DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

PREPARED IN COOPERATION WITH THE
U.S. ATOMIC ENERGY COMMISSION

TEI-860
OPEN FILE

DESCRIPTION OF MAP UNITS

Qa ALLUVIUM (0-200 ft)--unsorted interbedded stream sand and gravel of local origin.

Qc COLLUVIUM--slopewash debris and talus.

Qac ALLUVIUM AND COLLUVIUM (0-100 ft)--largely unsorted unconsolidated deposits of angular to well-rounded boulders, cobbles, pebbles, and sand of local origin.

Qls LANDSLIDE DEBRIS--chiefly rock slides consisting of large consolidated rock masses that moved downslope as single blocks with little rotation.

Qao OLDER ALLUVIUM (0-100 ft)--chiefly unconsolidated fan gravels on flanks of highlands. Subangular to well-rounded boulders to pebbles of welded tuff and rhyolite in light-tan tuffaceous matrix of silt- to medium sand-size particles.

TIMBER MOUNTAIN TUFF:

Tma AMMONIA TANKS MEMBER (0-150 ft)--simple cooling unit of ash-flow tuff. Grades downward from pale-brownish-orange devitrified moderately welded top, with brown vapor-phase alteration of pumice, to less densely welded devitrified pale-gray ash-flow tuff with partly vitric pumice. Base is pale-orange-pink nonwelded vitric tuff locally underlain by a few feet of bedded vitric ash-fall tuff. Phenocrysts total 10 to 15 percent of rock (sanidine > quartz >> plagioclase > sparse biotite and sphene).

Tmr RAINIER MESA MEMBER (110-450 ft)--compound cooling unit; consists of upper quartz latitic and lower rhyolitic parts. Upper part: devitrified gray to brown quartz latitic tuff with persistent medial vitrophyre zone; vapor-phase alteration of pumice near top. Phenocrysts total 10 to 30 percent of rock (sanidine > plagioclase > quartz ≥ common biotite). Present only in southeast part of quadrangle. Lower part: purplish-brown densely welded ash-flow tuff grades downward into pale-orange nonwelded tuff at base; medial vitrophyre present locally. Phenocrysts total 10 to 20 percent of rock (sanidine ≈ quartz > plagioclase > sparse biotite).

Tl OLIVINE LATITE OF SOUTH KAWICH VALLEY (0-250 ft)--fine-grained dark-gray olivine latite lava.

Tc TUFFACEOUS CONGLOMERATE (0-225 ft)--very thick bedded, yellowish- to pinkish-gray, zeolitic; common to abundant subangular to rounded sand- to boulder-size fragments of dark rhyolitic lava; pale-yellow pumice weathers to vugs; matrix of fine pumice, rhyolite, and feldspar; may be of lahar or mudflow origin; in northwest quarter of quadrangle.

PAINTBRUSH TUFF:

Tpb BEDDED TUFF (100-700+ ft)--thin- to thick-bedded, locally reworked, pale-gray and brown, ash to lapilli; sparse to abundant crystals of quartz, feldspar, and biotite; locally zeolitized and silicified in lower part. Where queried, lower part is coarse grained, zeolitic, and may include older bedded tuffs.

Tpw STOCKADE WASH(?) MEMBER (0-350 ft)--simple cooling unit of slightly welded ash-flow tuff; pale gray to gray brown where vitric, pale grayish yellow where zeolitic. Upper part locally contains abundant pebbles to small boulders of dark rhyolite. Sparse phenocrysts of quartz, sanidine, sodic plagioclase, and biotite.

Trs RHYOLITE OF SAUCER MESA (0-200 ft)--pale-green to bluish-gray, locally pink, devitrified, thinly laminated, fine-grained. Rare phenocrysts throughout; common to abundant spherulites; vesicles and lithophysae locally. Local massive vitrophyric base.

Tar ASH-FALL AND REWORKED TUFF (0-400+ ft)--mostly coarse-grained, laminated to thick-bedded; greenish yellow and grayish orange where zeolitic, bluish gray where vitric, conspicuous fragments of black glass, rare phenocrysts of feldspar. Top 3 to 20 feet locally fused beneath overlying welded tuff or lava.

Ttb ASH-FLOW TUFF OF BASKET VALLEY (0-300 ft)--dark-brown and black, devitrified, densely welded; abundant to common alkali feldspar phenocrysts; black vitrophyric base overlain by devitrified tuff containing fiamme that become increasingly elongate toward top of unit. In Kawich Canyon yellowish- and reddish-brown to greenish-gray devitrified pumiceous partly welded base contains abundant welded tuff and rhyolite blocks and lapilli from older flows.

