FIELD TRIP GUIDE

SKINNER PEAKS 7.5 MINUTE QUADRANGLE, UTAH

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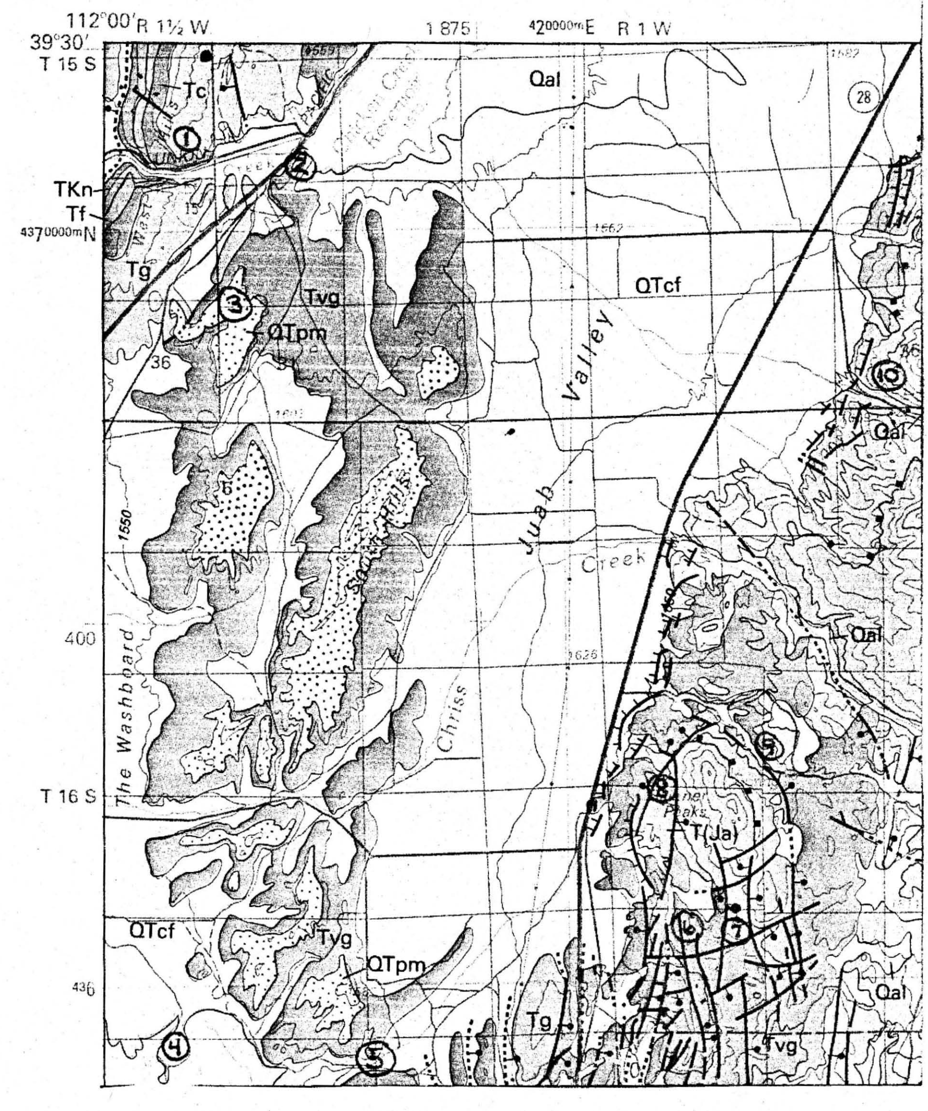
Field Trip Stops:

1. Tf-Tc-Tgr section of Mills Gap
2. type-section of Chicken Creek Tuff; overlying Hall Canyon Conglomerate
3. pediment(?) of Hall Canyon Conglomerate
4. Lake Bonneville sediments
5. Goldens Ranch section in Painted Rocks area
6. Goldens Ranch section in Milky Wash
7. vertebrate bone bed on Tgr-Tvg contact
8. tilted fault blocks of Tgr in Arapien; west side of Skinner Peaks
9. Hall Canyon Conglomerate; north side of Skinner Peaks
10. Arapien Shale, Ja-Tgr unconformity; Little Salt Creek Canyon

