



Supplemental road log 5, from Travesser Park to Folsom

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This is one of many related papers that were included in the 1987 NMGS Fall Field Conference Guidebook.

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Sloan Canyon in the roadcuts. Red sandstone ahead across the valley is Travesser Formation. We are in the Peacock Canyon Mining District, a western extension of the Black Mesa Mining District. Copper mining began here in 1900 when the Limited, Yellow Bird, Monarch, Gray Eagle, White Dove, Copper Glance, Peacock and other claims were located in secs. 7, 18 and 19, T31N, R34E and secs. 13, 24 and 25, T31N, R33E. Copper mineralization is in the sandstones and clastic plugs of the Sheep Pen Sandstone. This mineralization is spotty, and the overall grade is low. A dump sample near a shaft in SW¹/₄, sec. 33, T31N, R33E contained 1.17% copper, a trace of gold and 0.3 oz silver per ton

(Soulé, 1956, p. 20). Malachite and azurite are the copper minerals. Mining in the district was short-lived. After the stop, **continue on road to the N.** 0.3

- 8.8 Good view down Gripe Canyon at 1:00–2:00. 0.6
 - 9.4 Large clastic plug on left. Several plugs are visible near the road for the next 2.8 mi. 2.8
 - 12.2 Cattleguard. 0.9
 - 13.1 Cross Dry Cimarron River. 0.1
 - 13.2 Cattleguard. 0.2
 - 13.4 Cattleguard and houses; **turn left.** 0.6
 - 14.0 Cattleguard. 0.5
 - 14.5 Cattleguard at intersection with NM-370.
- End of Supplemental Road Log 4.**

SUPPLEMENTAL ROAD LOG 5, FROM TRAVESSER PARK TO FOLSOM

ADRIAN P. HUNT, SPENCER G. LUCAS and BARRY S. KUES

Mileage

- 0.0 **Proceed straight on NM-325** at junction with NM-370 (mile 89.0 on First-Day Road Log). Baldy Hill Formation is exposed to the right of the road. We are crossing the trend of the Guy Monocline which drops the Dakota down to the east by as much as 400 ft. In this area, the monocline trends northward, but near the Colorado line it trends to the northeast (Baldwin and Muehlberger, 1959). 0.7
- 0.7 Baldy Hill visible between 11:00 and 2:30 consisting of the Travesser Formation overlain by the Entrada Sandstone, Morrison Formation, Glencairn Formation and Mesa Rica Sandstone. Low slopes below the hill are composed of the Baldy Hill Formation. 0.5
- 1.2 Road to Spool Ranch on right; proceed straight; Cobert Mesa visible at 1:00–3:00. 0.1
- 1.3 Cattleguard. 1.0
- 2.3 Highway crosses bridge; windmill on left at 11:00. Baldy Hill Formation is exposed in low outcrops at 3:00. 1.3
- 3.6 Blocks of Mesa Rica Sandstone to left. 1.3
- 4.9 Highway crosses Dry Cimarron River. At 2:00 is a good view down Long Canyon. A major gas pipeline follows the base of this canyon into Colorado. 1.9
- 6.8 Good exposures of Travesser Formation and unconformity at base of Entrada on right. Pre-Entrada structure cannot be identified west of this area. Note very thin Morrison Formation to the north in contrast to the thicker section exposed on the south side of the valley. 2.1
- 8.9 Bear **hard left** at ranch. 0.4
- 9.3 Beginning of **blacktop.** 0.2
- 9.5 Bridge over Dry Cimarron. 1.5
- 11.0 Entrance to Cross L Ranch on right. Travesser Formation well exposed to left. 1.1
- 12.1 Bridge over tributary of Dry Cimarron, which originates in Cow Canyon to the south. 2.4
- 14.5 Cross bridge. 1.1
- 15.6 Cross bridge. From 10:00–11:00 is first view of Raton basalts capping mesas. 0.5
- 16.1 Raton basalt at 3:00. 0.7
- 16.8 Cross bridge. Bridge Mesa at 9:00. 0.7
- 17.5 Good exposures of the white sandstone of the Lytle Formation at 2:30 near top of mesa. Several small canyons, including Leonard's Canyon, have been cut down through the mesa to the north of the road; they drain the slopes of Devoys Peak. The mesa 3 mi to the north of Devoys Peak is capped by an isolated exposure of the Raton basalt which once extended in a continuous sheet from this area westward to Raton and Trinidad. 0.7
- 18.2 Blocks of Mesa Rica Sandstone on right. Brigg's Canyon, which skirts the east side of Emery Peak and drains Purvine Mesa and Gaylord Mountain, at 9:00. 1.2
- 19.4 Colluviated Morrison Formation on right. 0.3
- 19.7 Crest of ridge. The most westerly outcrops of the Travesser Formation, overlain by basalt, can be seen at 10:00–11:00 on an unnamed mesa. 2.5
- 22.2 **Intersection** of NM-325 and NM-551 at mouth of Tollgate Canyon. **Turn left**, continuing on NM-325 south toward Folsom. Alps Mesa at 12:30–2:00. The valley of the Dry Cimarron was first settled in this area. A freighter named Madison Emery, operating out of Maxwell and dissatisfied with the poor road over Raton Pass, developed an alternate route to Colorado through what later came to be called Tollgate Canyon. Emery and his wife eventually moved to a spot near the mouth of Tollgate Canyon in 1865 and began raising livestock. It had been said that in these early years the grass in the Dry Cimarron Valley grew so high it nearly hid a man on horseback. The hills were covered with pine, piñon and juniper trees, and wild game and fish were abundant (Miller, 1953). A town named Madison grew up around

