

THE DOUGLAS CREEK GOLD-COPPER-PLATINUM DISTRICT, AND PLACER DIAMONDS
OF THE MULLISON CREEK AREA, ALBANY AND CARBON COUNTIES, WYOMING

by

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Introduction

The following discussion is derived principally from four published reports that are concerned with mineral deposits, mining, and production in the Douglas Creek area; and from several sessions of recreational gold panning and mosquito slapping along the tributaries of Douglas Creek. The interested reader is recommended to read the papers by McCallum and Orback (1968), and Beeler (1906). All four papers were used extensively in compiling this field trip guide. In addition, the Mullison Park placer diamond occurrence is discussed in papers by Hausel (1977), Hausel and others (1979a,b) and, Hausel and McCallum (1980).

The Douglas Creek District

Located on the eastern flank of the Snowy Range, the Douglas Creek district is bisected by the village of Keystone, and lies approximately eight miles west of Albany. The district includes several sheared mineralized quartz-veins and gold-platinum placer accumulations along a 15 mile stretch of Douglas Creek.

Gold was initially reported in 1868, when Iram Moore located the precious metal in stream gravels on a tributary of Douglas Creek. This

tributary later became known as Moore's Gulch. The following year brought numerous prospectors to the district to search for the yellow metal. Several pieces of coarse gold extracted from the gravels were reported to contain considerable quartz, which led many prospectors upslope in search, and discovery, of quartz lodes.

The host veins in the district are found in predominately northwesterly and northeasterly trending shears. At two localities (the Independence and New Rambler mines) the intersection of mineralized shears were undoubtedly responsible for the localization of ore shoots.

The mineralization is found in quartz veins, in fracture fillings, along fissures, and in the brecciated and shattered portions of shear zone tectonites. Ore minerals are principally copper sulfides, native gold, and platinum group metals.

Economic Geology

Rocks in the Douglas Creek District are subdivided into Precambrian crystalline rocks and into Cenozoic sediments. The Precambrian is represented by a complex sequence of foliated metamorphic schists and gneisses intruded by both granitic and mafic rocks.

All of the rocks of Precambrian age were subjected to varying intensities of cataclasis. The intensity of cataclasis increases from south to north where maximum cataclasis is recognized at the Nash Fork-Mullen Creek shear zone on the northern border of the district.

Cenozoic rocks include an early Tertiary (?) rhyolite dike, and tuffaceous siltstone of probable Oligocene (?) age. Late Tertiary to recent rocks include upland gravels, alluvium, and landslide debris.

Shear zones acted as pathways for mineralizing fluids. These zones vary from barely perceptible secondary foliation to intensely sheared mylonite. Three important sets of shears are recognized in the district. These are northwesterly, northeasterly and east-west trending shears. Both the northwesterly and northeasterly shears were important in the emplacement of mineral deposits, whereas east-west shearing appeared to have been of only minor significance in the localization of ore shoots.

Mineralization south of Bear Creek was dominately controlled by northwesterly trending shears. These zones show enrichment in silica and potash, which indicate late stage granitic fluids were the most probable source of ore deposits in this portion of the district. North of Bear Creek, mineralization is believed to have originated from mafic magmas.

The northwest trending shears in the southern portion of the district contain copper-gold mineralization. These deposits were accompanied by silicification, epidote enrichment, and iron-sulfide oxidation. Hypogene ore minerals consist of chalcopyrite, bornite, pyrite, pyrrhotite and native gold. Oxidation zone ore minerals include malachite, azurite, cuprite, native copper and gold. The supergene enriched

zone contains both chalcocite and covellite.

