1210 0053

(48) Item 53

CONTACT MINING DISTRICT

Location. The Contact mining district is around the town of Contact in northeastern Elko County. Most of mines and prospects, including all the reported occurrences of molybdenum, are west and southwest of the town in T. 45 N., Rs. 14 & 15 E. The town of Contact is on U. S. Highway 93 and the Union Pacific Railroad.

History and Production. The mineral deposits in the district were discovered about 1870. Approximately half a million dollars worth of ore have been produced, mostly from 1913 through 1930. The values were mainly copper with some silver, lead, and gold.

Previous Work. Schrader (1912 and 1935) described the geology of the district and individual mines in some detail.

The Rocks. In the district, carboniferous limestone, quartzite, and shale are intruded by a granodiorite stock 6 to 7 miles wide north-south and about 18 miles long east-west. Apophyses of the granodiorite extend out from the stock into the surrounding rock. Alaskite dikes cut the granodiorite and sedimentary rocks, and probably represent a late phase of the igneous activity that included the intrusion of the granodiorite. Tertiary (?) andesite dikes cut the alaskite dikes and older rocks. Tertiary volcanic and sedimentary rocks locally cover the other rocks.

The granodiorite is speckled gray, has a hypidiomorphic texture, and consists of approximately 55 percent zoned oligoclase-andesine, 20 percent interstital quartz, 10 percent perthitic orthoclase, 15 percent biotite, and some apatite and titanite.

The alaskite dikes are pale pink to light gray, prophyritic, are commonly less than 5 feet wide, but up to 5 miles long, and consist of equal amounts of orthoclase and oligoclase, less than 10 percent quartz, less than 5 percent biotite and hornblende, and some titanite, apatite, zircon and magnetite.

Structures. The Carboniferous sedimentary rocks have been domed along an axis trenching due east and having the granodiorite stock at its center, the doming apparently resulting from the intrusion of the granodiorite.

The alaskite dikes have been intruded along a conjugate fracture system with one set of fractures striking N. 30°-45° E., and the other set striking N. 45°-60° W.

Contact Metamorphism. The limestone in contact with the granodiorite stock has been silicified, then replaced by skarn minerals. Actinolite, siopside, wollastonite, garnet, axinite, epidote, chlorite, and recrystallized calcite have been formed. The silicate minerals are mostly in the limestone, but locally also have replaced the adjoining granodiorite.

Ore Deposits. There ar three types of deposits in the district: (1) bodies in or closely related to the areas of contact-metamorphosed rock; (2) fissure veins and disseminated mineralization in or associated with the alaskite dikes; and (3) fissure veins, locally enlarged by replacement, that are not associated with the alaskite dikes. These three types of deposits differ mainly in wall rock and structural detail.

The bodies associated with the contact-metamorphosed rock are 15 to 30 feet thick. Most of these bodies are related to fracturing, and commonly cut across bedding; other bodies show no relation to fracturing, and replace a particular bed. The primary minerals are quartz, chalcopyrite, bornite, and locally small amounts of molybdenite, magnetite, and specularite. Later quartz and calcite veinlets cut the bodies. It is interesting to note that pyrite is rare or absent in all three types of deposits found in the district, and that no tungsten minerals have been reported in the contact-metamorphosed limestone.

The deposits related to the alaskite dikes are veins following fissures in and parallel to the dikes and disseminations in fractured and altered dike rock. These deposits are mainly in the granodiorite and alaskite dikes themselves, but also occur in the limestone. The primary minerals are quartz, chalcopyrite, molybdenite, and specularite.

The fissure veins that are not associated with alaskite dikes most commonly are in unmetamorphosed limestone, but also are in the granodiorite and contact-metamorphosed limestone. These veins are 1 to 10 feet thick. Although there has been some wall-rock alteration and deposition of skarn minerals, quartz is the most abundant introduced mineral. Some of these veins are similar mineralogically to the other two types of deposits in the district; other veins, low in copper, originally contained galena, lesser sphalerite, and possibly some argentite, but these minerals have been largely destroyed by oxidation.

Oxidation has taken place to depths of 150 to 250 feet in all three type deposits. Chrysocolla, malachite, azurite, chalcocite, cuprite, and native copper have been formed from the primary copper mineralization. Cerussite is the principal oxidation product of the primary lead mineralization. Hematite and limonite are common, and manganese oxides are abundant locally. In some cases, the oxidation products have migrated some distance.

Weathering has altered the skarn minerals to chloropal and kaolin.

<u>Alice Mine</u>.

At the Alice mine, leaf-like veinlets of molybdenite, forming a "mesh", are intergrown with malachite, azurite, and a little chalcopyrite, bornite, chalcocite, and covellite. These minerals form vertical bands and irregular stringers up to a foot wide in an 8-foot wide body of contact-metamorphosed limestone.

<u>Bonanza Mine</u>

In an inclined winze in the upper west workings of the Bonanza mine, small amounts of molybdenite occur with secondary copper minerals and some copper sulfides in contact-metamorphosed limestone along the contact of the granodiorite stock. An alaskite dike cuts the mineralized rock.

Copper Shield Group

In the southern part of the Copper Shield (Effie Fay) group, some molybdenite is associated with quartz, secondary copper minerals, bornite, chalcopyrite, and specularite as banded mineralization in an alaskite dike.

