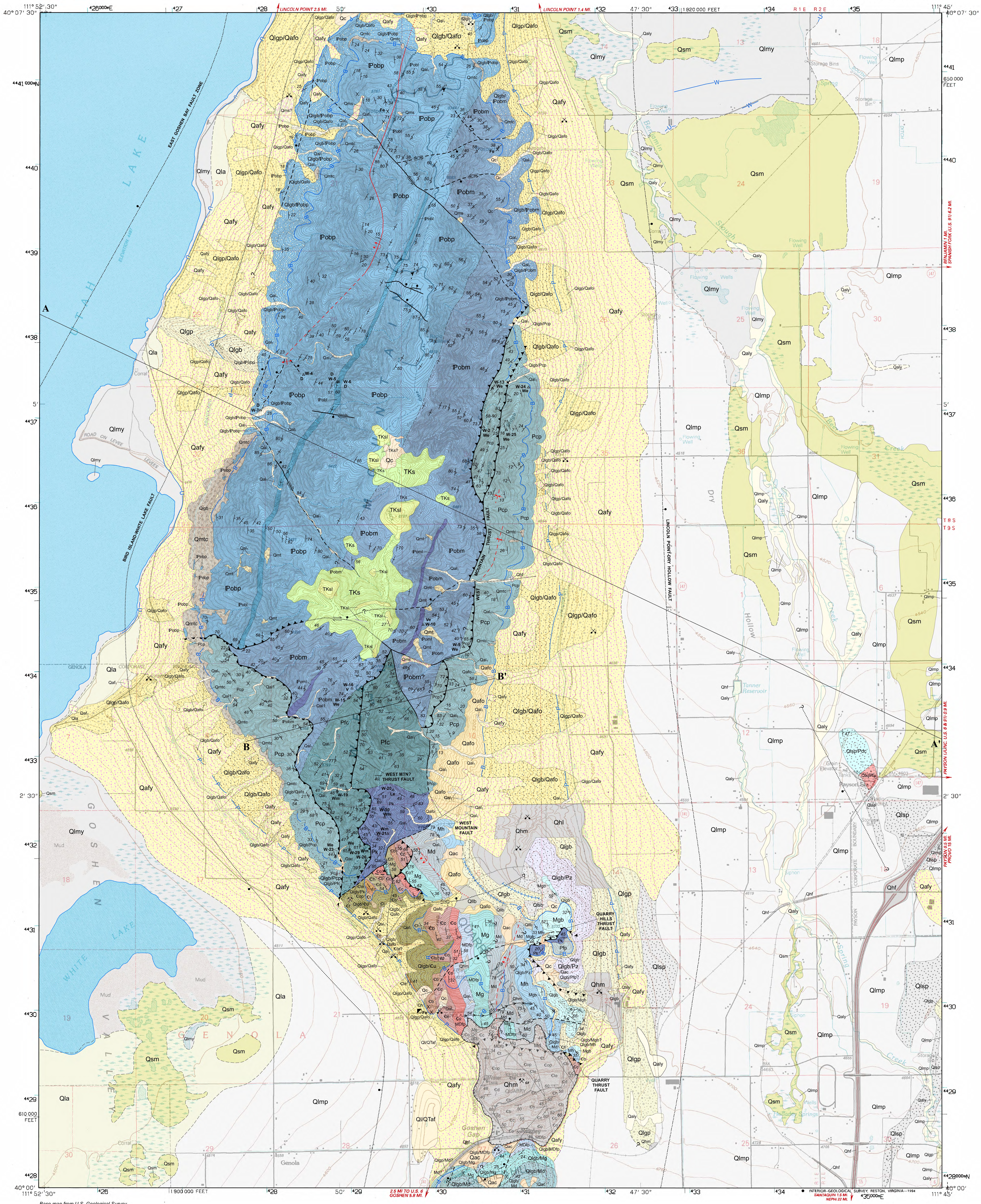
UTAH GEOLOGICAL SURVEY
a division of
Utah Department of Natural Resources

Plate 1
Utah Geological Survey Map 234
Geologic Map of the West Mountain Quadrangle



Base map from U.S. Geological Survey, West Mountain Quadrangle, 1994

North American Datum of 1927, UTM Zone 12 North
Quarry Hills is an unofficial geographic name.

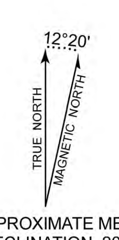
SCALE 1:24,000

1 — 1/2 — 0 — 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 20 FEET



APPROXIMATE MEAN DECLINATION, 2009

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GEOLOGIC MAP OF THE WEST MOUNTAIN QUADRANGLE, UTAH COUNTY, UTAH

by

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2009

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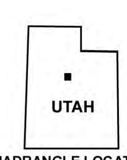


QUADRANGLE LOCATION

1	2	3
4		5
6	7	8

1. Soldiers Pass
2. Lincoln Point
3. Provo
4. Goshen Valley North
5. Spanish Fork
6. Goshen
7. Santaquin
8. Payson Lakes

ADJOINING 7.5' QUADRANGLE NAMES

INTRODUCTION

Within the West Mountain quadrangle, West Mountain and part of Goshen Hill separate Utah Valley (east) and Goshen Valley (west). The south arm of Utah Lake extends into Goshen Valley, and White Lake and the village of Genola are also located in the valley. On the Utah Valley side of West Mountain are Spring and Beer Creeks and part of Payson city. Interstate 15 crosses the southeast corner of the quadrangle (figure 1, plate 1).

