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A NEW PLATINUM-GROUP-ELEMENT DISCOVERY AT CRESCENT PEAK, CLARK COUNTY, NEVADA

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This information should be considered preliminary. It has not been edited or checked for completeness or accuracy.

[redacted]

Introduction

The Geochemical Laboratory of the Nevada Bureau of Mines and Geology normally analyzes 500-1000 rock samples submitted annually by Nevada prospectors. Of these samples, greater than 90% are assayed for gold-silver content. Late in 1986 the Geochemical Laboratory began a policy of determining platinum and palladium in all submitted prospector samples which exhibited anomalous gold concentrations whether or not Pt-Pd was requested. This was an inexpensive way of slowly surveying Nevada for the presence of platinum-group-elements (PGE's) in Nevada's hydrothermal ores--elements not normally sought in the state. Very early in the program, anomalous Pt values were detected in samples submitted for Au-Ag assay which had been taken from a Pb-Zn-Cu-Ag-Au prospect at Crescent Peak, Clark County. Additional samples from the property were subsequently submitted to NBMG by the property owners for PGE analysis and, later, other samples were collected from underground workings on the main polymetallic vein by the Chief Chemist, NBMG; analytical results from all of these samples are tabulated in table 1.

Geology and Geochemistry

The Gingerload Prospect is located on the north flank of Crescent Peak (fig. 1). Crescent Peak itself is the geomorphologic manifestation of a Mesozoic granitic stock which intrudes Proterozoic metamorphic rocks of the southern McCullough Range. Preliminary work indicates that the platiniferous vein may be part of a stockwork of polymetallic veins hosted by the granite.

Hydrothermal PGE mineralization is known from two other mining districts in Clark County, the Bunkerville district northeast of Las Vegas and the Goodsprings district southwest of Las Vegas and approximately 30 miles northwest of Crescent Peak. PGE mineralization is unusual at Crescent Peak because of its abnormal PGE ratios. At Bunkerville, Goodsprings, and many other occurrences around the world hydrothermal PGE mineralization is characterized by high Pd/Pt and very little Ir compared with other PGE's. This has been explained in the literature by citing the greater solubility of Pd compared with Pt and the virtual insolubility of Ir; Pd would then be the most easily transported in hydrothermal solution while Ir would be very insoluble. As the data in table 1 show, Crescent Peak mineralization typically exhibits low Pd/Pt and relatively high Ir.

Whether significant tonnage of high-PGE ore exists at the Gingerload Prospect is presently unknown. However, a small amount of soil sampling performed on the property by NBMG

suggests that the main vein persists along strike to the west for at least 200 feet. Also, two (and possibly three) additional veins are inferred by soil geochemistry to be present to the south, within 120 feet of the main vein (this is the limit of soil sampling performed to date). There seems to exist, therefore, some potential for significant tonnage on the property.

