig. 5.



Figs. 6 a.

b.

and later quartz veins. In many cases, the flow bands have been weathered to cause separation into discrete, thin layers across the columns. There is also a line of sigmoidal tension gashes lying en echelon to each other to be found in a gully at the top of the beach at the foot of the columns **(Figs. 6 a, b).**

Finally, it is worthwhile examining the boulders along the seaward edge of the rocks and in the gullies as they provide good examples of local rocks not exposed, such as mica lamprophyre and veins of haematite and quartz **(Fig. 7)** as well as detrital pebbles not always from the surrounding outcrops!

Fig. 7.

In summary, the geological history of the area is as follows. Bursts of volcanic activity produced the various ignimbrites, volcanic breccias and banded, sometimes spherulitic, flows. These were later intruded by granite which in turn was intruded by the lamprophyre dyke. Subsequent uplift and erosion, and later glacial and interglacial periods produced raised beaches to the north and south, with overlying glacial head and loess.

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