JS 1

Hand Specimen

Medium - coarse grained, light grey rock with a patchy texture due to alteration of feldspars and subsequent fracture and introduction of quartz vein material. Red oxides, presumably after sulphides occur in one very altered fracture. Pyrite is apparent along fracture lenses and cracks.

Thin Section

Minerals

Quartz	50 - 60%
Completely sericitized feldspar	20 - 30%
Muscovite	5 - 10%
Fe ore (pyrite)	1%

Texture

The rock has a patchy appearance with large patches of sericite almost certainly after feldspar (crystal shapes not discernable), set in a groundmass of fairly equigranular, sub-angular, fine grained quartz with minor muscovite flakes and clay minerals. Iron sulphides are scattered in somewhat irregular blobs with iron oxide staining along a late fracture.

Remarks

The minerology of this rock is consistent with that of a micaceous quartzite or altered feldspathic quartzite. Recrystallization has been sufficient to mask the precise origin of the rock which could be either an altered acid volcanic or feldspathic sandstone.

JS 2

Hand Specimen

A very small sample of light grey rock, much fractured and with altered feldspar. A small quartz vein takes up much of the specimen. Pyrite is concentrated along one side of this vein. Pyrite is also concentrated along other fractures in the specimen.

Thin Section

Minerals

Quartz	70 - 80%
Sericite	10%
Muscovite	10%
Pyrite	1 - 2%

Texture

Groundmass of recrystallized quartz with minor flakes of muscovite and small patches of sericite. Some slight recrystallization, probably after sericite originally from feldspar stock. Quartz crystals show irregular boundaries indicating recrystallization under a condition of stress. Quartz vein is much coarser crystalline material with a concentration of skeletal pyrite along one edge.

Remarks

This rock is very similar to JS 1 and is equally undiagnostic as to origin and on its basic minerology could also be termed a feldspathic quartzite.

JS 3

This is essentially the same as specimen JS 1 with larger patches of sericitic alteration. The rock is very fractured but the fractures are sealed with recrystallized, coarser-grained quartz. The groundmass consists of fine-grained recrystallized quartz with minor muscovite and illitic micas.

JS 4

Again, this specimen is very similar to those previously described with basically a little more sericite, late quartz sealing fractures is also evident in this specimen. Again, basically an altered feldspathic quartzite.

JS 5

Again, this is essentially the same rock, however, the patches of sericite appear to be pseudomorphs, definitely after feldspar. The well retained crystal shapes suggest that the original rock may well be of volcanic origin, something in the nature of a rhyolite porphyry.

JS 6

Specimen six is almost identical to specimens 3 and 4. A sequence of shearing and recrystallization of quartz in vein fillings is evident in this specimen. The abundant sulphides are cemented along late fractures and consist entirely of pyrite.

JS 7

Has been forwarded for polished sections and is not yet available. The black mineral queried is almost certainly a manganese oxide and the sulphide is essentially pyrite.

General Remarks

Generally, these rocks can be termed as fractured and recrystallized, altered micaceous quartzites or feldspathic quartzites. The origin is somewhat obscure due to the simple minerology and the general state of recrystallization. There is, however, little doubt that the original composition of the rock was acidic as there is no sign of mafic material or mafic alteration minerals. The possible original rock types are either acid porphyry or waterlain acid tuff or a feldspathic sandstone. The presence of remnant well shaped sericitic pseudomorphs obviously after feldspar, in at least one specimen suggests that this rock may well have been a rhyolite porphyry. If a tuffaceous origin is considered, the general lack of shards and rock fragments suggests a waterlain rather than an aerially disposed tuff. It is important that the field relationships be closely investigated with the above possibilities in mind and, if possible, fresh specimens secured. The fractured nature of the rock and the presence of quartz veins sealing the fractures suggest that these rocks are located on or near a dislocation zone. If this is so, specimens of fresher rock away from the dislocation should be forwarded, particularly so that any fresh feldspars can be diagnosed.

Descriptions of polished samples and specimen JS 10 brought in a few days ago will be forwarded as soon as the information becomes available. Please advise whether you wish us to retain the slides and specimens.

Yours very truly,

Dr. J.G. Simpson.

JGS/ph