West Mountain is a range block about 8 miles (13 km) long by 1 to 2 miles (2-3 km) wide in the northeast Great Basin. Most of the mountain consists of Permian and Pennsylvanian marine sedimentary strata (Nolan, 1950; Swanson, 1952; White, 1953) capped by probable Late Cretaceous and early Tertiary synorogenic deposits. The southern quarter of the mountain (herein informally referred to as the Quarry Hills) consists largely of Mississippian, Devonian, and Cambrian sedimentary strata (Swanson, 1952; Schindler, 1952; Elison, 1952; White, 1953). West Mountain was deformed by Late Cretaceous to early Tertiary contractional folding and faulting of the Sevier orogeny (DeCelles, 2004), a subsequent extensional collapse (relaxation) event (Constenius and others, 2003), and late Tertiary to Holocene Basin-and-Range extension (Zoback and others, 1981).

A major transverse structural zone separates the Quarry Hills from the remainder of West Mountain. Both parts of the mountain were folded into an eastward-overturned (reclined) anticline and were faulted. The transverse zone, herein referred to as the West Mountain fault, was originally mapped as the West Mountain thrust by Brigham Young University (BYU) students (Swanson, 1952; Elison, 1952; White, 1953), and later called the Ince tear fault by H.T. Morris of the U.S. Geological Survey (Morris and Shepard, 1964; Morris, 1983). Due to poor exposures, the nature of the fault remains unclear and will require further detailed structural evaluation; it could be a tear fault, oblique thrust ramp, reverse fault covering an oblique thrust ramp, or a normal fault.

There are several other significant faults in West Mountain. The West Mountain thrust fault places Pennsylvanian over Permian strata along the eastern flank of the mountain; an oblique thrust ramp or tear fault appears to splay from it (sections 3 and 4, T. 9 S., R. 1 E.), and the West Mountain thrust (or a separate thrust) continues southward to the West Mountain fault. A low-angle normal fault exists on the southwest flank of the mountain north of the transverse zone. South of the transverse zone are two major thrust faults. The Quarry Hills thrust fault is a substantial structural feature that places Mississippian on Permian strata (cutting out Manning Canyon Shale and Oquirrh Group strata), and may be an oblique thrust ramp. Gravity data (Cook and others, 1997) indicate that a range-bounding fault is present on the east side of West Mountain (Lincoln Point-Dry Hollow fault), and I infer one on the west side (Bird Island-White Lake fault). The faults bounding West Mountain may link with faults that reportedly underlie Utah lake (Brimhall and others, 1976; Solomon and Biek, 2008).

Utah and Goshen Valleys are mostly covered by Quaternary deposits related to the Bonneville lake cycle (Oviatt and others, 1992), as well as by some younger deposits of Utah Lake and other surficial processes. Two of the four major shorelines of Lake Bonneville are present along the mountain-valley margins—the Bonneville and Provo shorelines. In addition, the highstand shoreline of Utah Lake is present (table 1).

The Quarry Hills part of West Mountain contains Keigley Quarry, which supplied limestone and dolomite to the former Geneva Steel plant near Orem from about 1943 to 1998; the quarry is now operated by Staker & Parson Companies as a source of aggregate. The city of Payson owns landfill and gravel pit operations on the northeast side of the Quarry Hills.

This map is part of ongoing work by the Utah Geological Survey to complete a regional-scale map of the Provo 30' x 60' quadrangle (figure 2).

MAP UNIT DESCRIPTIONS

QUATERNARY

Alluvial Deposits

Lacustrine Deposits

Qlmy **Younger lacustrine silt and clay and marsh deposits** (Holocene to upper Pleistocene) – Silt, clay, and minor fine-grained sand deposited along the margin of Utah Lake (table 1); locally organic rich, locally forms gravelly beaches and berms; includes areas of spring and marsh deposits (Qsm) and mixed lacustrine and alluvial deposits (Qla) difficult to show at map scale; thickness probably 0 to 20 feet (0-6 m).

Deposits of the regressive (Provo) phase of the Bonneville lake cycle are identified with the last map symbol letter "p", and deposits of the transgressive (Bonneville) phase of the Bonneville lake cycle are identified with the last map symbol letter "b". Refer to Currey and Oviatt (1985), Oviatt and others (1992), and Oviatt (1997) for information on timing of the Bonneville lake cycle; also see table 1. Crittenden (1963) and Currey (1982) provided regional data on shoreline elevations, and for the highest beach ridge in section 15, T. 9 S., R. 1 E., of 5,125 feet (1,563 m) and 5,123 ± 3 feet (1,562 ± 1 m), respectively.

Qlgp / Qlgb **Lacustrine gravel and sand** (upper Pleistocene) – Moderately to well-sorted, moderately to well-rounded, clast-supported pebble to cobble gravel and lesser pebbly sand; thin to thick bedded; typically interbedded with or laterally gradational to sand and silt facies; gastropods common in sandy lenses; locally partly cemented with calcium carbonate; Qlgp deposited below the Provo shoreline; Qlgb deposited below Bonneville shoreline but above the Provo shoreline; forms beach ridges, terraces, bars, and spits; 0 to 50 feet (0-15 m) thick.

Qlsp / Qlsb **Lacustrine sand and silt** (upper Pleistocene) – Coarse- to fine-grained sand and silt with minor gravel; typically well sorted and laminated in thick beds; gastropods locally common; grades downslope from sandy nearshore deposits to finer grained offshore deposits; shorelines typically poorly developed on this facies; Qlsp deposited below the Provo shoreline; Qlsb deposited below the Bonneville shoreline but above the Provo shoreline; probably less than 30 feet (9 m) thick.

Qlmp **Lacustrine silt and clay** (upper Pleistocene) – Calcareous silt (marl) with minor clay and fine-grained sand; typically thick bedded; deposited below the Provo shoreline in large areas of Utah Valley and Goshen Valley; contact with distal parts of alluvial fans can be difficult to identify and is based on subtle geomorphic differences; thickness unknown.

Qllb **Lagoon-fill deposits** (upper Pleistocene) – Lacustrine silt and sand, with minor pebble gravel; deposited in lagoon behind beach-ridge gravel at Bonneville shoreline; probably less than 20 feet (<6 m) thick.

