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JUL 27 1965

Memorandum

To: Chief, Office of Minerals Exploration

From: Harold Kirkemo, U. S. Geological Survey

Subject: On-site examination report
OME-6446 (Silver)
Paul J. Heaney, Sr.
Parnell, et al., Claims
Granite County, Montana

INTRODUCTION

The Parnell mine was visited June 24, 1965, with Mr. Paul J. Heaney, Sr., Mr. Paul J. Heaney, Jr., of Galen, Montana, and the latter's son. About five hours were spent mapping two tunnels, a winze, a sublevel, and sampling the latter.

An OME application for assistance on a $50,000 exploration project for silver had been submitted by Mr. Heaney. The project would consist of extending a winze an additional 200 feet below the present depth of 15 feet and driving 400 feet of drifts from the winze.

RECOMMENDATION

It is recommended that the application for assistance to continue the winze be denied.

Mr. Heaney should be advised that OME will be pleased to consider an amended application for a bulldozer trenching program provided he submits an accurate map of the surface. This map should show the portal of the lower tunnel, the roadway north and south of the tunnel, elevations at numerous points in the area west of (below) the road and north of the lower tunnel, and at least the location of one identifiable claim corner. This map would serve as the base on which the course of trenching could be plotted.

LOCATION

The Parnell mine is three miles north of Philipsburg in secs. 7 and 8, T. 7 N., R. 13 W. (unsurveyed). From Philipsburg a gravel and dirt road extends northward between Red Hill on the west and Browns Gulch and Stewart Gulch on the east, and continues in a northeasterly direction up a moderate grade to the mine as shown on Figure 1. Use of a 4-wheel drive vehicle is advisable in wet weather. The mine is at an altitude of about 6,800 feet on the west slope of a hillside overlooking Philipsburg Valley and Flint Creek. Scattered timber, brush, and grass cover the hillside. Up to 10 or 12 feet of soil, gravel, and loose rock underlie the portion of the claim group seen on this visit.

CLAIMS AND WORKINGS

The property consists of six unpatented claims--Parnell, Parnell No. 2, Jack Pot, Alice, Smuggler, and Little Peggy. These are shown on Figure 1. Development includes a lower tunnel 100 feet long, a 15-foot winze with a 35-foot sublevel, an upper tunnel 46 feet long, a vertical shaft 23 feet deep, a trench 75 feet long, and a shallow pit. These are shown on Figures 2 and 3.

GEOLOGY

The claim group probably lies on the east flank of the Philipsburg anticline near its most northerly exposure. No identifiable formations were noted. The plotted position of the claims shows that they are underlain by the Madison limestone formation of Mississippian age, the Amsden shale, limestone, and dolomite formation of Pennsylvanian age, and the Quadrant quartzite formation also of Pennsylvanian age. The heterogeneous wall rocks noted in the underground workings suggest that they may be part of the Amsden formation.

The nearest significant producer to the Parnell mine is the Hope silver mine about two miles to the south. More than $4 million in silver was mined from siliceous argentiferous replacement deposits in the Jefferson limestone formation (Devonian age) which underlies the Madison formation.

The Parnell mine workings expose quartz fissure veins, 9 inches to 3 feet wide, which strike N. 60° -70° E. and dip 36° to 60° NW.

A vein is followed about 50 feet in the lower tunnel and sublevel drift. It is terminated on these levels by a zone of brecciated silicified shale, limestone, dolomite, red mud and gouge. Whether this is a fault zone or a formational boundary could not be determined because of lagging on the lower tunnel and inaccessibility due to slough in the east face of the sublevel.

Two samples of the vein from the sublevel at 19 feet east of the winze assayed as follows:

Width		Ounces per ton Gold	Silver	Percent Lead	Copper
H.W.	1.0 ft.	Trace	3.4	2.85	0.36
F.W.	1.0 ft.	Trace	79.0	10.4	2.72
Ave.	2.0 ft.	Trace	42.2	6.6	1.5

In the upper tunnel a vein is exposed for 40 feet on strike. It is 3 to 3.5 feet wide and consists of white and dark-banded quartz with scattered stains of light green and red oxide. No sample was taken for assay purposes because of scarcity of minerals. The wall rock is light gray and dark in color and is silicified.