Trb RHYOLITE OF BASKET VALLEY (0-400 ft)--brownish-red, pale-brown, and pale-gray devitrified rhyolitic lava flows, and partly to densely welded ash-flow tuffs; abundant to common clear alkali feldspar phenocrysts; locally flow laminated, spherulitic. Base of individual flows commonly contains fragments of older flows. Ash-flow tuff locally shows elongate reddish-brown fiamme. West of Kawich Canyon, unit locally includes flows of tuff of Basket Valley (Ttb) lithology.

BELTED RANGE TUFF:

Tbg GROUSE CANYON MEMBER (0-250 ft)--compound cooling unit of densely welded comenditic ash-flow tuff; light-grayish-green to pale-brownish-gray, devitrified, fine-grained, laminated; rare to sparse sodic sanidine throughout; locally spherulitic, lithophysal. Near top, flattened linear gas cavities contain vapor-phase crystals of quartz and amphibole.

Tbts TUB SPRING MEMBER (0-160 ft)--compound cooling unit of densely welded to poorly welded ash-flow tuff. Upper unit (0-95 ft): pale-gray poorly welded devitrified ash-flow tuff; abundant quartz and sanidine phenocrysts; medium-gray pumice fragments weather to vugs in brown vapor-phase zone. Lower unit (0-65 ft): pale-yellow to pale-orange-brown nonwelded zeolitic ash-flow tuff; massive cliff-former; quartz and feldspar phenocrysts common at top but decrease downward.

Ta ASH-FLOW, ASH-FALL, AND REWORKED TUFFS (100-800+ ft)--gray, yellow, brown, and pink, nonwelded; locally reworked; mostly zeolitic, locally silicified; generally sparse quartz and feldspar crystals throughout; dark rhyolite fragments locally common.

Trq RHYOLITE OF QUARTET DOME (0-800+ ft)--light- to brownish-gray, locally altered to grayish-red, generally devitrified finely vesicular flows; 20 to 35 percent phenocrysts: chatoyant sanidine (65 percent), quartz (25 percent), clinopyroxene, olivine, and magnetite (10 percent). Exterior parts are coarsely flow layered and vesicular; black to greenish-black vitrophyre locally at contact; interiors of thick flows generally dense, jointed. Flow lines (section B-B') inferred from surface dips.

Trk RHYOLITE OF KAWICH VALLEY (0-350+ ft)--light- to medium-gray sodic rhyolite, locally reddish- and yellowish-gray where altered; generally devitrified and flow layered; common to sparse phenocrysts of sodic sanidine and quartz, rare mafic minerals; spherulitic devitrification and zeolitic alteration common.

