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RECONNAISSANCE OF HENRY MOUNTAINS AREA
WAYNE AND GARFIELD COUNTIES, UTAH

By
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Division of Raw Materials
Exploration Branch



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RECONNAISSANCE OF
HENRY MOUNTAINS AREA, WAYNE AND GARFIELD COUNTIES, UTAH

By E. V. Reinhardt

INTRODUCTION

A trip into the Henry Mountains area occupied the days from March 6 to 9, 1951, inclusive, excepting March 7, which was used to examine Ree Hunt's deposit in Poison Spring Wash.

Observations were made on stratigraphy, regional geology, and the locations of the known deposits of uranium and vanadium.

REGIONAL GEOLOGY

The following excerpt from Hunt¹ outlines the regional geology of the area:

"The Henry Mountains are located in a structural basin that is one of the major folds of the Colorado Plateau. The basin is the antithesis of the adjoining Circle Cliffs Uplift and San Rafael Swell, being of the same size and form only inverted. The basin is sharply asymmetric and its trough is crowded against the steep west flank. The deepest part is 8,500 feet structurally lower than the neighboring uplifts.

"Faults are uncommon except for a series of small, en echelon faults that cross the north tip of the basin. Two principal sets of joints trend respectively north-east and southeast.

¹ Hunt, Charles B., Guidebook to the Geology of Utah, No. 1.
Utah Geological Society, Salt Lake City, Utah, 1946, p. 11.

"The structural basin was formed at the close of Upper Cretaceous or beginning of Eocene time, because the Eocene Wasatch formation lies undisturbed across part of the Waterpocket fold at Boulder Mountain and at Thousand Lake Mountain. The intrusions in the Henry Mountains are believed to be Middle Tertiary."

Tongue-like laccoliths are thrust out in many places from the central stocks of each of the mountain masses. Where the contacts of the sediments with the stocks are not obscured by the laccoliths, the sediments are abruptly upturned. The oldest formation observed on these contacts is Wingate, indicating that the stocks have cross-cut the sediments.

As indicated above, the regional dip is gently toward the west to the Waterpocket fold, where it is reversed strongly to the east. Therefore, although the eastern flank of the mountains is covered with the Morrison formation, the western side is covered in greater part with Mancos and Mesa Verde, eliminating it as an area to be searched for uranium ores.

The fringe of Morrison formations east of the mountains averages 3 miles wide. East of this fringe, older formations are exposed in the following order: Summerville, Entrada, Carmel, Navajo, Kayenta, Wingate, Chinle, Shinarump, and Moenkopi. The Shinarump and upper Moenkopi formations are found fringing the lower parts of the canyons running into the canyon of the Colorado River 15 to 20 miles east of the Henry Mountains.

The areas likely to contain uranium-bearing ore are thus confined to a strip about 3 miles wide by 25 miles long bordering the Henry Mountains on the east and extending, on their southern end,

slightly onto the western side, and to a thin sinuous band of Shinarump-Moenkopi bordering the canyon walls about 18 miles east of the mountain group.

DESCRIPTION OF MINING DISTRICTS IN THE
SALT WASH MEMBER OF THE MORRISON FORMATION

North Wash district.

Of the mining districts in the Henry Mountains area, the most northerly, extending from a line 10 miles south of Hanksville to a line 27 miles south of Hanksville, has been named the North Wash district for North Wash, by which most of it is drained. About 4 of these 17 miles are serviced by roads. North of the North Wash district, the Morrison formation shown on the map is only the basal shale member, the ore-bearing sandstone having been removed by erosion.

Three orebodies were observed in the North Wash district. One, owned by Vanadium Corporation of America and operated by Kay Hunt, lies at depths varying up to 10 feet and has been opened by 15 to 20 pits, indicating dimensions of about 1500 feet in an east-west direction by 250 feet north-south. It may be significant that the long axis lies at right angles to the mountain group. The ore varies in thickness from a few inches to 1.5 foot but is of good grade.