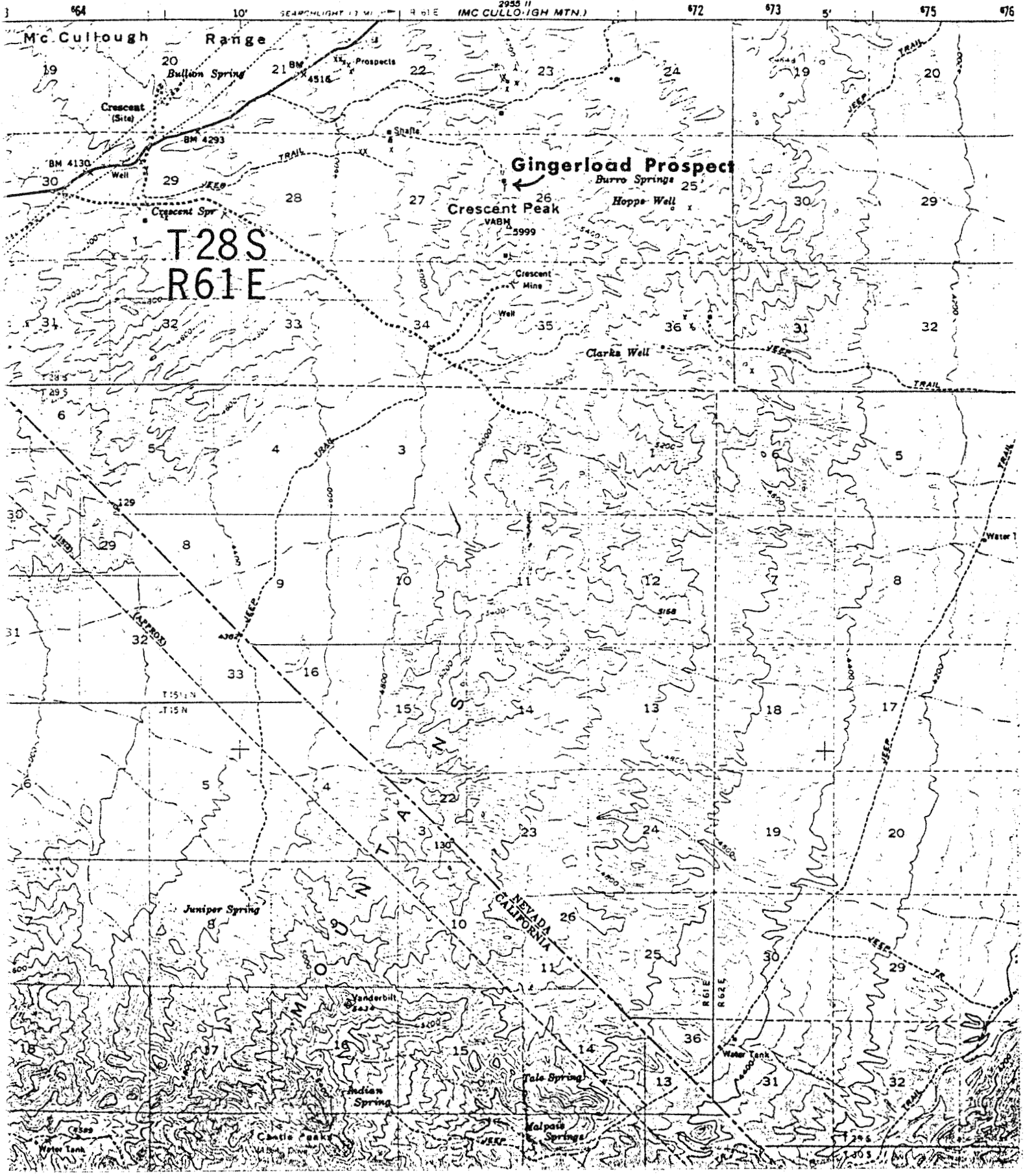
Preliminary investigations revealed the presence of the minerals iridosmine and ferroplatinum (tentative identifications) in high grade material. Additional studies to clarify mineralogical associations and geologic setting are in progress.

Table 1. Precious metal abundances in several samples of Gingerload vein material. Concentrations determined at NBMG by a modified combined fire assay-atomic absorption technique.

Sample	Au	Ag	Pt	Pd	Rh	Ru	Ir	Os&Ir
	oz/ton		parts per billion					
073	2.136	44.77	220	nd	--	--	--	-----
076	.580	8.95	53	--	--	--	--	-----
077	.268	2.94	58	--	--	--	--	-----
081	.072	6.55	52	--	--	--	--	-----
126	3.352	50.06	659	nd	--	--	--	-----
127	.070	12.75	115	nd	--	--	--	-----
141	nd	nd	175	nd	--	--	--	-----
PLB	--	--	15	nd	11	--	97	-----
	troy ounces/short ton							
142	9.97	54.2	53.4	.497	3.26	.038	--	116.6
PLA	.895	17.4	.046	.037	.409	--	1.63	-----

nd = not detected; -- = not determined

Figure 1.

CRESCENT PEAK QUADRANGLE
CALIFORNIA—NEVADA
15 MINUTE SERIES (TOPOGRAPHIC)

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