

An Unusual Carbonatite Occurrence

George Helffrich¹, Bruno Faria^{2,3}, Alex Lodge¹

We recently discovered an unusually extensive, linear carbonatite locality in Fogo, an active volcano in the Cape Verde islands. The exposure is unique in our experience.

Carbonatites are lavas composed predominantly of carbonate plus minor silicates, and formed from the melting of mantle rocks in the presence of CO₂. Typically found in continental settings associated with rifts, they rarely occur in ocean island settings, two of which are the Canary Islands (Fuerteventura) and Cape Verde (Maio, Brava, Santiago, S. Vicente and Fogo). The reported provenance in Fogo is in "basement" exposed by deeply cut ribeiras (gullies) on the island's western side. While seeking an exposure, we found carbonatite

clasts beside the road north out of S. Filipe towards the harbour. A systematic search for the outcrop revealed that clast abundance increased approaching the roadway. Upon closer examination, the road paved with basaltic cobbles proved to have a centre line made entirely of the carbonatite clasts (FIG. 1). This singularly effective use of this rare type of mantle rock provides a ready, albeit unsafe, supply of samples. To prevent extensive sampling damage to the roadway, we asked local construction workers about the location of the quarry that provided the paving stones. The quarry is near a settlement called Almada. The face of the quarry exposes an eastward-dipping sequence of layered carbonatite lava and silicate sheets invaded by the carbonatite on a 20 cm scale. Total thickness of the flow is ~40 m.



FIGURE 1. Carbonatite clasts make up the centre line of the road (top picture). Black paving stones are basaltic cobbles. The clasts are dominantly coarsely crystalline (20 mm) calcium carbonate with rare biotite micas 10 mm across and prismatic, 4 mm × 1 mm diopside.

¹ Earth Sciences, University of Bristol, Wills Memorial Building, Queen's Road, Bristol BS8 1RJ, UK

² Departamento de Física, Instituto Superior Tecnico, Av. Rovisco Pais no. 1, Lisbon, Portugal

³ Instituto Nacional de Meteorologia e Geofísica, Mindelo, S. Vicente. Cabo Verde

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Atom	Colour	Vis	LM	r[A]
Mg	Orange	<input checked="" type="checkbox"/>		0.86
Al(1)	Yellow	<input checked="" type="checkbox"/>		0.86
Al(2)	Orange	<input checked="" type="checkbox"/>		0.86
O	Red	<input checked="" type="checkbox"/>		1.23
O(1)	Red	<input checked="" type="checkbox"/>		1.21
O(2)	Red	<input checked="" type="checkbox"/>		1.21
O(3)	Red	<input checked="" type="checkbox"/>		1.21
Si	Blue	<input checked="" type="checkbox"/>		0.43

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