Colluvial Deposits

Qc **Colluvial deposits** (Holocene to upper Pleistocene?) – Slopewash deposits of clay- to boulder-size, locally derived sediment deposited on upland slopes; generally less than 20 feet (6 m) thick.

Human Disturbance

Qhf **Fill** (Historical) – Engineered fill along railroad rights-of-way and Interstate 15 in Utah Valley; local earth materials used to construct dams for stock and wildlife watering ponds and berms to divert drainages; several small watering-pond dams not mappable at 1:24,000 scale; thickness 0 to 30 feet (0-9 m).

Qhm **Mine-dump deposits and disturbed land** (Historical) – Waste rock and overburden from aggregate quarries and gravel pits including the Keigley Quarry, Condie Pit, City of Payson Pit, and other smaller pits; variable thickness.

Qhl **Landfill** (Historical) – Waste disposal area and cover materials associated with the City of Payson landfill located in NW1/4 section 14, T. 9 S., R. 1 E; variable thickness.

Mass-Movement Deposits

Qms **Landslide deposits** (Holocene to upper Pleistocene?) – Very poorly sorted, clay- to boulder-size, locally derived material deposited principally by rotational slides and slumps; characterized by slightly to moderately subdued hummocky topography; very locally developed in surficial and Pennsylvanian strata; thickness variable.

Qmt **Talus deposits** (Holocene to upper Pleistocene?) – Very poorly sorted, angular cobble- and boulder-size debris and finer-grained interstitial sediment deposited principally by rock fall on and at the base of steep slopes; locally grades downslope to colluvial deposits; generally less than 20 feet (<6 m) thick.

Mixed-Environment Deposits

Qac **Alluvial and colluvial deposits** (Holocene to upper Pleistocene?) – Poorly to moderately sorted, generally poorly stratified, clay- to boulder-size, locally derived sediment deposited in swales, small drainages, and the upper reaches of larger ephemeral streams by fluvial, slopewash, and soil creep processes; generally less than 20 feet (6 m) thick.

Qla **Lacustrine and alluvial deposits** (Holocene to upper Pleistocene?) – Moderately to well-sorted, fine-grained sand, silt, and clay; grades into silt and clay deposits of the Bonneville Lake cycle (Qlmp); mapped in Goshen Valley; includes areas of spring and marsh deposits (Qsm) and younger lacustrine deposits (Qlmy) difficult to separate at map scale; thickness unknown.

Qmtc **Talus and colluvium** (Holocene to Pleistocene?) – Very poorly sorted, angular to subangular cobbles and boulders and finer-grained interstitial sediment, deposited principally by rock fall on steep slopes that grade downslope into colluvial deposits; locally includes older colluvium; generally less than 20 feet (6 m) thick.

Stacked-Unit Deposits

Consist of a thin cover of deposits of the Bonneville lake cycle (first unit) overlying various surficial deposit or bedrock units (second unit). See overlying and underlying unit descriptions for details, except for Ql/QTaf, Qlsp/Tu, and Qlsp/Pdc. Queried bedrock units indicate uncertain correlation due to structural complications and limited exposures.

Qlgp/Qafo, Qlgb/Qafo **Lacustrine gravel and sand over older alluvial-fan deposits** (upper Pleistocene/upper to lower? Pleistocene) – Veneer of predominantly coarse-grained lacustrine deposits overlying older alluvial-fan deposits on West Mountain piedmont slopes; closely spaced shorelines common on lacustrine cover deposits; lacustrine deposit thickness probably less than 10 feet (3 m).

Ql/QTaf **Lacustrine deposits over oldest alluvial-fan deposits** (upper Pleistocene/lower Pleistocene? to Pliocene?) – Veneer of coarse- to fine-grained lacustrine deposits overlying high-level alluvial-fan deposits in two areas west of Goshen Gap. Alluvial-fan deposits contain predominantly quartzite and carbonate clasts, locally with volcanic clasts; clasts are poorly sorted, subangular to subrounded boulders, cobbles, and pebbles in a matrix of sand and silt (also see Elison, 1952); previously mapped as fanglomerate by Elison (1952) and White (1953), but later mapped as Provo-level gravel by Bissell (1963); up to about 60 feet (20 m) exposed, but total thickness unknown.

Qlsp/Tu **Lacustrine sand and silt over Tertiary strata** (upper Pleistocene/Pliocene? or Miocene?) – One exposure, in railroad cut on south side of hill near Payson Station, of up to about 3 feet (1 m) of sand and silt likely of the regressive (Provo) phase of Lake Bonneville overlying conglomerate. Conglomerate consists of pebbles, cobbles, and boulders (to 1 foot [0.3 m] in diameter) of subrounded quartzite, dark-gray limestone, and a few igneous clasts in a matrix of very pale orange to orange, calcareous sand and grit; conglomerate unit locally contains travertine and freshwater limestone; conglomerate has slight east dip; previously assigned to the Salt Lake Formation by Bissell (1948, 1963) and White (1953); age unknown, assumed to be post-Oligocene; exposed thickness of Tertiary strata about 20 feet (6 m), but total thickness is unknown.

Qlsp/Pdc **Lacustrine sand and silt over Diamond Creek Sandstone** (upper Pleistocene/Lower Permian) – One area near Payson Station of up to about 3 feet (1 m) of sand and silt likely of the regressive (Provo) phase of Lake Bonneville overlying the Diamond Creek Sandstone. Sandstone in small, unmapped exposure is light red to very pale orange, fine grained, friable to well indurated, and cross-bedded; bedding varies from thin and medium to indistinct; Diamond Creek Sandstone age from Baker and Williams (1940) and Morris and Lovering (1961); exposed sandstone thickness is approximately 150 to 200 feet (45-60 m) (White, 1953); regional thickness of Diamond Creek up to about 1000 feet (300 m) (Baker, 1947; Hintze, 1962).