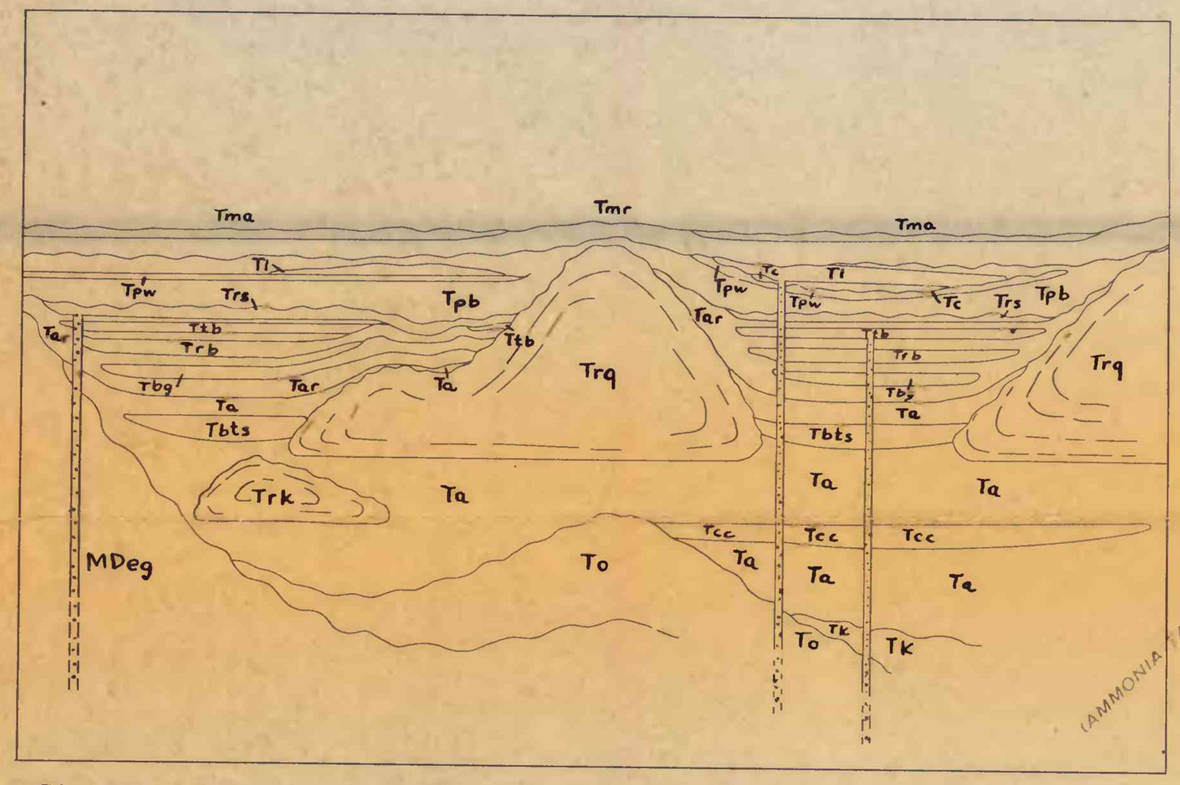
Tcc ASH-FLOW TUFFS OF CACHE CAVE DRAW (0-400 ft)--multiple-flow simple cooling unit of grayish-orange partly welded devitrified ash-flow tuffs that grade downward into yellow zeolitic nonwelded tuffs; relict pumice texture distinctive throughout; few phenocrysts, sparse rhyolite fragments.

Tk ASH-FLOW TUFF OF KAWICH VALLEY (0-100+ ft)--reddish-brown to pale-reddish-gray, densely to poorly welded; devitrified; common alkali feldspar phenocrysts; lower densely welded part is darker and has more phenocrysts than upper 25 feet.

To RHYOLITE OF OCHER RIDGE (700+ ft)--pink to red, devitrified, silicified, fine-grained, vesicular; 10 percent phenocrysts: alkali feldspar (60 percent) and quartz (40 percent). Locally spherulitic, flow banded, brecciated. Cavernous weathering, conspicuous hematitic alteration upper part.

ELEANA FORMATION:

MDeg UNIT G (1,000+ ft)--gray and brown quartzite (80 percent); conglomerate (15 percent), locally graded; and gray and red argillite (5 percent); quartzite and conglomerate commonly cross-bedded.



Diagrammatic cross section of rock units showing stratigraphic relations.
No vertical or horizontal scale intended.

Base by U.S. Geological Survey, 1962

Geology mapped in 1962-1963

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION, 1962

QUADRANGLE LOCATION

EXPLANATION

QUATERNARY

Pleistocene and Recent

- **Qa** Alluvium
- **Qc** Colluvium
- **Qac** Alluvium and colluvium
- **Qls** Landslide debris
- **Qao** Older alluvium

UNCONFORMITY

TERTIARY

Pliocene — Timber Mountain Tuff

- **Tma** Ammonia Tanks Member
- **Tmr** Rainier Mesa Member

UNCONFORMITY

Miocene(?) and Pliocene — Paintbrush Tuff

- **Tpb** Bedded tuff
- **Tl** Olivine latite of south Kawich Valley
  Feeder dike is stippled
- **Tc** Tuffaceous conglomerate

LOCAL UNCONFORMITY

- **Tpw** Stockade Wash(?) Member

UNCONFORMITY

Miocene and Pliocene(?)

- **Trs** Rhyolite of Saucer Mesa
  Feeder dike is stippled
- **Ttb** Ash-flow tuff of Basket Valley
  Feeder dike is stippled
- **Trb** Rhyolite of Basket Valley
- **Tar** Ash-fall and reworked tuff

Belted Range Tuff

- **Tbg** Grouse Canyon Member
- **Tbts** Tub Spring Member

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Miocene(?)