The veins in the two tunnels can not be correlated as segments of the same vein on the basis of projections of strike and dip. If they are the same vein, it is due to displacement by the fault zone or formational boundary in the east end of the lower tunnel and sublevel. A normal fault in the upper tunnel displaced the vein 4 feet, and a reverse fault on the sublevel displaced the vein about 3 feet.

A vertical shaft 23 feet deep about 35 feet southeast of the upper tunnel did not intersect a vein according to the Applicant. A bulldozer trench across the area north, east, and south of the shaft likewise did not disclose vein material. Overburden up to 12 feet thick is exposed in the trench.

A pit about 15 feet deep on the east side of the road at 100 feet south of the lower tunnel exposes gray limestone which Mr. Heaney understood was correlated with the Madison limestone formation.

The possibility is remote for discovering reserves commensurate with the cost of continuing the winze an additional 200 feet as the Applicant proposed. The segments of vein between faults are short; the distance and direction of displacement on the principal fault (?) in the present workings are unknown. This was explained to Mr. Heaney at the completion of the examination.

He did not understand the possible advantage of exploring the downward projection of the vein by diamond drilling; but in conversation enroute to Philipsburg and at his residence later, a possible trenching project was discussed which did interest him.

From the field examination and the general geologic maps available, this prospect appears to be a fissure vein crossing an anticline several miles distant from productive deposits of similar geologic structure. The enclosing formations are younger than the productive horizons further south, and nothing is known about their possibilities as host rocks for either fissure vein deposits or replacement deposits. The presence of attractive silver values and a reasonably strong vein structure make this prospect an interesting one to test further. Diamond drilling perhaps would be the better method of exploration but since the Applicant was not receptive to this idea, the trenching proposal is the next best alternative to his proposal to continue the winze.

It was Mr. Heaney's understanding that the trace of the vein downhill from the lower tunnel would be in a southerly direction whereas it normally would be northward. He recalled that vein material had been found on the hillside west of the road and north of the lower tunnel. A bulldozer trench cut along the hillside in that area would test the downward projection of the vein at less cost and with less technical difficulty than is likely with the proposed winze. This possibility was of interest to Mr. Heaney because he understood the advantage of being able to drive a tunnel instead of sinking a winze.

Mr. Heaney said he could arrange to have the surface west of the road surveyed by a local mining engineer in order to prepare a map for a possible trenching project. The projected trace of the vein on the surface could be plotted on the map and the course of a bulldozer trench planned accordingly. The surveying and surface mapping preliminary to trenching should be done at the Applicant's expense.

The price per hour for a local bulldozer operator with a D-8 bulldozer is about $15.00.