Qlgb/Pk **Lacustrine gravel and sand over Kirkman Formation** (upper Pleistocene/Lower Permian) – Veneer of predominantly coarse-grained lacustrine deposits overlying Kirkman Formation in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Pfc **Lacustrine gravel and sand over Freeman Peak and Curry Peak Formations** (upper Pleistocene/Lower Permian) – Veneer of predominantly coarse-grained lacustrine deposits overlying undivided Freeman Peak and Curry Peak Formations in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Pfp? **Lacustrine gravel and sand over Freeman Peak Formation?** (upper Pleistocene/Lower Permian) – Veneer of predominantly coarse-grained lacustrine deposits overlying Freeman Peak Formation? in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Pcp **Lacustrine gravel and sand over Curry Peak Formation** (upper Pleistocene/Lower Permian) – Veneer of predominantly coarse-grained lacustrine deposits overlying Curry Peak Formation in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/IPobm **Lacustrine gravel and sand over Bingham Mine Formation of Oquirrh Group** (upper Pleistocene/Upper Pennsylvanian) – Veneer of predominantly coarse-grained lacustrine deposits overlying Bingham Mine Formation in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/IPobp **Lacustrine gravel and sand over Butterfield Peaks Formation of Oquirrh Group** (upper Pleistocene/Middle to Lower Pennsylvanian) – Veneer of predominantly coarse-grained lacustrine deposits overlying Butterfield Peaks Formation in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Md **Lacustrine gravel and sand over Deseret Limestone** (upper Pleistocene/Upper and Lower Mississippian) – Veneer of predominantly coarse-grained lacustrine deposits overlying Deseret Limestone in Goshen Hill, south of State Route 141; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Mg **Lacustrine gravel and sand over Gardison Limestone** (upper Pleistocene/Lower Mississippian) – Veneer of predominantly coarse-grained lacustrine deposits overlying bedrock unit in Goshen Hill; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/MDfp **Lacustrine gravel and sand over Fitchville Formation and Pinyon Peak Limestone** (upper Pleistocene/Lower Mississippian and Upper Devonian) – Veneer of predominantly coarse-grained lacustrine deposits overlying bedrock unit in Goshen Hill; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Cu **Lacustrine gravel and sand over undivided Cambrian strata** (upper Pleistocene/Upper to Lower Cambrian) – Veneer of predominantly coarse-grained lacustrine deposits overlying undivided Cambrian strata in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Qlgb/Pz **Lacustrine gravel and sand over undivided Paleozoic strata** (upper Pleistocene/Paleozoic) – Veneer of predominantly coarse-grained lacustrine deposits overlying undivided Paleozoic strata in West Mountain; surficial deposit thickness probably less than 20 feet (6 m).

Unconformity

TERTIARY-CRETACEOUS

TKs **Tertiary-Cretaceous strata** (Paleocene? to Upper Cretaceous?) – Moderate-reddish-orange mudstone, gray to light-brown conglomerate, and light-brown limestone; conglomerate contains subangular to subrounded pebbles, cobbles, and boulders of quartzite and limestone with small fragments of black chert; generally forms slopes with local conglomerate and limestone ledges; caps the upper part of West Mountain between Hill 6797 and West Mtn 2 triangulation station (Hill 6904); queried where uncertain designation in E1/2 section 33, T. 8 S., R. 1 W.; previously mapped as the North Horn Formation (White, 1953), and may correlate to part of North Horn Formation, Uinta Formation, unnamed sandstone and conglomerate unit, or Tibble Formation (Constenius and others, 2006); age unknown, but estimate based on mapping of similar synorogenic strata in region (Constenius and others, 2006), samples of mudstone and limestone were barren for palynomorphs; exposed thickness 0 to 200 feet (0-60 m); regionally this conglomeratic strata is up to 2500 feet (760 m) thick (Hintze, 1962; Constenius and others, 2006; Solomon and others, 2007).

TKsl **Limestone unit of Tertiary-Cretaceous strata** (Paleocene? to Upper Cretaceous?) – Light-brown limestone, weathering to white; mapped separately where thicker and better exposed; oncolitic and algal limestone, locally with sandy and pebbly lenses; medium bedded to indistinctly bedded; forms ledges and small cliffs and weathers to rounded boulders and cobbles; mapped by White (1953) as Flagstaff Limestone; age unknown; 0 to 40 feet (0-12 m) thick.

Major Unconformity

Terminology and subdivision of the Pennsylvanian Oquirrh Formation/Group and associated Permian strata varies by thrust plate and location within the Oquirrh basin (see for example, Welsh and James, 1961; Tooker and Roberts, 1970; Swenson, 1975; Morris and others, 1977; Welsh and Bissell, 1979; Jordan and Douglas, 1980; Hintze, 1988). Differing terminology is applied west and east of Salt Lake and Utah Valleys in probable different thrust sheets (figure 3). A comprehensive regional study has not been conducted. The terminology used herein follows that used in the Oquirrh Mountains (Bingham mining district), where the Oquirrh Group has formally been restricted to Pennsylvanian strata (Welsh and James, 1961; Tooker and Roberts, 1970); however, some Kennecott-Bingham Mine geologists informally included both the Permian (Freeman Peak and Curry Peak) and Pennsylvanian formations (Bingham Mine, Butterfield Peaks, and West Canyon Limestone) in the Oquirrh Group (see Hintze, 1988; Laes and others, 1997). The Pennsylvanian Oquirrh Group and overlying Permian formations (Curry Peak and Freeman Peak) are about 21,900 feet (6700 m) thick in the Oquirrh Mountains (Welsh and James, 1961; Tooker and Roberts, 1970; Swenson, 1975), and the Permian-Pennsylvanian Oquirrh Formation is about 26,000 feet (8000 m) thick near Mt. Timpanogos (Baker and Crittenden, 1961).

