FROM THE ARCHIVES

Reticulite

This does not go very far back into the archives, but just to 1990, when a number of Society members were on in a field trip to Hawaii, run under the auspices of the University of Nottingham's Department of Adult Education. On August 10th, the group descended the flanks of the ever-active Kilauea volcano, and stopped on the Chain of Craters Road where it crosses spectacular lavas, with adjacent pahoehoe and aa flows both less than 18 years old.

Closer inspection of the ground revealed unusual quantities of Pele's Hair. These delicate strands of basaltic glass had been drawn out by the wind from airborne droplets of very liquid lava ejected during a fountaining phase of one of Hawaii's volcanic vents. They are likely to have emanated from one of the eruptions at the Pu'u O'o vent, and within the previous year or two, as the fibres do not survive long in a weathering environment.

Then along with the Pele's Hair, some of the group found fragments of reticulite. This is a foam of volcanic glass that solidified in mid-air before its contained gases had escaped. And within the brief interlude of solidification, most of the very thin walls between the vesicles had collapsed, leaving only filaments of glass along the triple junctions between bubbles. The end result is a rigid 3-D lattice of glass fibres with a bulk porosity of about 98%, giving it the lowest density of any rock. It is extremely fragile, is easily crushed in the fingers, and would not last for long on the windswept slopes of Kilauea. This accounts for it being one of the least known volcanic products. A few small samples were collected and preserved in the usual film canisters.

One of the small chunks of reticulite that was found in 1980 on the lower slopes of the Kilauea volcano; this piece is just 50 mm long.

Phil Small's splendid micro-photograph of the Kilauea reticulite. The near-translucent rods of basaltic glass form a lattice that remains from the boundaries of gas bubbles, each of which was about 1 mm across.

A fine example of Pele's Hair, with droplets of black glass drawn out into golden fibres, and the scale given by the typed label.

Pahoehoe and aa lavas at the reticulite locality being inspected by Billah Fletcher, at the side of Kilauea's Chain of Craters Road.

Overall, reticulite has a gloomy brown lustre as its glass is mostly semi-translucent and tinted brown, though the finest elements in its lattice are almost clear. It is also known as thread lace scoria, a term that may be descriptive of its texture but hardly flatters a rare geological material that is considearbly more spectacular then most scoria.

Back home in Nottingham, one small piece of the reticulite was photographed, at great magnification and with great difficulty, by Phil Small, who is sadly no longer with us. But some of his photographic archives were copied into the writer's archives, and that splendid image recently re-surfaced. It is a fine testament to Phil's skill and enthusiasm.

Tony Waltham

BACK COVER

Landslides on the Jurassic Coast

Designating the Jurassic Coast, of Devon and Dorset, as a World Heritage Site was readily justified by its superb exposures of a long sequence of Mesozoic rocks. One component of its geological value is provided by the many large landslides that continue to re-activate. Seldom a month goes by without the media reporting a new rockfall or landslide that has taken out a section of cliff path and then landed on the foreshore.

The photographs by Graeme Guilbert on the back cover of this issue show some of the landslide events during the first half of 2016 (reference numbers apply to the BGS National Landslide Database, listed in their GeoIndex).

At the top, the large landslide at Bowleaze Bay (#870), east of Weymouth, was a classic multiple rotational slip in the Corallian limestones and the underlying Oxford Clay. It left a head scar in the Osmington Oolite, which was itself broken by subsidiary slips with much smaller displacements, as in the next photograph down.

The third view is of Worbarrow Bay (#1063), east of Lulworth, where steeply dipping chalk failed along multiple fractures perpendicular to the bedding, in what was the largest of many recent landslides in this cliff.

The lowest of the four photographs was taken at Littleham Bay (#766), east of Exmouth, where Permo-Triassic mudstones slumped in a rotational landslide over long, curving slip surfaces.

A detail of the head scar on the Bowleaze Bay landslide.