Harold Kirkemo

Harold Kirkemo

HKirkemo/mm (7/27/65)
cc: D. R. MacLaren (2)
USGS (SRO)
Kirkemo

OME-6446
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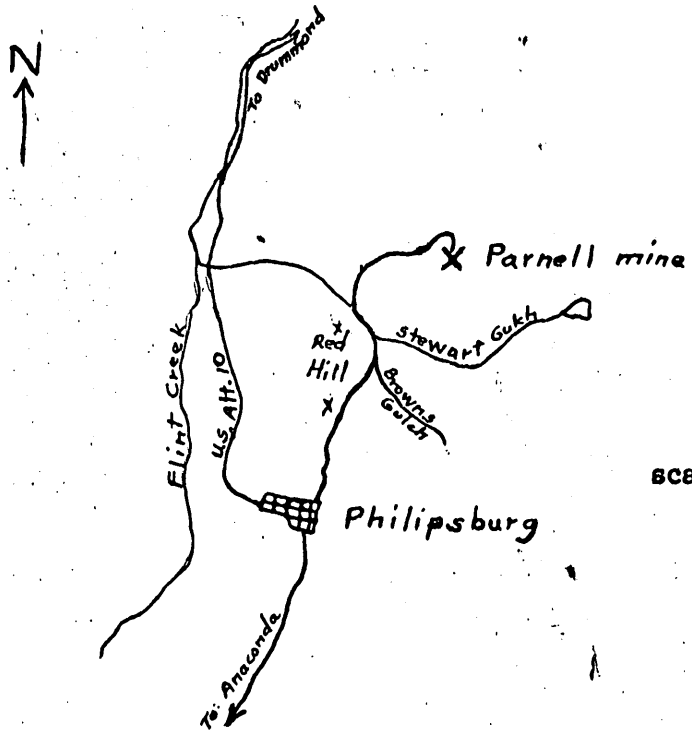
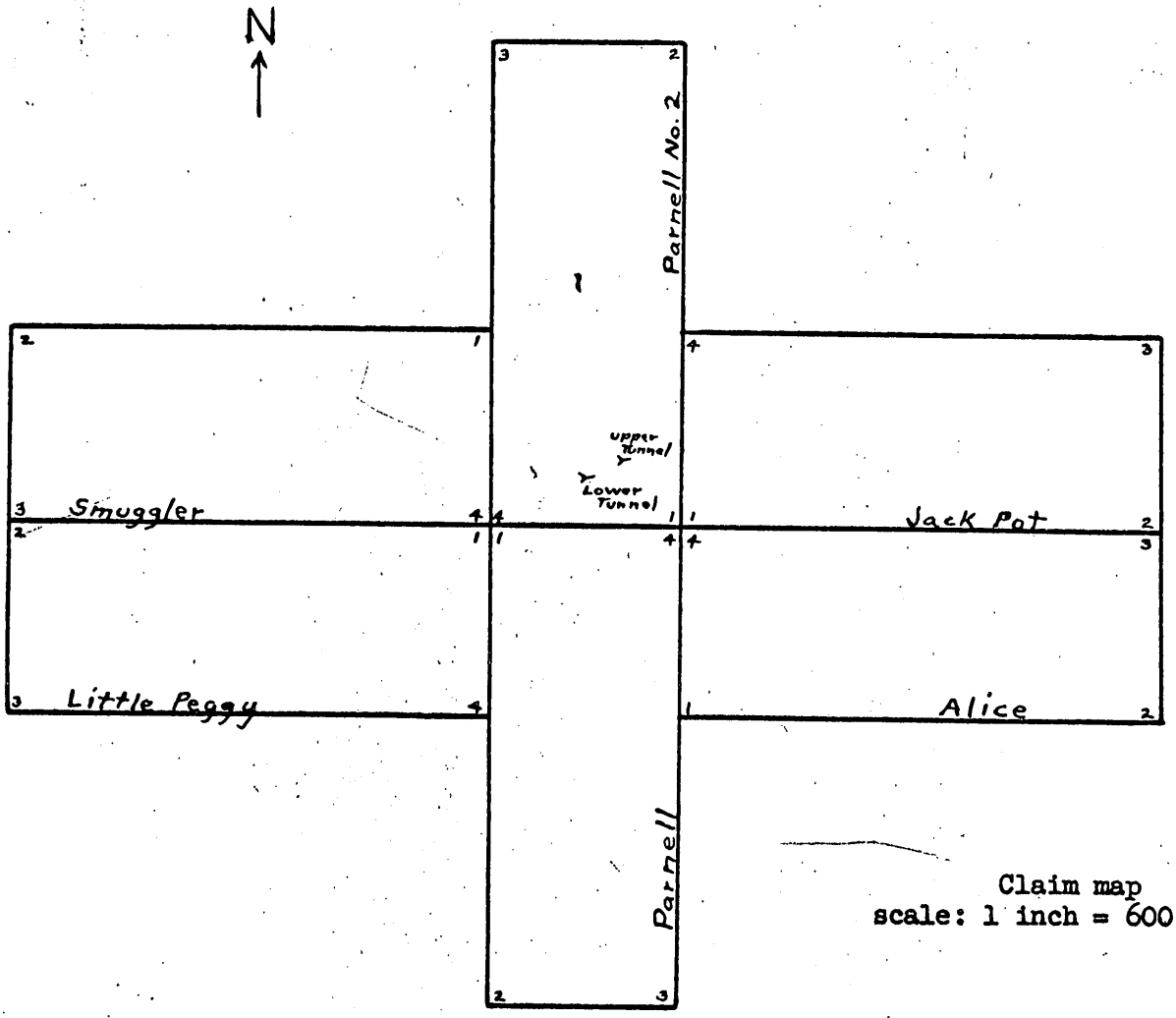


