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Ore on radial anticlinals in synclinal basin.

A STUDY OF THE GEOLOGY AND ORE DEPOSITS OF THE ASHBROOK SILVER MINING DISTRICT, UTAH.

Victor E. Peterson. E.G. 37 (1942), 466-502.

In a broad spoon-shaped syncline of Carb.(?) limestone and shale, pitching gently south and cut by N-S normal faults. The basin contains many crenulations, the largest of which have a roughly radial relation to the major fold. The anticlinal crenulations carry the ore. The major fold is of Laramide age. Below the Carb.seds is the pre-Cambrian basement: schist,slates, gneisses with beds of marble and quartzite.

The sediments have been intruded by a large granite batholith-Cassia batholith, late Cret. or early Eocene. It is shown in the NE corner of the map, intruding pre-Cambrian. Rhyolite porphyry intrudes the Carb. seds. as sills. Probably late Eocene or early Oligocene.

Section.

	Carb?	Phelan ls.	1000'-1500	Cse-fine-cryst. Massive. / some ore
	"	Wardlaw shale	400'	Thin to mass;blk to gray.
	"	Vipont ls.	50-100'	f-g,cryst.,bl-grey. Ore
Lower rhy por.sill				
	Cambrian?	Sentinel ls	50-100'	Light grey,med-gr., cryst.Thin-bed.Usually broken.
	"	" qtzite	100'	
	Unconformity			
	Pre-Camb.	Upper?	300-400'.	Light-grey,contrted,fract.
			500-1000.	ls.& mble.Massive qtzite.
		Middle?	400-600'	Fract.& contorted ls. interbedded with slates,qtzite.

Upper rhy.por.- As small pipesor dikes cutting bed planes of Wardlaw shale and Vipont ls; locally sills.

Lower rhy. por.- As a wide belt (sill) almost completely encircling district.

Ore Deposits.-In ls. close to the porphyries. Replacements of ls. localized by structural features within the ls. The chief such features are the crenulations within the basin;along the bed planes of the anticlinal crenulations abundant secondary calcite stringers are developed between the beds, pinching out down the flanks of the anticlines.

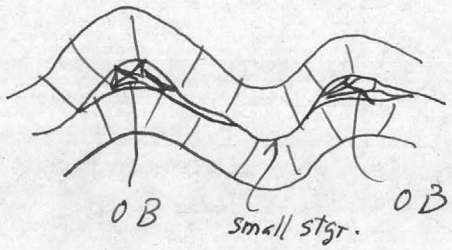
Vipont Mine.- Total production about 3,000,000 oz.Ag.,5500 oz.Au. 95% of this from Vipont mine. Ore bodies in the Vipont ls. between the Wardlaw shale above and the lower por. sill below. The ore bodies may be anywhere between the shale HW and the por.FW,but they are usually along the bedding. The mine lies along the NE flank of the major synclinal fold.

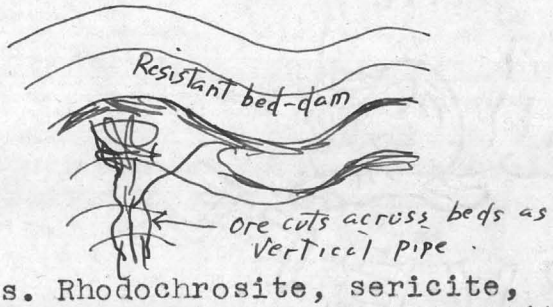
The main "stope runs" correspond to a broad, complicated anti-

clinal crenulations on the major fold, ~~part of a series~~, radially distributed with respect to that fold. The intermediate areas between stope runs appear to represent the synclinal crenulations between the anticlines.

Minor slips and localized zones of fracture formed the most vulnerable areas for replacement, but replacement is not limited to these fractured areas.

The ore occurs as small irregular patches and pockets connected by small stringers. Such patches are usually elongated parallel to the beds, with a lenticular cross section.





Mineralogy.-Hypogene minerals. Rhodochrosite, sericite, quartz, pyrite, arsenopyrite, gold, sphalerite, ccpy, tennantite, pearceite, pyrargyrite, galena. Author thinks argentite, wore silver, supergene.

Intra-mineral fracturing.