



EXPLANATION	
	Alluvium Unconsolidated silt, sand, and gravel.
	Hill wash and older alluvium Unconsolidated gravel. Not differentiated over Tertiary rocks.
	Salt Lake and Wasatch formations undifferentiated Red, buff, and gray calcareous sandstone and con- glomerate and unconsolidated gravel.
	Thuyes formation Gray, hard, massive limestone. Fossiliferous.
	Thuyes formation Gray and buff shaly limestone. Fossiliferous.
	Thuyes formation Gray, shaly limestone in lower half grading into greenish shale in upper half.
	Thuyes formation Buff, platy argillaceous limestone and calcareous shale. Columbian zone at base.
	Thuyes formation Brown and buff calcareous shale and thin-bedded limestone in lower half; hard nodular limestone in upper half. Pugnacious zone at top.
	Thuyes formation Gray, hard, massive limestone; some interbedded yellowish shale in middle. Meekoceras zone at top.
	Dinwoody formation Tan shale interbedded with gray limestone, some maroon shale at top; gray limestone and calcareous siltstone, some maroon shale in lower part; tan siltstone and gray limestone, kds.
	Rex chert member Yellow and gray chert. Black cherty shale at top.
	Phosphatic shale member, including vanadiferous zone Brown to black phosphorite and carbonaceous mudstone.
	Wells formation Gray, fossiliferous limestone and yellow sandstone. May include upper part of Brazier limestone.
	Uter(?) limestone Gray, fossiliferous limestone.
	Brigham quartzite White, brown, and purple vitreous quartzite.

	Contact Long dash where not accurately located; short dash where concealed; widely spaced short dash where projected under Tertiary or Quaternary deposits.
	Fault Dashed where approximately located, dotted where concealed.
	Overthrust fault T, upper plate.
	Reverse fault U, upthrown side D, downthrown side.
	Transverse fault Arrows show relative movement.
	Axis of anticline
	Axis of overturned syncline
	Strike and dip of beds
	Strike and dip of overturned beds
	Strike of vertical beds
	Strike and dip of beds overturned more than 180°
	Horizontal beds
	Trench or underground working
	Small pit

PRELIMINARY GEOLOGIC MAPS OF THE PARIS-BLOOMINGTON
VANADIUM AREA, BEAR LAKE COUNTY, IDAHO

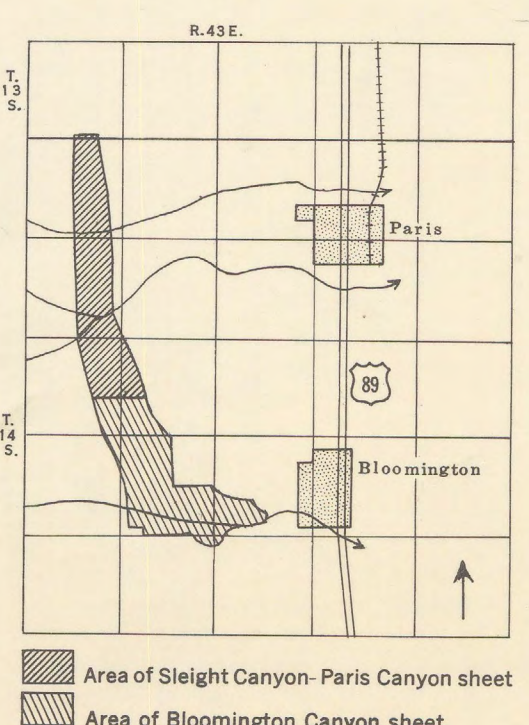
By
V. E. McKelvey and J. D. Strobell, Jr.

The Permian Phosphoria formation in the vicinity of the towns of Paris and Bloomington, Bear Lake County, Idaho, contains large tonnages of vanadiferous mudstone and phosphorite. The area underlain by these rocks was mapped in 1943 as a guide to the exploration of the vanadiferous zone then being conducted by the Wyodak Coal and Manufacturing Company, agent for the Metals Reserve Company. Pending publication of the full data acquired during these studies, the geologic maps are made available here in preliminary form as an aid to any who contemplate mining in the area.

The vanadiferous zone lies about 35 feet below the top of the phosphatic shale member of the Phosphoria formation. The most important phosphorite zone is a few feet above the base of the same member, and another phosphorite zone lies a few feet below its top. The vanadium content and thickness of the vanadiferous zone in different parts of the area are shown on sheets 2-4. The thickness and phosphate content of the phosphorite beds in Paris and Bloomington canyons are published in U. S. Geological Survey Circular 262.

As shown by the accompanying maps, the Phosphoria formation in the Paris-Bloomington area is exposed on the limbs of an asymmetrical syncline, whose axis plunges about 10° northward. The western limb is overturned and for the most part dips 30°-85° west; the eastern limb dips 10°-35° northwest. Older Paleozoic rocks belonging to the Bannock thrust plate overlie rocks of the western limb of the syncline along the western margin of the area. In the northern half of the area, where the beds of the west limb are steeply overturned, the vanadiferous zone and other parts of the phosphatic shale member are faulted out at the surface, but they are believed to be present throughout the rest of the area. Several transverse faults displace the beds 100-1,000 feet. Transverse faults of 1-10 feet displacement and drag folds that thicken or thin the beds are abundant on the overturned limb. The beds on the eastern limb are less disturbed but are locally warped and broken by small faults.

These investigations were directed by W. W. Rubey and R. P. Fischer, both of whom aided materially in the planning and conduct of the work. It is a pleasure also to acknowledge the hearty cooperation of the staff of the Wyodak Coal and Manufacturing Company and of the numerous local residents who permitted access to property and provided other courtesies.



PRELIMINARY GEOLOGIC MAP
OF THE
PARIS-BLOOMINGTON VANADIUM AREA
BEAR LAKE COUNTY, IDAHO
By V. E. McKelvey and J. D. Strobell, Jr.

