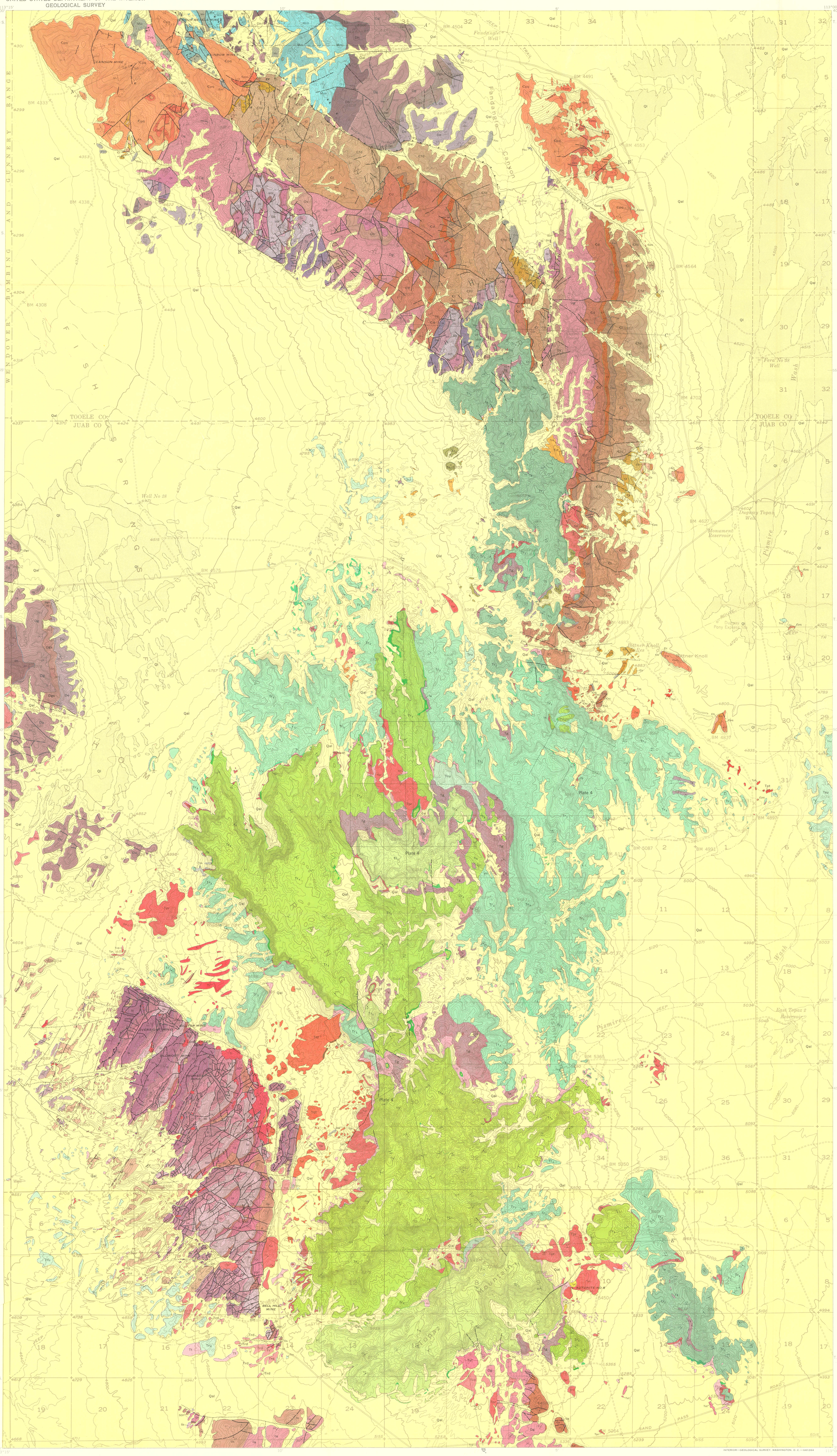

Base map by Topographic Division
U. S. Geological Survey, 1953

APPROXIMATE MEAN DECLINATION, 1957

GEOLOGIC MAP OF THE THOMAS AND DUGWAY RANGES, JUAB AND TOOELE COUNTIES, UTAH

SCALE 1:31 680

1 ½ 0 1 MILE

1 0 1 2 KILOMETERS

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—G61264

Geology by M. H. Staatz and W. J. Carr, 1954–1957

EXPLANATION

QUATERNARY

Pleistocene and Recent

Qal — Alluvium and Lake Bonneville beds
Gravel, sand, and silt, including some alluvial fans and slopewash; below 5200 feet mainly sand and gravel deposited in Lake Bonneville

Ql — Marl of Lake Bonneville beds
White to cream slightly indurated marl. May include some Qal

UNCONFORMITY

TERTIARY

YOUNGER VOLCANIC GROUP

Pliocene(?)