(see following map for stop locations)

Skinner Peaks had
6 or 7 reviews

"guinea pig"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MAP UNITS

Jurassic

Ja

The Arapien Shale is exposed in the vicinity of Little Salt Creek Canyon in the NE corner of the quadrangle, and on the north, east, and west sides of Skinner Peaks to the south. It is composed of grey-green, thin-bedded limestone, siltstone, and shale, thin-bedded, rippled sandstone, and grey or red calcareous mudstone that locally contains gypsum. Using the classification scheme of Hardy (1952), units A through C, and possibly D are represented. Fossils that have tentatively been identified as Ostrea sp. were found south of Little Salt Creek Canyon in unit C. In both locations, the Arapien occurs as highly folded and faulted strata that form rugged, sparsely vegetated hills. Due to the intense deformation, thickness of the Arapien is uncertain; estimates range from 400 to 800 feet.

South of Little Salt Creek Canyon, the Arapien is unconformably overlain by the Upper Green River Formation (Zeller's Tawny Beds). In the Skinner Peaks area it is unconformably overlain by the Green River Fm., as well as the Goldens Ranch Fm..

Tertiary

Tf

The Flagstaff Limestone (Paleocene to Eocene) is exposed in the east-dipping cuestas in the NW corner of the quadrangle. It is tan to yellow in color, and is composed of alternating sandstone, limestone, mudstone, and local dolomite; it forms steep slopes. The sandstone is calcareous, medium-grained, and locally pebbly, conglomeratic, and cross-bedded. The limestone is platey to massive, the mudstone is calcareous. Total thickness is approximately 500 feet.

Tc

The Colton Formation (Eocene) is also exposed in the east-dipping cuestas of the NW corner of the quad. It conformably overlies the Flagstaff. It is red in color, and is composed of alternating sandstone, conglomerate, limestone and mudstone. It weathers to swales and gentle slopes.

The sandstone is coarse-grained, calcareous, and well-bedded to massive. The conglomerate is clast supported; clasts are well-rounded, and are composed of limestone and quartzite. These clasts are representative of the local Paleozoic section. The limestone is dense, very crystalline, and weathers to a hackly surface. The mudstone is calcareous. Total thickness of the formation is approximately 210 feet.

Note: The conglomerate is anomalous to the Colton in general. This is the only location where it occurs.

Tgr

The Green River Formation (Eocene) is found at various locations throughout the quadrangle. Three distinct phases are recognized and have been tentatively labeled lower, middle, and upper Green River.

Lower Tgr: exposed in the NW corner of the quad., and on Skinner Peaks. In the NW corner of the quad. it conformably overlies the Colton Fm., and is composed of mudstone, conglomerate, sandy limestone, and stromatolitic limestone. It is tan to grey in color and is approximately 50 feet thick. On Skinner Peaks the section is similar, with a few notable exceptions. It contains oncolitic limestone as opposed to stromatolitic limestone, it is red, and and approximately 500 feet thick. In general, it is much thicker and much more clastic, which indicates that it is representative of shallower water.

Middle Tgr: best exposed in NW corner of quad.. It is conformable on Lower Tgr, and is composed of stromatolitic limestone, mudstone, pebbly red sandstone, and platey limestone; 50 ft thick.

Upper Tgr: (Zeller's Tawny Beds)
Exposed at various locations in eastern half of the quad.. Composed of quartzose sandstone with local pebble lenses; dense, locally fossiliferous limestone (massive to thin-bedded), conglomerate, and mudstone. It is tawny in color and approximately 400 feet thick.

