

0322 fragment domains, and fills most interstitial areas between fragments. Jigsaw-fit fragments are often separated by narrow projections and channels of the light very fine-grained silica. A most deceptive and important feature of this rock is the strange mix of euhedral augite crystals (within dark fragments) and remarkably angular, 'broken-looking' augite crystals (in lighter-coloured matrix). This initially led me to think that there was a major pyroclastic component in this sample. However, it is clear (upon the 345th look) that the angular fragments are relics of former euhedral crystals that have reacted and been eaten away by the silica-rich solutions from which formed the interstitial matrix cryptocrystalline silica. A third unusual feature of this sample is small areas (mainly 0.5-2mm across) of intense sericite alteration of the normally dark groundmass of many lava fragments. These are 'invisible' in plane polarized light, but show up remarkably strongly in crossed polars mode; they are well-defined, clearly not former feldspar phenocrysts or vesicle-fillings, and occasionally spherical (circular in section). These are very unevenly distributed throughout the rock, and appear to post-date the silica alteration.

I suggest that this rock was a fine-grained basaltic or basaltic andesite hyaloclastite composed of fragments spalled from the gas-charged top of a single flow. Hot very silica-rich solutions permeated the rock, filling vesicles, pore spaces, and inter-fragments cavities with cryptocrystalline silica, and digesting augite crystals in the 'matrix' of the hyaloclastite. Subsequent sericite-alteration developed in irregular areas, probably controlled by whether or not secondary silica effectively sealed some areas from K diffusion.