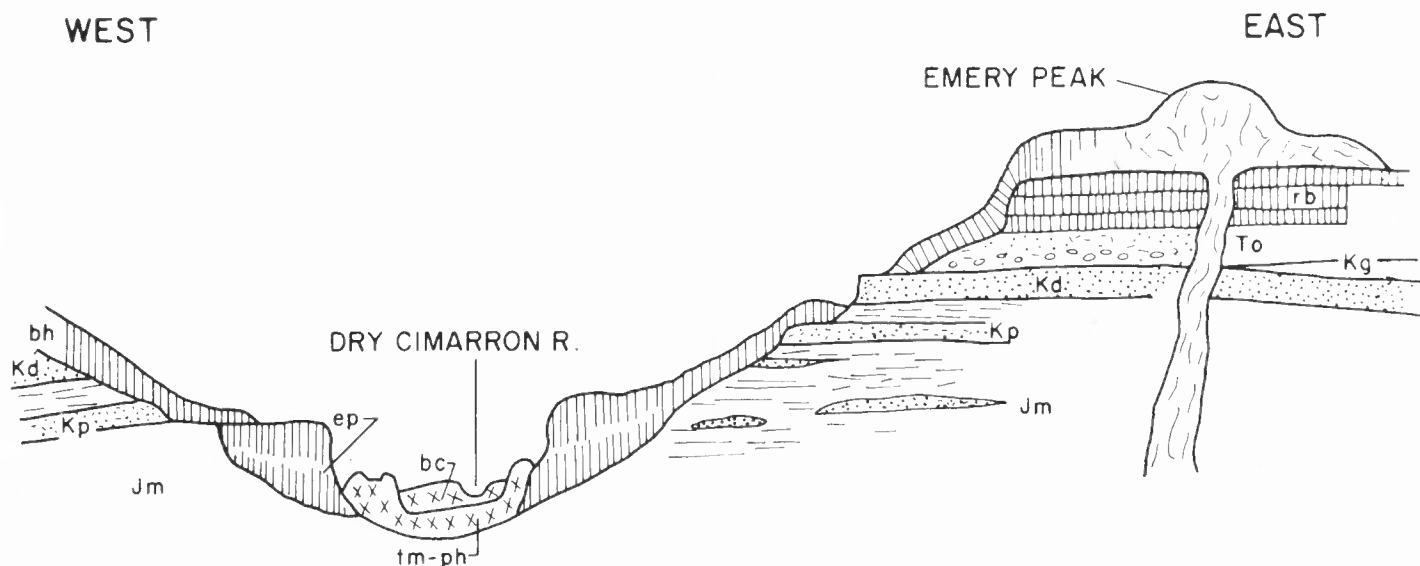


FIGURE S-5.1. Cross section across Dry Cimarron Valley, 3 mi below Folsom at gorge dammed by Emery Peak basalt. JM = Morrison Formation, Kp = Purgatoire Formation, Kd = Dakota Sandstone, Kg = Graneros Shale, To = Ogallala Formation, rb = Raton basalt, ep = Emery Peak basalt, bh = Big Hill basalt, tm-ph = Twin Mountain-Purvine Hills basalt and bc = Baby Capulin basalt (from Muehlberger et al., 1961).