In the northern portion of the district (north of Bear Creek) north-easterly trending shears were important in the localization of mineral deposits. At the New Rambler Mine, northwest and northeast trending shears localized rich ore shoots. Primary mineralization included chalcopyrite, bornite, tetrahedrite, and native gold. Rich supergene ore was reported to assay greater than 35% copper. The supergene ore consisted largely of covellite and chalcocite. The oxidized zone consisted of azurite, malachite, chrysocolla, cuprite, tenorite, malacon, native copper with abundant hematite, limonite, and quartz gangue. Platinum group metals were found finely disseminated in copper and iron sulfides.

Both native gold and platinum are reported in stream gravels in Douglas Creek and many of its tributaries. These gravels lie on bedrock and vary from 5 to 20 feet thick with the greatest gold concentrations found at the gravel-bedrock contact. Gold was reported to range from fine-flour gold to coarse-flat nuggets weighing from a few pennyweights to 3.4 ounces. The average gravel reportedly contained 0.025 ounces per cubic yard with some gravels running as high as 0.097 ounces of gold per cubic yard.

Total gold production in the district is estimated at more than 11,000 ounces of gold. Records of copper production are not available, however, prior to 1906, \$120,000 of copper and platinum were shipped from the New Rambler Mine. At the present, there are no active mines or prospects in this district.

The Mullison Park Placer Diamond Occurrence

Placer diamonds are reported from stream sediments in the Mullison Park area about 15 miles south of Elk Mountain in undifferentiated Tertiary sediments derived from the Medicine Bow Peak region. Stream sediment surveys were conducted in an attempt to isolate typical heavy mineral indicators of kimberlite but, to date, the surveys have given negative results. The possibility still remains that these diamonds may have weathered out of metasediments to the south. Similar occurrences have been reported in the Witwatersrand region of southern Africa.

Stop 1 - Keystone Mine

The Keystone mine lies on the Keystone - Florence mineralized trend (a N60°W; 80°SW trend) in quartz biotite schist countryrock. About 6,000 tons of ore are reported on the mine dump with at least 100,000 tons of ore reserves in the mine. In 1890, a 40 ton stamp mill was constructed on the property powered by a 85 horsepower water turbine with four concentrators. Full scale mine operations ceased in 1893, and cleanup operations led to the dismantling of the mill and the sealing of the shaft.

Stop No. 2

Continue on the Keystone road north to the Rob Roy Reservoir. Douglas Creek lies on the east side of the road. At the Rob Roy Reservoir, looking to the east, Moore's Gulch is the east-west trending drainage on the far side of the reservoir. Much of Moore's Gulch was drowned during the flooding of the reservoir. Gold was discovered in Moore's Gulch in

