

The R.G. Coleman Cazadero Collection: A preliminary sample description for systematic curation

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The Ward Creek near Cazadero is one of the most classic blueschist localities in California Coast Ranges. The area is also known as a difficult place to sample due to private property concerns. In 2019, one of the authors (T. Tsujimori) received a collection-donation from Professor Robert G. Coleman; the rock collection include various metamorphic rocks from Cazadero (e.g., Coleman et al. 1965) and other areas[DPG1]. The aim for the donation was not only reuse and re-investigate the precious samples but also to curate the collection for future generations.

The RGC Cazadero Collection includes up to 222 rock samples (~40 kg), seventy-seven mineral separates, 126 petrographic thin-sections, field notes, maps, and photos. All rock samples were collected by Professor Coleman from 1950's to early 1990's. Both rocks and thin-sections are labeled with two or three-digit numbers indicating samples, abbreviation of collector's name, and two-digit numbers representing the year collected (e.g., 102-RGC-58). The labeling allows us to correlate among samples, thin-sections, notes, and maps. Some labels in the collection correspond to samples described in classic articles; we confirmed five samples in Coleman and Lee (1962), twenty-five samples in Coleman and Lee (1963), four samples in Coleman et al. (1965), four samples in Coleman and Papike (1968), and one sample in Coleman and Lanphere (1971). Thus far, we have examined all 126 petrographic thin-sections. Based on the preliminary petrographic observations using optical microscope, the samples can be grouped as metabasalt, metachert, and meta-ironstone. Hundred-eighteen thin-sections contains glaucophanic amphibole, and further forty-six glaucophane-bearing samples are characterized by the glaucophane + garnet mineral assemblage, indicating higher-grade metamorphism. Furthermore, five garnet- and glaucophane-bearing samples are eclogitic, containing mainly of garnet and omphacite. Notably one eclogite, 62-RGC-58 in Coleman et al. (1965), contains porphyroblastic lawsonite. All glaucophane-bearing samples show textbook-quality, spectacular microtexture with various color. Meta-ironstones and mtacharts also exhibit spectacular microtextures of dark-blue riebeckitic amphibole with numerous garnet, stilpnomelane, and rare deerite.

For the systematic curation, we are also attempting 'digitally archiving' paper materials. In this poster presentation, we will introduce our preliminary descriptions of the RGC Cazadero Collection, and will show potential for future petrologic and geochemical studies.

Keywords: Franciscan Belt, Blueschist, Eclogite