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Douglas County
Item 13

GEOLOGY 370

FIELD TRIP

October 20, 1951

to

THE PINE NUT MOUNTAINS

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The Geology 370 (Field Geology) class of October 20, 1951, under the supervision of Dr. V. P. Gianella and assisstance of Dr. Larson and Dean V. E. Scheid of the Mackay School of Mines, Reno, Nevada, was conducted to the Pine Nut Range, east of Carson City. Fossiliferous beds east of the State Prison and old river gravels in the Carson River Canyon were observed.

THE PINE NUT MOUNTAINS

The Pine Nut Mountains lie in the mining districts of Carson City, Delaware, and Voltaire, located in the region of the junction of Ormsby, Lyon, and Douglas counties. The Pine Nut Mountains and the Virginia Range to the north form a single continuous mountain mass, the first of the Basin Ranges east of the Sierra Nevada. The Carson River, flowing parallel to the northwest flank of the Pine Nut Mountains, is considered the boundary between the Sierra Nevada and this mountain chain.[1] The Pine Nuts and the Virginia Range are genetically and structurally related in every way, there being only a distinction of location made by the gorge of the Carson River as it cuts between the two ranges heading east.

1. Vincent P. Gianella, "Geology of the Silver City District and the Southern Portion of the Comstock Lode, Nevada," University of Nevada Bulletin, Vol. XXX, No. 9, (December 30, 1936), p. 15.

THE CARSON RIVER

In the region of the Pine Nut Mountains, the Carson River approaches the range from the south, traveling northward on a course roughly parallel to the trend of the range until it reaches a point almost due east of Carson City, where it turns sharply due east, cutting through the range in a deep canyon, and continuing on east past Dayton.

From the south, the river meanders across Carson Valley, and passes through a small, narrow gorge in a spur of the Pine Nuts. Because of resistant rocks in the gorge the stream has reached a temporary base-level and meanders over the valley floor[2] on to the northward, where it turns sharply east, cutting through the northern end of the Pine Nuts in a deep canyon that, conforming to the meandering nature of the stream, can be deduced as antecedent.

Atop the northern end of the Pine Nuts in this vicinity are old stream gravels traceable in several locations, that indicate the presence of a much older stream than the Carson River, and the subsequent uplift of the Pine Nuts that allowing the Carson River to cut its antecedent gorge.

Comstock tailings, quicksilver, and amalgam estimated of the worth of millions of dollars were discharged into the Carson River from Empire to Dayton from the many reduction works that were situated on the river to handle ore from the famous

2. Vincent P. Gianella, "Iternary, Reno to Walley Hot Springs and Return", International Geological Congress Guidebook, No. 16, Excursion C-1, 1933, p. 111.

Comstock mines. Many failures at recovery were reported, although bullion from clean-ups of the Brunswick and Morgan mill-sites were made.[3]

FOSSILIFEROUS AREA, PINE NUT MOUNTAINS

In a carboniferous, shaly limestone lying on hte west side of the Pine Nut Mountains, several fossils were found by the party. These fossils are similiar to those found in a black, carboniferous, limy shale found in Eldorado Canyon on the eastern side of the range, which were identified to be "Arietities"-like ammonites, dating the formation as Lower Jurassic.[4] These fossils have been used to date similiar formations in the vicinity of Silver City.[4]

The existence of similiar Triassic formations in western Utah may postulate the theory of a connection between these beds and that area, although no evidence of such formation in the state between them has been found.

The Sailor Canyon formation west of Gerlach, Nevada, ties in with this fossiliferous formation, and if such is proven, by the discovery of connecting links in the formation, it would prove the Sierra geosyncline extended well into western Nevada.

Paralleling the trend of the range is a belt of limestones that may be traced northward into the Virginia Range. These overlying

3. Theodore D. Overton, "Mineral Resources of Douglas, Ormsby, and Washoe Counties", University of Nevada Bulletin, Vol. XLI, No. 9, (December 1947), p. 41.

4. Gianella, "Silver City District", p. 37.

sediments are unconformably upon relatively ancient, much disturbed and altered metamorphics composed of strongly cemented, extremely hard andesite breccias. These metamorphic breccias are very similiar to the Kate Peak andesite, but are much older.

The overlying limestone is dated as probably Triassic or Lower Jurassic, and have been locally disturbed and metamorphosed by subsequent intrusives. Similiar to the sedimentary rocks at Lakeview Summit, two miles northwest of Carson City, they are overlain by meta-volcanics.[5]

The limestones evince local alteration, and in several places have been mined for calcining, the ore having been hauled across Carson Valley to kilns to supply the demands of the Comstock activities.

STATE PRISON FOSSIL TRACKS

In the quarry of the State Prison east of Carson City, fossil tracks and footprints of the sloth, elephant, horse, deer, and many other mammals and numerous tracks of birds are found[6] in an endurated and cemented sandstone derived from granite, yellowish-grey in colour, heavily bedded, and nearly horizontal.[7] From the abundance of such tracks, this is supposed to be evidence of the nature of the surrounding country at the timesof depo-

5. Gianella, "Silver City Geology", p. 36.

6. Gianella,"Iternary", p. 111.

7. Overton, op. cit., p. 40.

sition, indicating an arid region, this locality being a major watering-place for the animals. The country must have been rocky, for the hoowes of the horses left broken tracks. The beds are judged Pleistocene by these tracks, and are considered older than the Lake Lahontan that once covered this region, and were laid down in a valley in shallow water. Pebbles three to four inches in diameter are found, and the deposits are graded.