

Fay - This is just elaboration of one phase of the problem as taken from the report I started writing before I read the Williams report.

Pueblo Mountain Reconnaissance

Notes on possible subdivisions of Ross' "crystalline" series.

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The crystalline area as mapped by Ross contains (1) a meta volcanic-sedimentary series, (2) schists, (3) "granite", and (4) what is tentatively classed as a greenstone. These formations are listed in what appears to be their sequence from the standpoint of abundance.

The metavolcanic-sedimentary series is made up of rocks that are genuinely non-schistose and which tend to break in blocky form from fine sized rubble to huge blocks. It contains a great variety of lithologic types. Some of these are conspicuously distinctive as in the case of limey and quartzitic sediments versus certain porphyries. Otherwise, however, there is an overall similarity between lithologic sub-types a similarity enhanced by the effects of metamorphism which serves to obscure any relative distinctiveness that may have originally existed. While some numbers of this series are sometimes well exposed in the instance of the rugged outcrops comprising the backbone of the northern part of the range, exposures in critical places elsewhere are lacking or the prevailing situation is confused over large areas by the presence of rubble which is heterogenous in character. As a result of these conditions detail mapping of sub-types of this meta volcanic-sedimentary series is rendered impracticable to impossible, even with the availability of accurate, high quality base maps. It is likewise rendered unwarranted by the lack of evidence of mineralization of possible economic importance. In short, the way it now appears, the series should be mapped as a unit with at best no more subdivision than generalized indications of the areas in which the lime-quartzitic members are to be found.

Schists are to be found over large areas. In main these are represented by typically chloritic-green and red types, but dark olive green, gray and off color gray-tan, and light sericitic-colored varieties are also present. Schistosity varies over wide extremes from rock which breaks into thin, almost slate-like plates to rock which is blocky, but none the less highly schistose in character. The nature of the larger bodies of these schists is such as to give the impression that they were derived from shales, or a similar sort of parent rock which lent itself readily to alteration of a schistose sort, but otherwise it appears that at least some of the schists to be seen in the area may mark shear zones and thus represent a profoundly intense alteration of a sort reflecting structural compensation rather than normal regional metamorphism. An example of this latter type is to be observed in the eastern foothills of the mountains immediately south of Van Horn Creek. Here the schists range in type from highly foliated chloritic schist through modified stages of schistose country rock to a non-schistose country rock which is dark green in color and massive in character. The schist bodies are small, especially so the highly schistose chloritic green variety which is to be observed in thicknesses of sometimes as little as a couple of feet. The massive,

non-schistose rock seems to be the prevailing country rock. If it is also the parent rock to the schists, then the schists reflect shear zones; otherwise they represent small shaley interbeds. Which might be the case is problematical at the present stage of this investigation, but I am inclined to favor the faulting interpretation. Whether or not this might apply to the larger schist bodies is also problematical, but it remains as a possibility worthy of consideration.

These schists rate as a distinctive entity. They can be mapped, and should be, at least the larger bodies, but they should be mapped as a unit for the same reasons that it is unpracticable to map subdivisions of the meta-volcanic-sedimentary series.

Granite is the name here tentatively given to anigneous rock pending laboratory classification. Regardless of what the final classification is, the rock in question is light colored, medium grained and a crystalline entity in character. It appears to occur in quantity on the summit of the mountain at the headwaters of Denio Creek on both the north and south sides, yet is manifest in the canyon only by comparatively thin dikes. It also occurs in quantity in Nevada, south of Cowden Basin. In general it appears to be clean cut, mappable unit although it remains to be seen if clean cut contacts exist between this "granite" and some of the highly crystalline members now included with the meta-volcanic series. On the presumption that it is a distinct entity, it is listed here at this time as a mappable unit.

Greenstone, as the term is here used, applies to a dark greenish rock which generally occurs in massive form and in large sized bodies from Van Horn Creek south. Locally, this rock is schistose, sometimes highly so, sometimes only moderately, and often not at all as already described under the heading "schist". Similar appearing rock is to be found at various places within the area described as comprised of a meta volcanic-sedimentary series, but its occurrence there is apparently limited to small sized patches. Actually, this rock may well not be a "greenstone" in the technical sense of the word, and it may well be that it is to be classed as a meta volcanic. Whether or not this is so, and whether or not the larger masses warrant separate mapping as distinct from the meta volcanic-sedimentary series already described remains to be seen.