the Emery Ranch, and other settlers soon arrived. In the early 1870's Bill Metcalfe, a noted frontiersman, built a toll road through Tollgate Canyon, connecting Madison with Trinidad, Colorado. Tolls were reported to have been 75¢ for freight wagons, 40¢ for single-team wagons and 35¢ for buggies. Business was good; the tolls for traversing the competing route into Colorado (Raton Pass) were three times what Metcalfe was charging.

In 1871 the three Hall brothers arrived from south Texas with 2,500 longhorn cattle and established the Cross L Ranch near Long Canyon. Within 10 years the Halls had acquired many miles of land along the Dry Cimarron, had constructed dams and irrigation ditches and bred a large herd of first-class cattle. They sold out to the Prairie Cattle Company of Edinburgh, Scotland, in 1881 for \$450,000. The Prairie Cattle Company put together one of the largest ranches in the West, holding land extending from the Arkansas River in southeastern Colorado, through the Dry Cimarron and into the Texas Panhandle. No fences interfered with the free movement of their cattle, estimated at more than 100,000 head, in this vast range that extended for more than 260 mi. The majority of this range was owned by the government, which charged no rent for its use.

With the coming of the railroad in 1888, and the establishment of Folsom a few miles to the south, the town of Madison gradually vanished. Some terrible blizzards in the 1880's, incompetent absentee management, and, after 1900, the arrival of homesteaders with their plows and barbed wire fences, brought about the decline of the Prairie Cattle Company. By 1918 the great ranch, which was once said to "own all outdoors," had ceased to exist. Numerous smaller ranches along the length of the Dry Cimarron, however, have continued to this day, some of them remaining within the same family for generations. **0.9**

23.1 Mile marker 16. Cliffs forming basalts at 9:00 and 11:00;

Emery Peak is at 10:00. Emery Peak (elevation 2,232 m) is the massive volcanic mountain that has been visible to the south of the road for many miles. Eruption of the Folsom sequence of the Clayton basalt began in this area about 1.8 m.y. Lava from the Emery Peak and neighboring vents broke through the Raton basalt and flowed north and west into the Dry Cimarron Valley, completely blocking it (Fig. S-5.1). A lake formed upstream from this lava dam, and later flows, from Purvine Mesa and Mud Hill to the south, and then from Bellisle Mountain, Robinson Mountain and José Butte to the west, covered the Emery basalts. After a long period of volcanic quiescence, in which the Dry Cimarron renewed its drainage system and continued downcutting, eruptions from Capulin Mountain and nearby vents reached this area. The Emery basalt is dark gray, prophyritic and contains a few percent of small olivine phenocrysts. Columnar jointing characterizes the basalt locally (Baldwin and Muehlberger, 1959). **0.6**

23.7 Cross bridge. **0.1**

23.8 Basalt in roadcuts to right. **1.0**



FIGURE S-5.2. "Lahar" in roadcuts at about mile 26.8.



FIGURE S-5.3. The Museum in Folsom.

- 24.8 Morrison Formation exposed in roadcuts to right. 0.1
- 24.9 Roadcuts through landslide deposits. 0.9
- 25.8 Capulin Mountain at 11:00. 0.6
- 26.4 Roadside table, Folsom Falls at 9:00. 0.4
- 26.8 Good exposures of "lahar" in roadcuts to right and left for next 0.3 mi (Fig. S-5.2). 1.1
- 27.9 Sierra Grande at 10:00. 0.1
- 28.0 Robinson Peak at 11:00. 1.0
- 29.0 Folsom city limits at elevation 6,400 ft. Lytle Formation in roadcuts to right and left. 0.6
- 29.6 **Bridge and stop sign at junction with NM 72; proceed straight.** Museum to left (Fig. S-5.3).
End of Supplemental Road Log 5.

