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251143

Sample Number : 3160

Identification : Sericitic, weakly mineralized, silty slate

Description :

The sample is a lightly weathered hand specimen of greenish grey, fine-grained rock of slaty or finely schistose appearance. There are several 1 to 7mm nodules or clasts which appear to carry sulphide.

A cobaltinitrite test produced a diffuse stain suggestive of sericite, but also revealed silt-sized K-feldspar grains.

In thin section the sample is seen to have a silty texture with abundant angular to platy clasts, about 0.02 to 0.1mm in size, scattered through a matrix of aligned sericite and many specks of (?)rutile.

The most obvious clasts are quartz, but there are also numerous K-feldspar grains, rare plagioclase and several sericite pseudomorphs of feldspar. Muscovite flakes, up to 0.1mm are minor, but obvious. There are a few clasts, up to 1.5mm in size, now variously composed of secondary quartz, pyrite, orange-brown sphalerite and minor sericite. They have shapes which could be compatible with former pumice and/or droplets of glass. The sulphide grains are finer than 0.1mm.

An approximate mode is :

15-18%	quartz silt
2-3%	feldspar silt, mainly potassic
0.1-0.3%	muscovite silt
75-80%	matrix sericite
1-1.5%	matrix (?)rutile
0.4-0.6%	recrystallized (?)pumice or (?)glass clasts containing pyrite and sphalerite

Comments and Interpretations :

The impression was gained that this slate originated by aqueous deposition of a silty mud. There is a small possibility of finely tuffaceous deposition. Much of the detritus may be of volcanic derivation, but perhaps the muscovite flakes have some other source. It seems that a few larger clasts of pumice floated into the setting or perhaps a few glass droplets were thrown into the mud. Since the rock is richly sericitic and pyrite and sphalerite have nucleated within the probable pumice or glass clasts it seems that permeation by hydrothermal fluids may have occurred. Slaty alignment of the sericite is a later metamorphic feature.