The majority of West Mountain is composed of Permian-Pennsylvanian strata previously mapped as the Oquirrh Formation (Permian-Pennsylvanian) and overlying Kirkman Limestone (Permian). Nolan (1950) conducted a stratigraphic

Table 1. Ages and elevations of major shorelines of Lake Bonneville and Utah Lake in the West Mountain quadrangle.

Lake Cycle and Phase	Shoreline (map symbol)	Age: radiocarbon years B.P.	Age: calendar years B.P.[1]	Elevation feet (meters)
Lake Bonneville				
Transgressive Phase	Stansbury	22,000-20,000[2]	24,400-23,200	Not exposed
	Bonneville (B) — flood	15,500-14,500[3]	18,000-16,800	5,120-5,130 (1,561-1,564)
Regressive Phase	Provo (P)	14,500-12,000[4]	16,800-13,500[5]	4,770-4,790 (1,454-1,460)
	Gilbert	11,000-10,000[6]	12,800-11,600	Not exposed
Utah Lake				
	Utah Lake highstand (U)	12,000-11,500[7]	-----	4,500 (1,372)

[1] Calendar-calibrated ages of most shorelines have not been published. Calendar-calibrated ages shown here, except for the age of the end of the Provo shoreline, are from D.R. Currey, University of Utah (written communication to Utah Geological Survey, 1996; cal yr B.P. = 1.16 ^{14}C yr B.P.).
[2] Oviatt and others (1990); Currey (written communication to Utah Geological Survey, 1996, assumed a maximum age for the Stansbury shoreline of 21,000 ^{14}C yr B.P., which is used in the conversion to calendar years).
[3] Oviatt and others (1992), Oviatt (1997).
[4] Godsey and others (2005) revised the timing of the occupation of the Provo shoreline and subsequent regression; Oviatt and others (1992) and Oviatt (1997) proposed a range from 14,500 to 14,000 ^{14}C yr B.P. Oviatt and Thompson (2002) summarized many recent changes in the interpretation of the Lake Bonneville radiocarbon chronology.
[5] Calendar-calibrated age of the end of the Provo shoreline estimated by interpolation from data in Godsey and others (2005), table 1, which used Stuiver and Reimer (1993) for calibration.
[6] Murchison (1989), figure 20.
[7] Estimated from data in Godsey and others (2005); Machette (1992) estimated the age of the regression of Lake Bonneville below the Utah Valley threshold at 13,000 ^{14}C yr B.P. from earlier data.

Table 2. Fossil identifications and ages from West Mountain quadrangle.

Sample No.	Map Unit	Rock Type	Latitude (N)	Longitude (W)	Fossil Type	Fauna	Preservation & Abrasion	Calcareous Algae Present	Age
W-20	Pk	Biosparite: Packstone	40°02'32.8"	111°49'34.8"	fusulinids	*Parafusulina, Schwagerina*	fair	yes	Leonardian early
W-21	Pk	Biomicrite: Wackestone	40°02'15.5"	111°49'35.8"	fusulinids	*Schwagerina*	fair	yes	Wolfcampian middle to late middle
W-30	Pk	Biosparite: Packstone	40°02'23.3"	111°49'38.4"	fusulinids	*Schwagerina, Pseudoschwagerina*	fair	none	Wolfcampian middle
W-26	Pfc	Biomicrite: Wackestone	40°02'05.0"	111°49'46.7"	fusulinids	*Schwagerina*	fair	none	Wolfcampian middle
W-19	Pfc	Biomicrite: Packstone	40°02'32.5"	111°50'01.5"	fusulinids	*Schwagerina* cf. *S. neolata, Pseudoschwagerina ?*	good	yes	Wolfcampian middle
W-29	Pfc	Biomicrite: Wackestone-Packstone	40°02'10.1"	111°49'55.1"	fusulinids	*Schwagerina*	fair	none	Wolfcampian late early
W-2	Pcp	Biomicrite: Wackestone	40°04'51.6"	111°48'49.9"	fusulinids	*Triticites, T.* cf. *creekensis*	fair	none	Wolfcampian early
W-9	Pcp	Sandstone	40°03'27.7"	111°48' 58.2"	fusulinids	*Triticites, Schwagerina*	fair/poor	none	Wolfcampian early
W-13	Pcp	Biomicrite: Wackestone-Packstone	40°05'22.8"	111°48'42.2"	fusulinids	*Triticites, T.* cf. *creekensis, Dunbarinella* sp. D1	fair	traces	Wolfcampian early
W-13	Pcp	Skeletal packstone	40°05'05.0"	111°48'44.2"	conodonts	*Streptognathodus* aff. *cristellaris*	-	-	earliest Permian
W-15	Pcp	Biomicrite: Wackestone-Packstone	40°03'09.5"	111°49'55.5"	fusulinids	*Triticites* cf. *T. cellamagnus*	fair	yes	Wolfcampian early
W-23	Pcp	Biomicrite: Packstone	40°02'07.3"	111°50'02.3"	fusulinids	*Schwagerina*	fair	none	Wolfcampian early
W-24	Pcp	Biosparite: Packstone	40°05'07.5"	111°48'25.8"	fusulinids	*Schwagerina*	fair/poor	yes	Wolfcampian early
W-25	Pcp	Biomicrite: Wackestone	40°04'50.6"	111°48'37.9"	fusulinids	*Schwagerina*	poor	none	Wolfcampian early
W-10	IPoml	Biomicrite: Wackestone	40°03'35.8"	111°49'18.9"	fusulinids	*Triticites cullomensis*	fair	none	Virgilian early
W-16	IPobm	Crinoid/fusulinid packstone	40°03'11.3"	111°49'54.1"	condonts/ fusulinids	*Streptognathodus pawhuskaensis, Triticites* sp.	-	-	Virgilian (Gzhelian)
W-6	IPobl	Limestone	40°05'06.9"	111°50'02.7"	conodonts	*Idiognathodus* sp. (juvenile)	-	-	Desmoinesian (Moscovian)
W-5	IPobp	Limestone	40°05'06.9"	111°50'02.7"	conodonts	*Idiognathodus* sp.	-	-	Desmoinesian (Moscovian)
W-4	IPobp	Limestone	40°05'11.8"	111°50'18.8"	conodonts	*Idiognathodus* sp., *Neognathodus* sp.	-	-	Desmoinesian (Moscovian)
W-7	IPobp	Limestone	40°04'59.5"	111°50'37.8"	conodonts	*Idiognathodus* sp. (juvenile)	-	-	Desmoinesian (Moscovian)

Note: Location data based on NAD27.
Fusulinids identified by A.J. Wells, independent - Exxon retired.
Conodonts identified by S.R. Ritter, Brigham Young University.