SUPPLEMENTAL ROAD LOG 6, FROM DES MOINES TO FOLSOM

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Mileage

- 0.0 At junction US-64/US-87 (mile 45.8 on Third-Day Road Log) and NM-72, **turn right** (N) on NM-72 to Folsom; leave Des Moines; Capulin Mountain is visible at 12:00–12:30. 0.3
- 0.3 Highway crosses Colorado and Southern Railroad. 0.1
- 0.4 At 3:00 is Dunchee Hill, eroded remnant of an early Clayton-age volcano. An intrusive sill-like body holds up the topographically high areas, and the remainder of the area is composed of pyroclastic material. In hand specimen, small iridescent olivine crystals can be seen partially altered to iddingsite. 1.0
- 1.4 At mile marker 43, Capulin Mountain is visible at 9:30, Mud Hill at 9:45 and Robinson Peak at 10:00. 0.5
- 1.9 Carr Mountain at 2:00 is an irregularly shaped cone capped with Clayton-age basalt and agglomerate, which forms the eastern rim of the vent. A volcanic breccia associated with the vent is composed of scoria, sandstone and white limestone. 0.3
- 2.2 Twin Mountain can be seen at 10:00, and Emery Peak is visible at 2:00, Purvine Mesa is the low hill at 3:00. Twin Mountain is an elongate cinder cone with a trough through the long axis, dividing it into two parts. Probably the result of a fissure eruption, the elongate vent is composed of well-bedded ash, cinders and bombs. Short basalt flows from the vents moved northward for a few miles (Fig. S-6.1). The eruption of Twin Mountain was nearly contemporaneous with that of Baby Capulin to the west and the Purvine Hills to the east. The north flank of Twin Mountain has produced large volumes of ballast for the Colorado and Southern Railroad and material for cinder blocks (Baldwin and Muehlberger, 1959). 1.6

- 3.8 At crest there are views of Twin Mountain at 10:00, Buffalo Head at 1:00, Emery Peak at 2:30 and Alps Mesa at 1:30. 0.3
- 4.1 Passing basalt from the Purvine Hills immediately to the right. These are a group of four small fissure vents extending from near the highway due east for about 2 mi. Three of the vents are small spatter cones (scarcely 45 ft high), but they produced extensive basalt flows. Lava from the westernmost hill (red hill at 3:00) moved

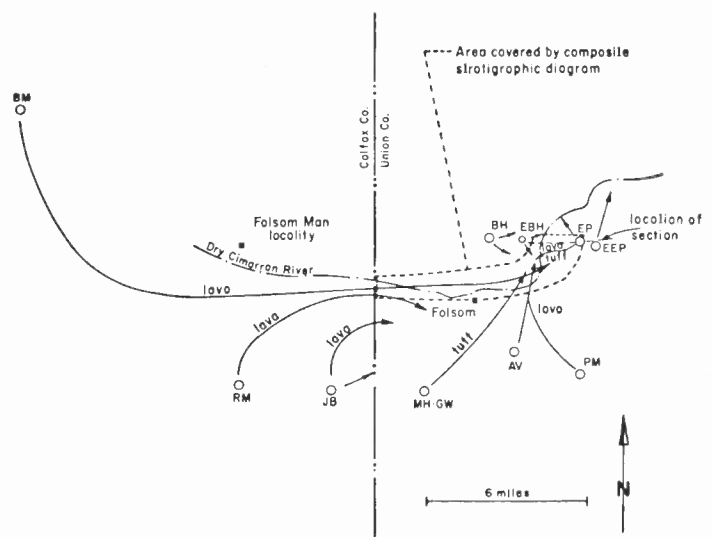


FIGURE S-6.1. Source and general direction of movement of lavas of Folsom sequence of Clayton basalt. EP, Emery Peak, EEP, East Emery Peak, BH, Big Hill, EBH, East Big Hill, AV, Augite Vents, PM, Purvine Mesa, MH, Mud Hill, GW, Great Wall, BM, Bellisle Mountain, RM, Robinson Mountain and JB, José Butte (from Baldwin and Muehlberger, 1959).