Location map
scale: 1 inch = 2 miles



Claim map
scale: 1 inch = 600 feet

Figure 1. Location and claim maps - Parnell mine, Granite County, Montana

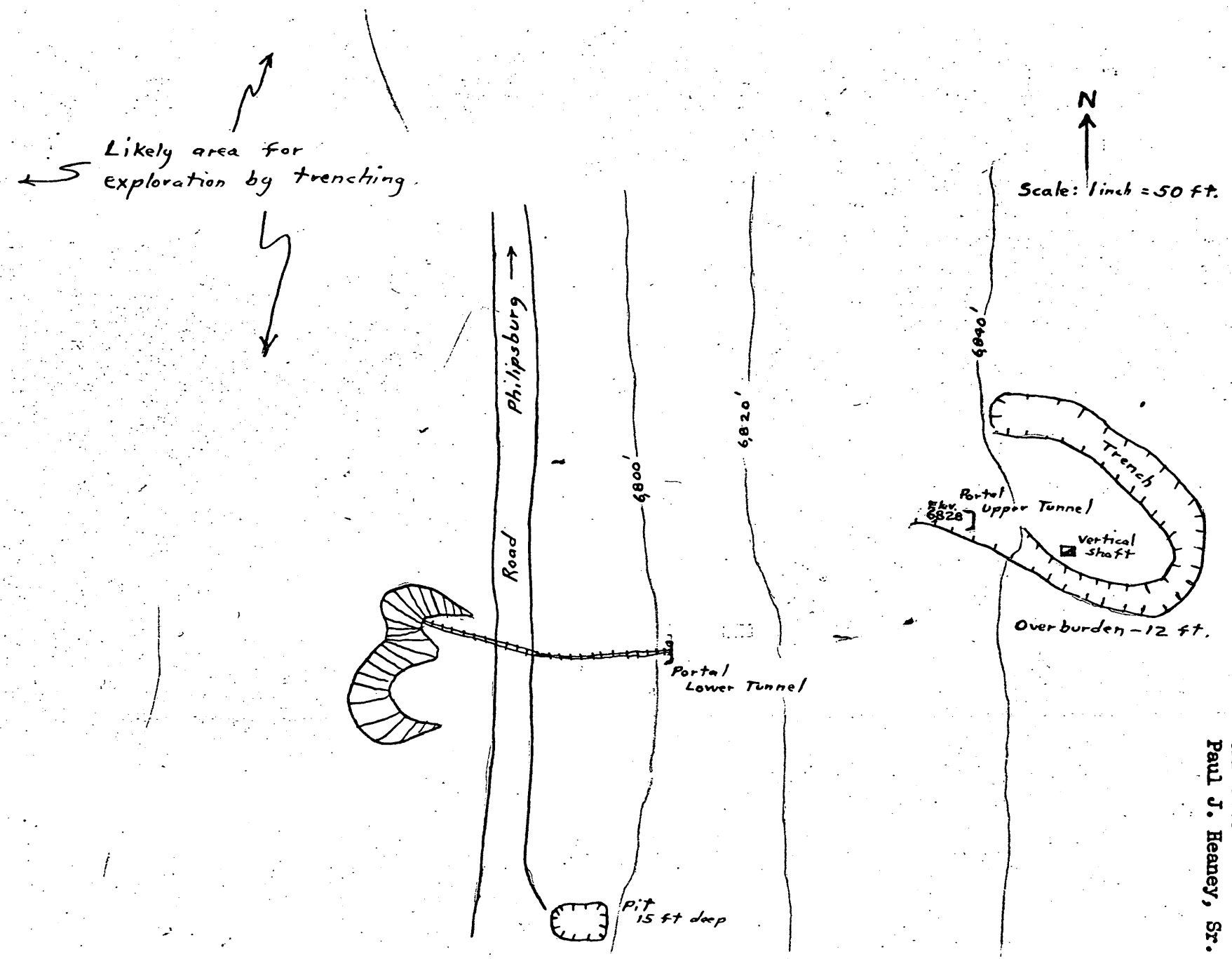


Figure 2. Sketch map of surface - Parnell mine, Granite County, Montana