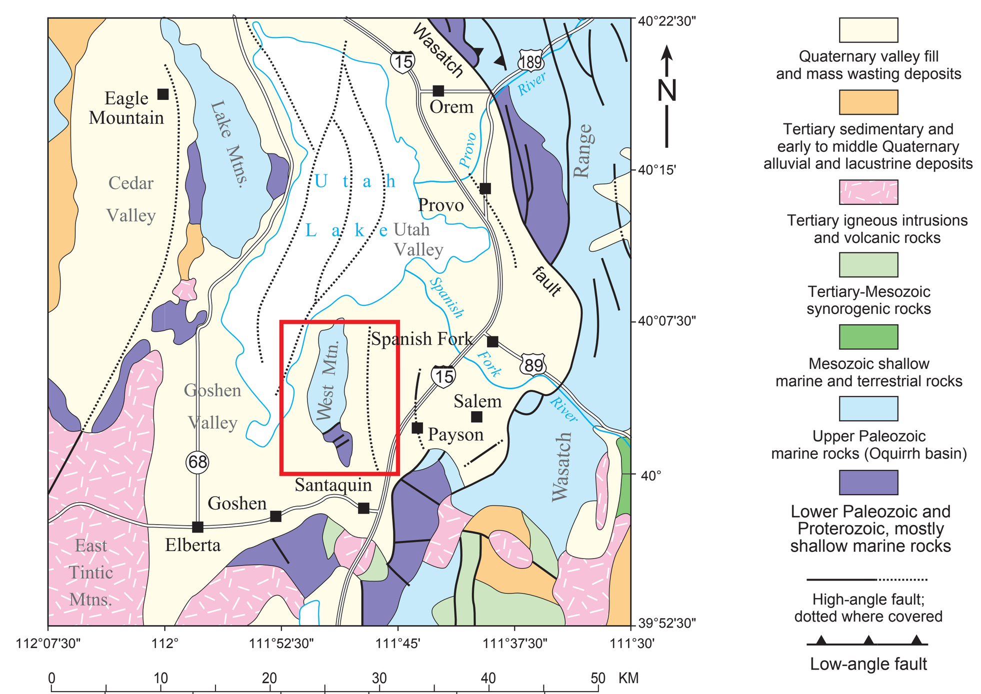


Figure 1. Index map showing the primary geographic features and generalized geology in the vicinity of the West Mountain quadrangle (red rectangle).

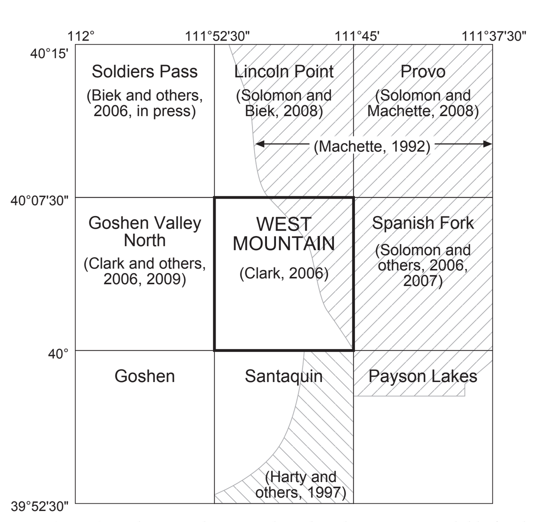


Figure 2. Index map showing selected geologic maps available for the West Mountain and adjacent 7.5' quadrangles.

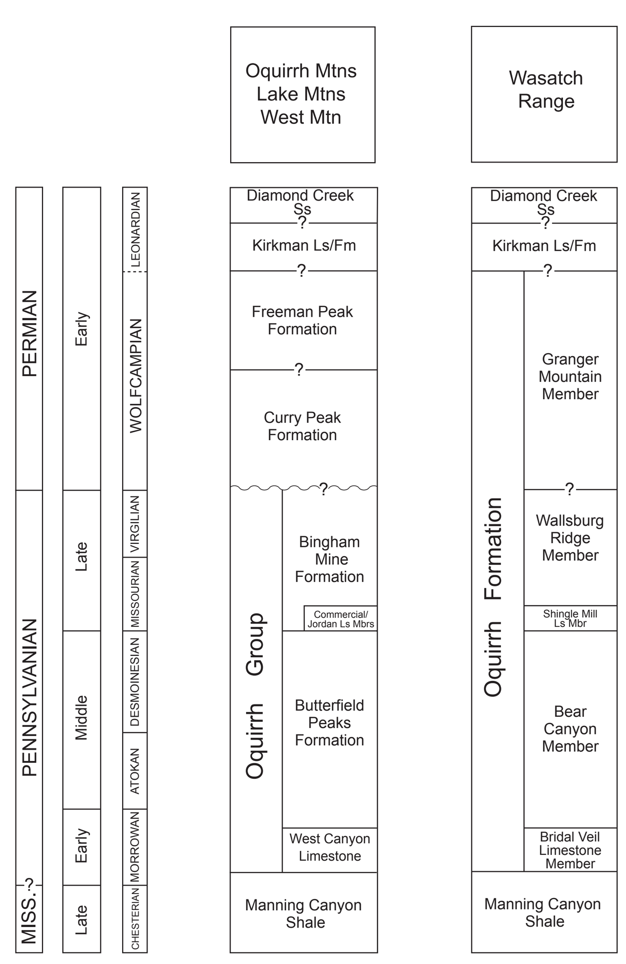
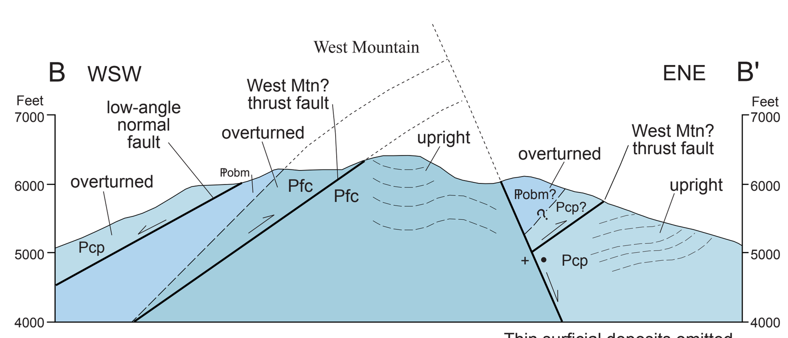