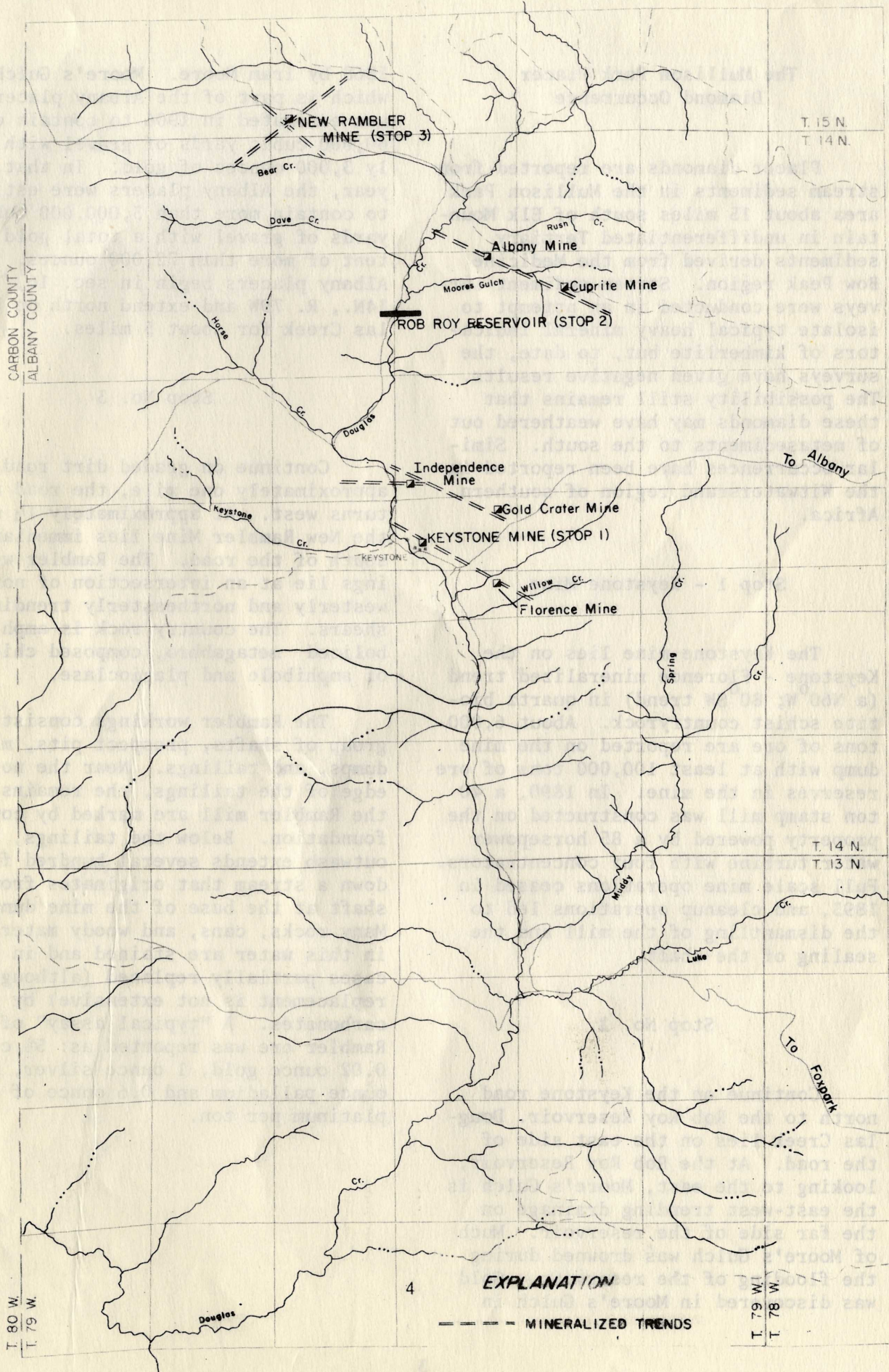
1868 by Iram Moore. Moore's Gulch which is part of the Albany placers was estimated in 1906 to contain over 60,000 cubic yards of gravel with nearly 3,000 ounces of gold. In that same year, the Albany placers were estimated to contain more than 3,000,000 cubic yards of gravel with a total gold content of more than 72,000 ounces. The Albany placers begin in sec. 16, T. 14N., R. 79W and extend north up Douglas Creek for about 5 miles.

Stop No. 3

Continue on graded dirt road for approximately one mile, the road now turns west. At approximately 1½ miles the New Rambler Mine lies immediately south of the road. The Rambler workings lie at an intersection of northwesterly and northeasterly trending shears. The country rock is amphibolized metagabbro, composed chiefly of amphibole and plagioclase.

The Rambler workings consist of a group of shafts, prospect pits, mine dumps, and tailings. Near the northern edge of the tailings, the remains of the Rambler mill are marked by concrete foundation. Below the tailings, the outwash extends several hundred feet down a stream that originates from a shaft at the base of the mine dump. Many rocks, cans, and woody material in this water are stained and in some cases partially replaced (although the replacement is not extensive) by copper carbonates. A "typical assay" of the Rambler ore was reported as: 5% copper, 0.02 ounce gold, 1 ounce silver, 0.4 ounce palladium and 0.6 ounce of platinum per ton.

Douglas Creek District



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