Tg — Green glass
Gray to green rhyolitic glass, commonly perlitic, spherulitic, and porphyritic. Grades into rhyolitic volcanic rocks. In some places it cuts across flows and pyroclastic layers, but in other places it forms sheets conformable with them

Tr₅, Tr₄, Tr₃, Tr₂, Tr₁, Tru — Rhyolite
Lava flows; base of each flow commonly consists of obsidian layer (dark green) which is overlain by a thin layer of reddish spherulitic rhyolite that grades upward into a thick layer of gray aphanitic rhyolite with many lithophysae. Includes a small amount of flow breccia.
Tr_1, Tr_2, Tr_3, Tr_4, Tr_5, and Tru are of identical composition and represent lava belonging to the various major flow subgroups, Tr_1 being the oldest and Tr_5 the youngest. Tru, rhyolite, undifferentiated; subsidiary flows and flows whose position in the subgroups is unknown

Tb — Volcanic breccia
Fragmental rock consisting of angular blocks in a matrix of dense ash. The blocks are mostly of volcanic rocks, chiefly glass, but locally include a few pieces of sedimentary rocks

Tt — Vitric tuff
Dominantly white, but locally tan, green, gray, or pink, compact to friable tuff, layers of which contain numerous small rock fragments, chiefly white pumice

UNCONFORMITY

Tss — Sandstone
Includes three small sandstone units of different ages: 1, pyroxene-plagioclase sandstone in the Black Rock Hills; 2, quartz-sanidine sandstone near the Good Will mine; and 3, tuffaceous calcareous sandstone about a mile north of Wildhorse Spring

OLDER VOLCANIC GROUP

Miocene(?) — Age relations of these rocks not well established

Ti — Intrusive breccia
Heterogeneous large jumbled blocks and fine material in a reddish clayey matrix. Blocks are chiefly dolomite, but in places include fragments of porphyritic rhyolite, rhyodacite, limestone, and quartzite

Trt — Red vitric tuff, conglomerate, and sandstone
Dense brick-red flaggy fine-grained vesicular tuff, grading eastward into dark-red sandstone and conglomerate

Tbt — Black glass welded tuff
Dark-brown to black glassy porphyritic rock enclosing elongate fragments of pumice

Tpr — Porphyritic rhyolite
Gray to light-brown rhyolite containing numerous phenocrysts of sanidine, quartz, and plagioclase

Tvt — Vitric tuff
Tan to green dense aphanitic tuff consisting of small rock fragments, mostly glass, in an ashy matrix

Tqt — Quartz-sanidine crystal tuff
White to yellowish-brown and grayish-red compact tuff, locally welded, containing numerous crystals of quartz and sanidine, a little biotite, and a few rock fragments, in a dense ashy matrix

Tst — Sanidine crystal tuff
Light-gray to dark-brown welded tuff with numerous broken crystals, chiefly sanidine, and sparse fragments of tuff in a dense ashy matrix

Tpt — Plagioclase crystal tuff
Greenish-gray to purple massive to slabby rock containing numerous plagioclase crystals and a little biotite in a dense ashy matrix

Trb — Rhyodacite breccia and associated tuffs
Brown to greenish-brown rock consisting of angular pieces of rhyodacite in a dense ashy matrix; interbedded in places with lenses of tan to gray fine-grained tuff

Trd — Rhyodacite and dark labradorite-rhyodacite
Rhyodacite is dark brown with numerous phenocrysts of plagioclase and a few of pyroxene; dark labradorite-rhyodacite is dark brown with phenocrysts of pyroxene

UNCONFORMITY

MISSISSIPPIAN (CARBONIFEROUS)

Upper Mississippian

Mo — Ochre Mountain limestone
Medium-gray limestone with some interbeds of dark-gray dolomite; 700+ feet thick

Mw — Woodman formation
Upper half is a thin-bedded light-gray silty limestone; lower half is thin-bedded reddish-brown calcareous siltstone; 785 feet thick

Lower Mississippian

Mm — Madison limestone equivalent
Medium-gray limestone with some chert in upper part and a few beds containing quartz sand in lower part in some places; 315 feet thick

DEVONIAN

Upper Devonian

Dh — Hanauer formation
Light- to dark-gray dolomite with light-gray limestone at the top, interbedded with brown-weathering gray to white dolomitic quartzite; 430–720 feet thick

Dg — Gilson dolomite
Light- to dark-gray dolomite with some beds containing numerous Amphipora; *915–1310 feet thick*

Dgs — Goshoot formation
Light- to dark-gray dolomite interbedded with brown-weathering dolomitic quartzite; 290 feet thick