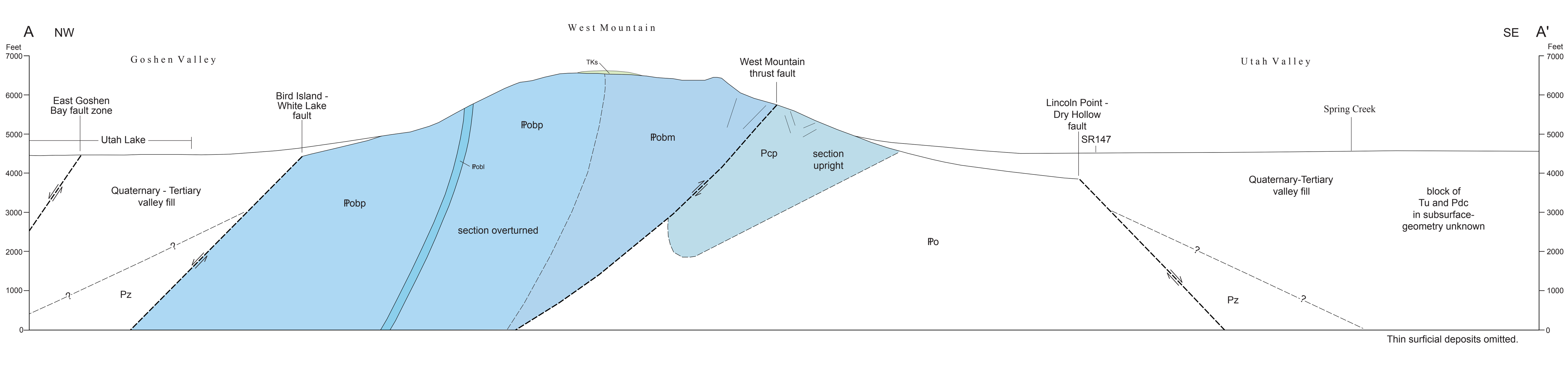
Figure 3. Comparison of stratigraphic nomenclature for Oquirrh Formation/Group and associated strata of the Salt Lake and Utah Valley area.



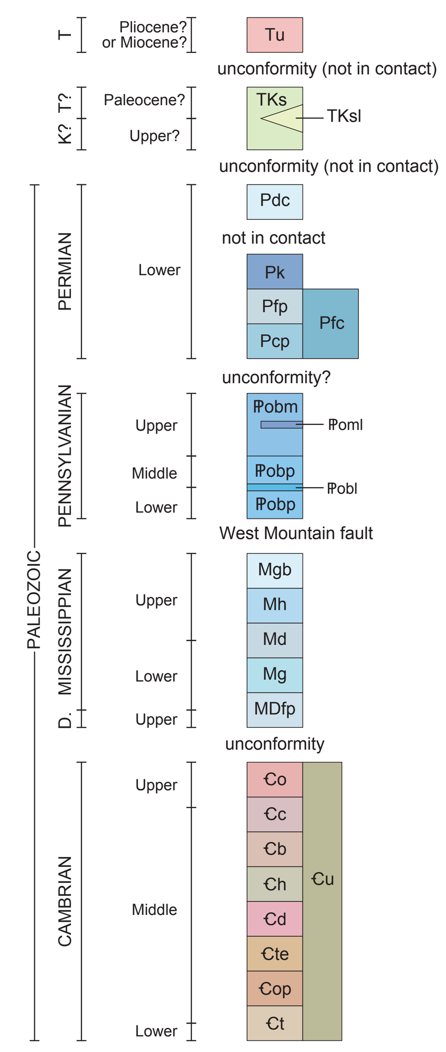
Close-up view of cherty limestone of the Butterfield Peaks Formation of the Oquirrh Group (IPobl). Note distinctive spherical black chert nodules.

View northward along crest of West Mountain with radio towers and BYU astronomical observatory. Radio towers lie on overturned strata of upper part of Butterfield Peaks Formation, Oquirrh Group (IPobp). Lower flat with road (middle foreground) contains exposures of Tertiary-Cretaceous strata (TKs).