Tvg

The Goldens Ranch Formation can be found throughout most of the quad., however, it is best exposed in the SE corner. It is composed of five distinct members: a basal, epiclastic unit; a crystal-rich, pumice-poor tuff; a quartz crystal rich tuff; the Chicken Creek Tuff (type-section: Chicken Creek Reservoir); the Hall canyon conglomerate. The formation is Oligocene in age.

Epiclastic Unit: Conformable with the underlying Tgr. It is 0 to 600 feet thick, and composed of blue, grey, and green sandstone and conglomerate. Clasts in the conglomerate are dominately volcanic in origin, although some quartzite clasts are present. At least part of the section represents lacustrine and fluvial environments.

Tuff: Overlies the epiclastic sequence. Composed of euhedral quartz crystals, biotite, minor pumice and lithic fragments in an ashy matrix. It is pink to grey, and shows various degrees of welding. It is 0 to 40 feet thick.

Crystal Tuff: Composed of 85% euhedral quartz crystals (bipyramidal in shape); also contains lithics. Shows various degrees of welding, forms ledges, and is white, grey, or red in color. It is 0 to 40 feet thick.

Chicken Creek Tuff: Overlies the crystal tuff. It is pumice rich, crystal poor, and has moderate amounts of lithics. Pumice fragments are as much as six inches in diameter, and show reverse grading . It is orange to tan in color, and it has a cavernous weathering profile. It is approximately 80 feet thick.

Hall Canyon Conglomerate: Overlies the Chicken Creek Tuff. It is composed of clasts of limestone, sandstone, quartzite, tuff, and other volcanics. It is grey or red in color, and it may include a sandy phase.

Intrusives:

Tmp

Monzonite porphyry is exposed in the NE corner of the quadrangle. It occurs as small sills(?) in the Arapien Shale. It is composed of hornblende, along with small amounts of feldspar and pyroxene. It is dark grey to black, and it weathers to blocks.

Quaternary/Tertiary

QTr

Rubble composed of fragments of limestone, sandstone, quartzite, and pebbly sandstone form a tan, yellow or red cap that is seen covering the Goldens Ranch Fm. in places. The best exposure is in the low hills that lie between Chriss Creek Canyon Road and Flat Canyon Road. The fragments that make up the rubble are dominantly Green River in origin, although some Crazy Hollow has also been found. The thickness of this deposit is unknown.

Quaternary

Qb

Lake Bonneville sediments (Pleistocene) are exposed along the southern boundary of the quadrangle, along the shores of the Sevier Bridge Reservoir. The sediment is composed of silt and clay sized material, and is usually finely laminated and evenly bedded; however, cross-bedding, ripple cross-lamination, and soft sediment deformation is also observable. The maximum thickness of the sediments is approximately 40 feet. Snail shells are common in some outcrops.

STRUCTURE

The Skinner Peaks Quadrangle is situated on the boundary between the Basin and Range Province and the Colorado (Gunnison) Plateau. The division between the two provinces roughly follows Highway 28, with Basin and Range type structure occurring to the west of the highway, Gunnison Plateau type structure to the east. Generally speaking, most of the rock units east of the highway dip towards the west, and represent the remnants of the West Gunnison monocline discussed by Hardy (1948), and Zeller (1949). To the west of the highway, the east and west dipping fault blocks that are bounded by north-south trending faults, attest to Basin and Range style tectonics.

One interesting problem in the quadrangle is the highly contorted Arapien shale, and the tilted fault blocks of Green River that are contained in it. This unusual structural arrangement suggests that diapirism on a local scale may have played a role in the structural development of the area.

Economic Geology

The Chicken Creek Tuff is quarried, refined and sold as poultry grits and soil mineralizer.

Manganese was actively mined along mineralized fractures within the Goldens Ranch Formation, however, the deposits have been exausted and the mines abandoned.

The Arapien shale commonly contains pockets of gypsum, and within the last three weeks a new gypsum mine has been established on the NE side of Skinner Peaks.

Sand and gravel is still being removed from gravel pits at various locations throughout the quadrangle.