

Thin Section Cont'd:

Of the feldspars, both microcline and sodic plagioclase are present; the grain size is similar to that of quartz but some angular (?subhedral) grains were noted. Many plagioclase grains are altered and contain small specks of clay, quartz and other alteration products.

Lithic fragments consist mainly of fine-grained quartz-clay or quartz-mica rocks. Some of the former are undoubtedly of volcanic origin, most of the mica-bearing fragments appear to be metamorphic. Lithic grains have clearly been less rigid than the quartz and show evidence of extreme deformation. In a similar way, detrital mica flakes also have been bent and/or broken during compaction.

This detritus occurs in a somewhat sparse argillaceous matrix of brown clay and fine-grained quartz. In some places this matrix is indistinguishable from argillaceous lithic material.

Texturally the rock retains its clastic aspect but modification by diagenetic events is widespread. Although tangential grain contacts are prevalent both sutured and concavo-convex types were noted. The packing - as expressed by the number of grain contacts per grain - is also higher than would be the case in an unmodified sediment. As well as dissolution of silica (shown by suturing), re-deposition is indicated by the presence of overgrowths of quartz; however, this has not been a quantitatively important aspect of the lithification and diagenesis of the rock.

Despite compaction of the rock, pore space is abundant and most visible voids are more than 0.05 mm in diameter. As far as can be distinguished in thin section, the voids are interconnected over large distances.

2. X-RAY DIFFRACTION

2.1 Procedure

The sample was crushed mechanically to pass 60#, and a weighed amount was dispersed in water with the aid of deflocculants, using a mechanical blender, and allowed to sediment for separation of a representative -4 μm fraction (a -2 μm fraction is usual for clay mineral work, but in clay-deficient samples such as this sandstone a -4 μm fraction is taken, to provide more material). The resulting -4 μm dispersion was used to