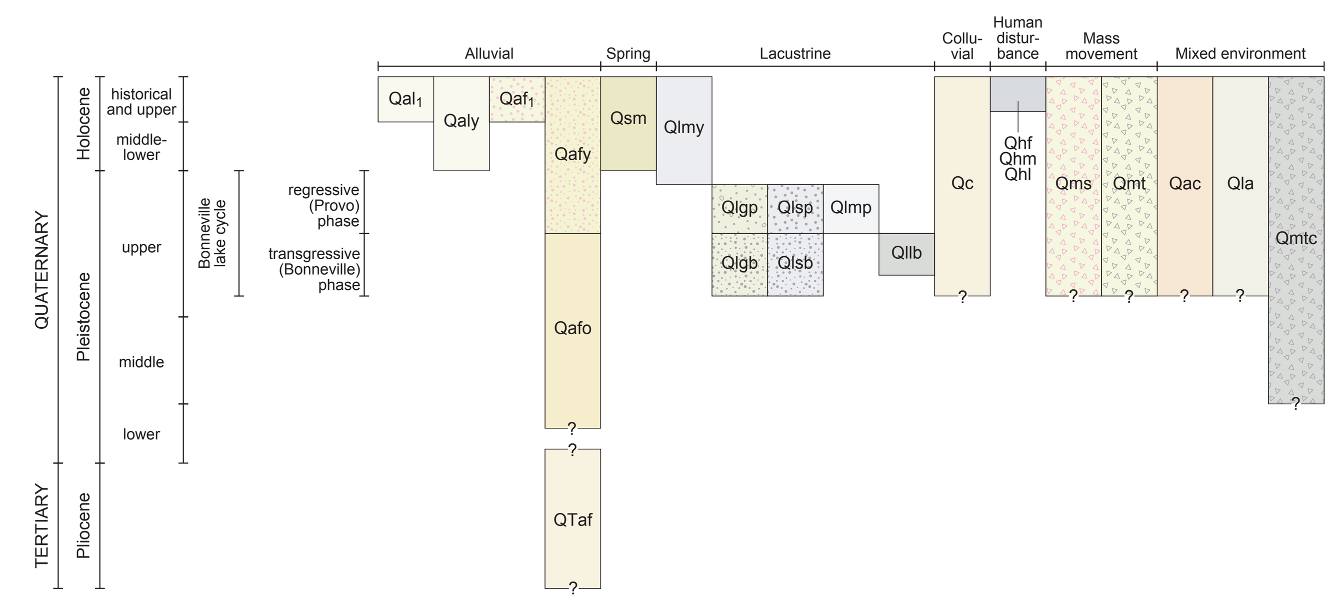
View southward from radio tower access road along overturned (reclined) anticlinal fold axis in the north-central part of West Mountain.



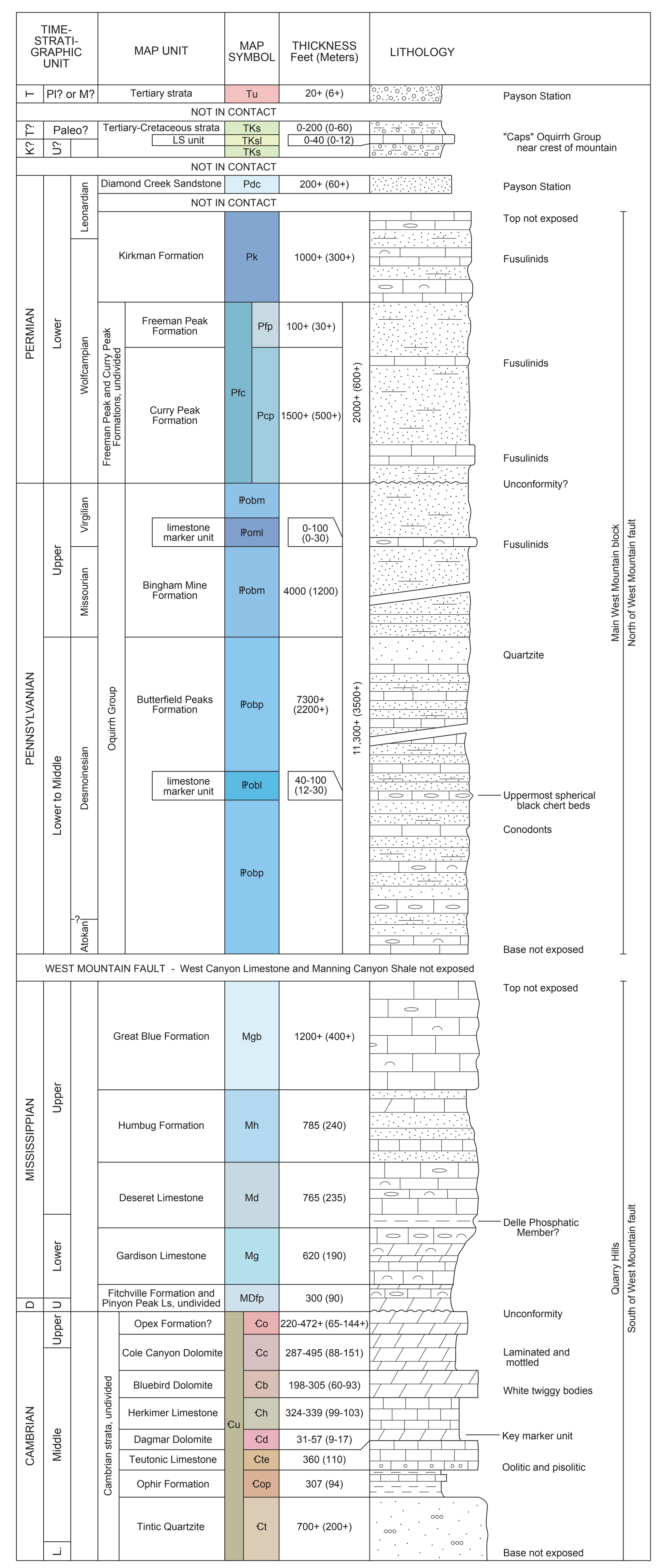
CORRELATION OF BEDROCK UNITS



CORRELATION OF SURFICIAL DEPOSITS



LITHOLOGIC COLUMN



MEASURED SECTION

by John Welsh
Utah County, Utah
South end of West Mountain
West Mountain Quadrangle
Section 22, T. 9 S., R. 1 E.