

## VOLCANOES AT THE END OF THE WORLD

Readers who work in the field of volcanoes will have no difficulty identifying the curious texture in the picture below as being that of an accretionary lapilli tuff. The lapilli form by the accumulation of ash on electrically charged water droplets or ice particles falling through volcanic ash clouds. These oval lapilli have probably been flattened by compaction.

This sample is very special to me, and lives on a shelf in my living room. It comes from Kap Washington in North Greenland at latitude 83°33' N, and was collected by myself and Peter Brown when we were mapping volcanic rocks for the Geological Survey of Greenland in 1980. This work was a small part of their magnificent six-year programme to map the entire north coast. The ineffably remote coastline of North Greenland is shown in the other photo. If any place qualifies to be the very end of the world, this is it. The rocks in the foreground are part of the Kap Washington Group, a 5 km thick pile of peralkaline lavas, air-fall tuffs and breccias extruded immediately before the Cretaceous–Tertiary boundary. The distant mountains of Nansen Land are part of the North Greenland fold belt of Lower Palaeozoic metasediments, which were thrust over the Kap Washington volcanics in late Palaeocene times.



Accretionary lapilli tuff from Kap Washington. The large lapillus at the bottom right is 17 mm long.

The first two headlands on the left are parts of Lockwood Island, the furthest-north point reached by Lieutenant Lockwood on July 1, 1881. After sledging back to open water in the west, Lockwood and his men perished when their relief ship failed to arrive because of administrative confusion. My photograph was taken on 17 July 1980, shortly after a broad lead had suddenly developed between the fjord ice and the thick pack of the polar sea. Lieutenant Peary sledged past here in early May 1900, unable to turn north for the Pole because of open water. Finally, on May 13, he rounded Kap Morris Jesup, 75 km further east and the most northerly point of mainland Greenland (83°38' N), laying to rest the long-held belief in a polar continent. Continuing east Peary saw a tiny island, slightly further north (in fact, 750 m), which was visited by the Danish explorer Lauge Koch in 1921 and is named Kaffeklubben Ø, after

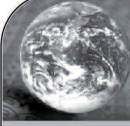
<sup>1</sup> Kaffeklubben Island has the strongest claim to be the land nearest the Pole. Another island, Oodaaq, 1360 m further north, was visited in 1978, but it and some other small islands are sand-banks, and should be considered ephemeral. Morris Ketchum Jesup was an American banker and philanthropist who supported Peary, gave large sums to American museums, and helped found the YMCA. Kap Morris Jesup deserves to be remembered as the northernmost point of land.



The north coast of Greenland looking west from Kap Kane at 83°25' N

the coffee club in the Mineralogical Museum, Copenhagen<sup>1</sup>. Peary had lost several toes to frostbite in 1899, laying out food depots for his great 1900 journey, but eighty years later, for our helicopter-borne enterprise, life was considerably less demanding.

Ian Parsons




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