- **Trk** Rhyolite of Kawich Valley
  Age relations with rhyolite of Quartet Dome and ash-flow tuffs of Cache Cave Draw unknown
- **Trq** Rhyolite of Quartet Dome
- **Tcc** Ash-flow tuffs of Cache Cave Draw
- **Ta** Ash-flow, ash-fall, and reworked tuffs

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- **Tk** Ash-flow tuff of Kawich Valley

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- **To** Rhyolite of Ocher Ridge

UNCONFORMITY

DEVONIAN AND MISSISSIPPIAN — CARBONIFEROUS

- **MDeg** Unit G of Eleana Formation

Contact
Dashed where approximately located; short dashed where inferred or gradational; dotted where concealed

Fault, showing dip
Dashed where approximately located or probable; dotted where concealed; queried where uncertain. Bar and ball on downthrown side

Anticline — Syncline
Folds
Showing trace of axial plane and direction of plunge of axis, where known. Dashed where approximately located

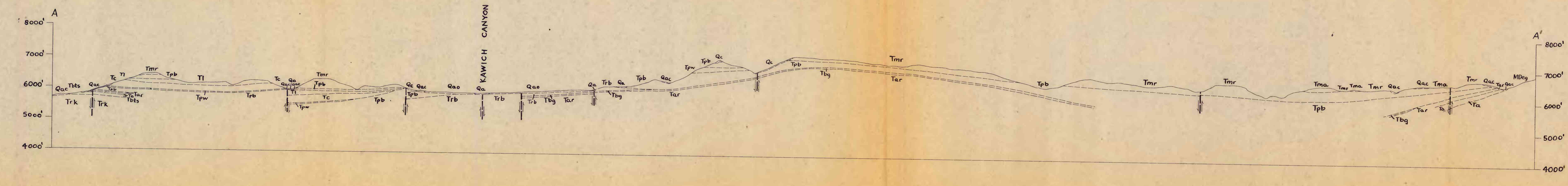
Inclined — Horizontal
Strike and dip of beds

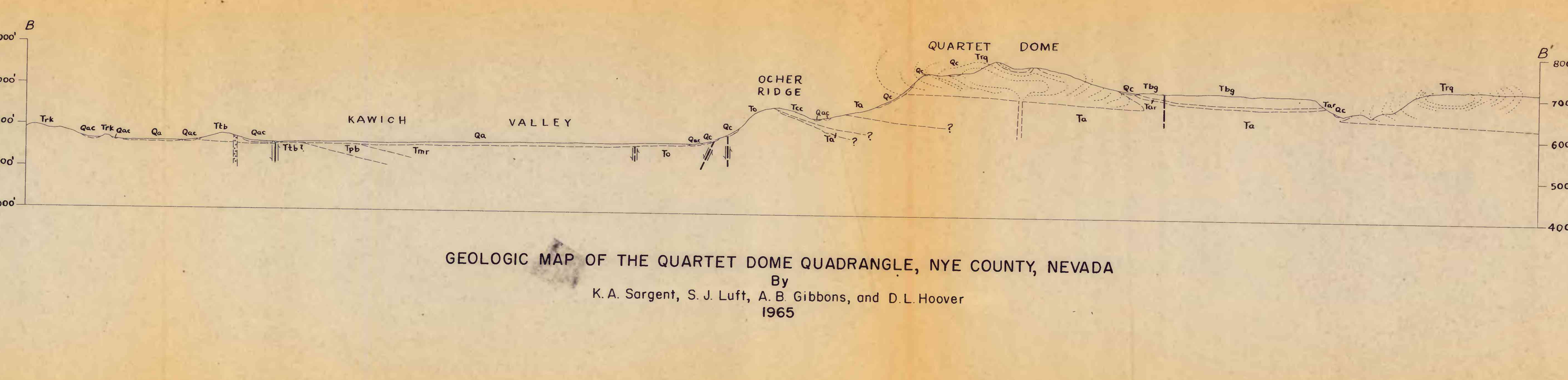
Inclined — Horizontal — Vertical
Strike and dip of flow layering

Inclined — Horizontal
Bearing of lineation in plane of flow layering

Inclined — Vertical
Strike and dip of joints

Flow lines in rhyolite of Quartet Dome
Shown only on section





This report and/or map is preliminary and has not been edited or reviewed for conformity with Geological Survey standards or nomenclature.

GEOLOGIC MAP OF THE QUARTET DOME QUADRANGLE, NYE COUNTY, NEVADA

By
K.A. Sargent, S.J. Luft, A.B. Gibbons, and D.L. Hoover

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