The second orebody has recently been opened by S. Y. Guthrie and associates. As no mining has been done, no statement can be made about thickness, but the grade of the exposures is good. Bulldozer cuts and ore reported in jackhammer holes indicate an east-west trend.

North of this exposure $3/4$ of a mile, another deposit of good grade, varying from 6 inches to 1 foot thick and occupying a channel 60 feet wide, has been opened on a canyon wall. Behind the canyon to the east, it has been exposed at intervals for 500 feet in bulldozer cuts which have stripped off the overburden to the ore without disclosing its thickness.

Many other deposits without roads or development were reported by Daryl Ekker and Reo Hunt, both of Hanksville.

Trachyte district.

This is a southward continuation of North Wash and is serviced by two roads, one going up Trachyte Creek past Farmer's Knob, a hill $1/4$ miles in diameter, and the other passing between Mt. Hillers and Mt. Holmes, about 6 miles south of Trachyte Creek. Daryl Ekker, on lease from Vanadium Corporation of America, is working on Farmer's Knob on an orebody 2 feet thick and of excellent grade. Sixteen per cent of the ore horizon on Farmer's Knob shows ore or mineralization. Westward, across Trachyte Creek, another Salt Wash point is similarly mineralized for 600 feet; and, following the assumed westerly trend across this hill, mineralization was found on the opposite side and again on the hill across the next canyon. Apparently there are two parallel trends some 1200 feet apart. The work now being done by Ekker has entered 75 feet into Farmer's Knob, the deepest penetration thus far accomplished on any rim in the area.

Six miles south of Trachyte Creek, the main road starts to climb over a pass between Mt. Hillers and Mt. Holmes. Two miles east of the pass, a spur $1/2$ mile long turns northwest, leading to a group

of mines where ore of good thickness and apparently of good grade is exposed in cuts. No work is being done nor is there any evidence that any work has been done for many months. The six miles of Salt Wash between the two groups of mines in the Trachyte district are without roads and remain unknown. Ore is reported by the local residents.

Little Rockies district.

Mt. Holmes and Mt. Ellsworth, the two most southeasterly peaks of the Henry Mountains group, are situated farther east in relation to the depression than the remainder of the chain. Therefore, the Salt Wash has been eroded from their eastern sides, but on the western side a band about 3 miles wide is exposed, which then dips under a cover of Dakota and Mancos.

About 5 miles southwest of the mountain pass lies the Del Monte group. Here mineralization has been exposed on rims and in pits over about one square mile. The ore is of good grade but occurs in such small, thin pockets that it does not appear to hold much interest.

Three miles south of the Del Monte is the Ekker group. As no direct road connects the two properties, one must return to the main road from the Del Monte, follow it westward for 10 miles to the head of Hanson Creek, go down Hanson Creek to a fork branching to the north and continue up this fork, known as Shooting Canyon, for 5 miles to arrive at the Ekker mine. The ore here is fairly consistent over a length of 450 feet, shows on both sides of the canyon in an east-west direction, varies in thickness from 1 inch to 4 feet, and is of unusually good grade. The canyon walls are vertical and access

was gained to the eastern side by going hand-over-hand up a rope. The western side is not being operated. It lies at a lower elevation and is accessible in places on talus slopes. Since the canyon walls are too steep and high to permit drilling, any exploration must be conducted by drifts. No other deposits are known in the vicinity. The Salt Wash formation extends around the southern edge of Mt. Ellsworth and has not been explored. The best way to discover additional ore in the rims in this area would be to fly them with a scintillometer.

Active operations, summarized.

1. S. Y. Guthrie is conducting exploration for large orebodies which can be mined with mechanical shovels or otherwise in the North Wash district. One truckload, shipped in March, 1951, to Monticello, assayed 0.63% U_3O_8 , 1.43% V_2O_5 , and 3.7% $CaCO_3$. To July 31, total shipments amounted to over 380 tons.