Middle Devonian

De — Engelmann formation
Massive sandy-textured light-gray to black dolomite with some interbeds of light-gray to black limestone in lower half; 2750+ feet thick

Lower Devonian

Ds — Sevy dolomite
Fine-grained thin- to medium-bedded gray laminated dolomite; 1120 feet thick

Du — Sedimentary rocks undivided

Pzu — Paleozoic sedimentary rocks undifferentiated

SILURIAN

Middle Silurian

St — Thursday dolomite
Thick-bedded light-gray sandy-textured medium-grained dolomite with local pink chert; 330 feet thick

Sl — Lost Sheep dolomite
Upper part, gray dolomite with numerous small parallel bands of gray or pink chert; middle and lower parts, light-gray sandy-textured dolomite with some blue-gray mottled dolomite; 215–270 feet thick

Sh — Harrisite dolomite
Massive dark-gray sandy-textured dolomite with numerous poorly preserved Halysites; *110–175 feet thick*

Sb — Bell Hill dolomite
Upper part, light-gray fine-grained dolomite. Lower part, massive dark-gray sandy-textured dolomite. In the Dugway Range, middle part is light- and dark-gray dolomite interbedded; 340–430 feet thick

ORDOVICIAN

Upper Ordovician

SOf — Floride dolomite
Thin-bedded fine-grained smooth-weathering gray dolomite and calcareous dolomite; 100–135 feet thick

Of — Fish Haven dolomite
Upper third, massive black mottled dolomite; lower two-thirds, slope-forming, thin- to medium-bedded smooth-weathering gray dolomite; 225–310 feet thick

Middle Ordovician

Os — Swan Peak formation
Upper part, thick-bedded white vitreous quartzite; lower part, brownish-green shale interbedded with a few thin beds of red quartzite, limestone, and a little dolomite; 440–840 feet thick

Lower Ordovician

Og — Garden City formation
Upper one-quarter, gray thin-bedded lumpy limestone, and two- to pink-weathering medium-bedded limestone with a few beds of green shale; lower three-quarters, gray thin-bedded limestone with numerous thin beds of intraformational conglomerate; 1725 feet thick

CAMBRIAN

Upper Cambrian

Cd — Dugway Ridge dolomite
Light- to dark-gray thick-bedded sandy-textured dolomite, which contains, in the eastern Dugway Range, a few beds of gray limestone near the top; 885 feet thick

Cf — Fera limestone
Upper one-quarter, thin-bedded gray limestone with silty partings; lower three-quarters, very light gray to pink locally mottled limestone with minor dolomite; 290–400 feet thick

Csc — Straight Canyon formation
Medium-gray thin- to medium-bedded limestone with massive gray medium-grained dolomite common, especially in upper part; 380–390 feet thick

Cl — Lamb dolomite
Upper one-quarter, reddish-weathering thin-bedded gray limestone with thin-bedded red-brown calcareous quartzite at top; lower three-quarters, massive gray dolomite with zone of Girvanella *at base; 865–1010 feet thick*

Middle Cambrian

Cfd — Fandangle limestone
Upper one-third, blue-gray thin- to medium-bedded limestone interbedded with white-weathering light-gray laminated limestone; lower two-thirds, blue-gray medium-bedded to massive limestone; 1670 feet thick

Ct — Trailer limestone
Upper two-thirds, dark-blue-gray thin-bedded limestone; lower one-third, dark-blue-gray massive limestone; 385 feet thick

Cs — Shadscale formation
Upper three-quarters, blue-gray fine-grained limestone interbedded with grayish-green shale; lower one-quarter, brown-weathering grayish-green micaceous siltstone with orange-brown-weathering cream-colored dolomite at the base; 520 feet thick

Lower Cambrian

Cb — Busby quartzite
Brown-weathering greenish-gray quartzite overlain by a dark-brown-weathering green micaceous siltstone; 160 feet thick

Cc — Cabin shale
Brown-weathering green flaggy micaceous siltstone interbedded with brown-weathering white vitreous quartzite and minor greenish-brown shale; 135–145 feet thick

Cpq, Cpu, Cps, Cpqs — Prospect Mountain quartzite
Cpq, *white, tan, or purple resistant quartzite with some quartz-pebble conglomerate lenses.*
Cps, *upper one-quarter, dark-red sandy micaceous shale; lower three-quarters, olive-green to green shale.*
Cpqs, *quartzite interbedded with greenish micaceous shale and shaly quartzite*

Silicified or dolomitized Paleozoic sedimentary rocks

Contact
Dashed where approximately located

Fault, showing dip
Dashed where approximately located; dotted where concealed

Thrust fault, showing dip
Dashed where approximately located; dotted where concealed. Saw teeth on side of upper plate

Syncline
Showing trace of axial plane

Strike and dip of beds — Strike and dip of flow structure

Shaft — Portal of adit — Prospect