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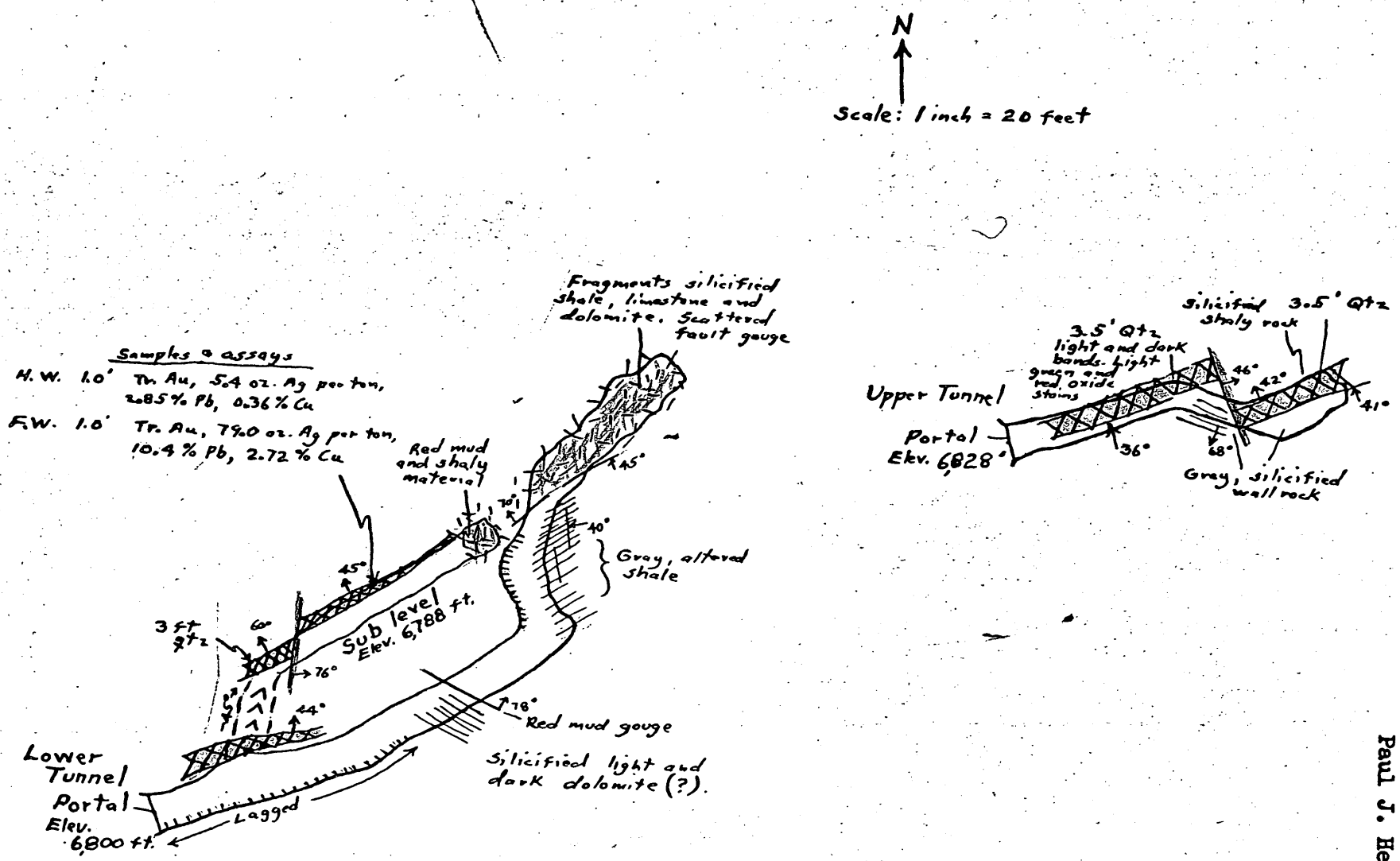

Figure 3. Geologic map of lower tunnel, sublevel, and upper tunnel - Parnell mine, Granite County, Montana.

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