2. Kay Hunt and partner, leasing from Vanadium Corporation of America, are mining high-grade and producing 10 tons a month in the North Wash district.

3. Daryl Ekker and partner are mining high-grade in the Trachyte district with production of 10 tons a month.

4. An unknown lessee (absent at the time of the visit) is operating in Shootering Canyon and producing a few tons a month.

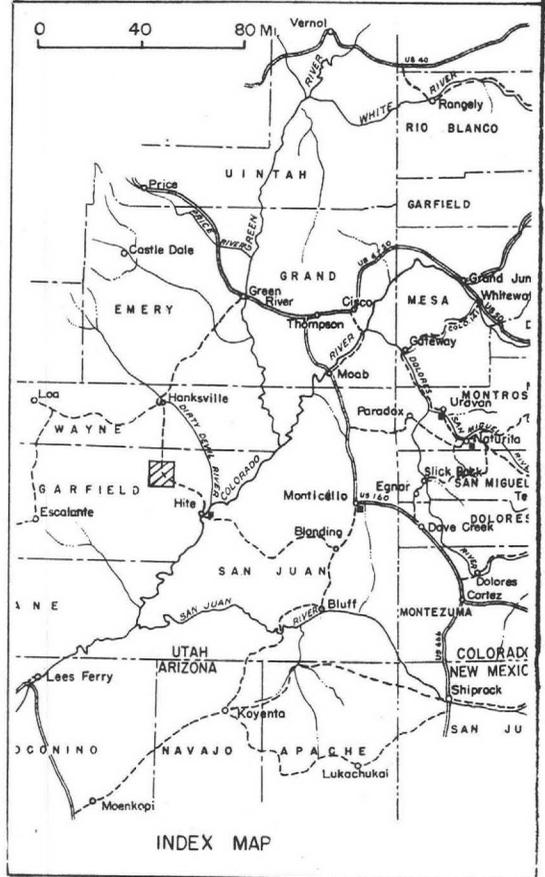
Transport routes.

The area is producing only 25 to 30 tons a month, by reason of the long distance to market, the two nearest outlets being Monticello, from 200 to 250 miles away, and, recently, Marysvale, almost as far over rough roads. Until prices were raised, Ekker stated that his ore

had to run 1% U_3O_8 before he could afford to mine and ship; now it must run 0.30 to 0.50% U_3O_8 . Especially at Farmer's Knob, black ore a few inches to 2 feet thick is associated with a limonite-stained sandstone sparsely flecked with carnotite about 6 feet thick. Ecker says this material will run 0.10% U_3O_8 and, if broken with the high-grade, will make a product running 0.20 to 0.25% U_3O_8 .



Sketch geological map of the Henry Mountains structural basin. Sketched from survey by Chas. B. Hunt, assisted by P. Averitt, A. L. Miller, E. Bowler, A. E. Bates, L. I. Goldman, and W. W. Simmons.



OUTCROPS TO BE PROSPECTED

EXPLANATION	
	Mostly diorite porphyry.
	Shatter zone composed of porphyry and irregular masses of sedimentary rocks.
	Mesaverde formation.
	Emery sandstone at base, Masuk shale above. Members of Mancos shale.
	Ferron sandstone at base, Blue Gate shale above. Members of Mancos shale.
	Tununk shale member of Mancos shale, locally Dakota sandstone at base.
	Morrison formation.
	San Rafael group, composed of Carmel formation, Entrada sandstone, Curtis formation, and Summerville formation (ascending order).
	Navajo sandstone.
	Wingate sandstone below and Kayenta formation above.
	Moenkopi formation, Shinarump conglomerate, and Chinle formation (ascending order).
	Permian rocks.
	Lower shale member of Morrison.
	Fault, weight on down block.
	Roads.
	District Boundary