Florence Group

In the Florence No. 16 claim, considerable molybdenite is present in an alaskite dike, in the more hematitic portion of a vein containing copper carbonates, oxides, and sulfides, and chrysocolla, in glassy quartz and hematite.

Helen B. Smith Tunnel

In the Helen B. Smith Tunnel, a little molybdenite occurs with specks of chalcocite and some chalcopyrite, bornite, and covellite in granodiorite. However, most of the copper mineralization exposed by the Tunnel is in contact-metamorphosed limestone, and apparently contains no molybdenite.

Ivy Wilson Group

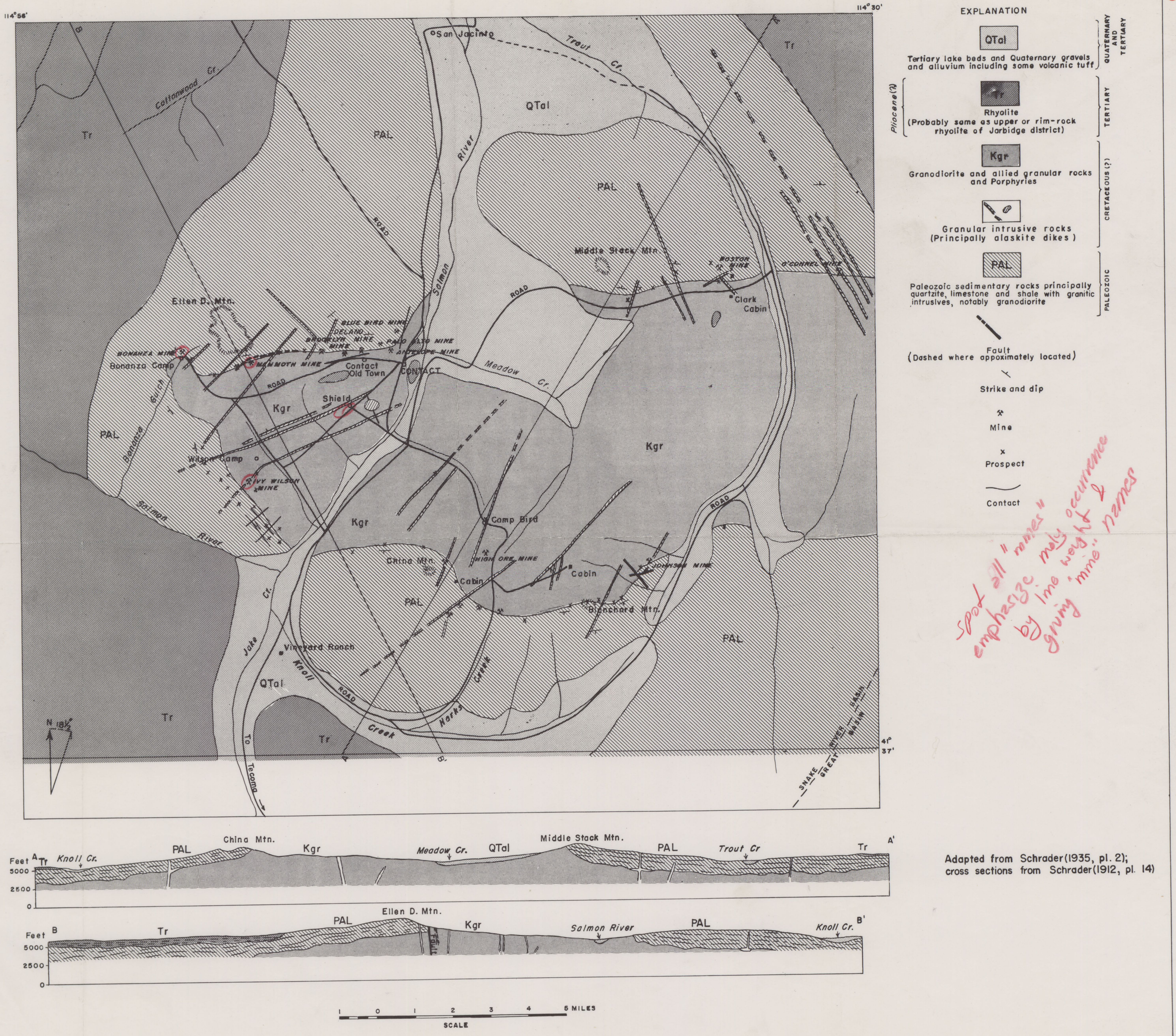
In the Ivy Wilson group, chalcopyrite and some associated molybdenite and bornite are disseminated irregularly through a 400-foot by 6,000-foot area in contact-metamorphosed limestone. This zone is 1,200 feet west of the granodiorite stock, and parallels both the bedding in the limestone and the granodiorite contact.

Six hundred feet north of the tunnel in the "sulfide" zone, molybdenite is disseminated in a 1- to 3-foot, garnetized quartzite (?) bed. The beds on both sides of the quartzite bed contain disseminated chalcopyrite and bornite.

Mammoth Mine

At the Mammoth mine, some molybdenite is associated with bornite, chalcopyrite, ~~chalcopyrite~~, copper carbonates, and chrysocolla in contact-metamorphosed limestone. These minerals are more abundant along the footwall which is granodiorite.

(1968)
from John Schilling's Notes



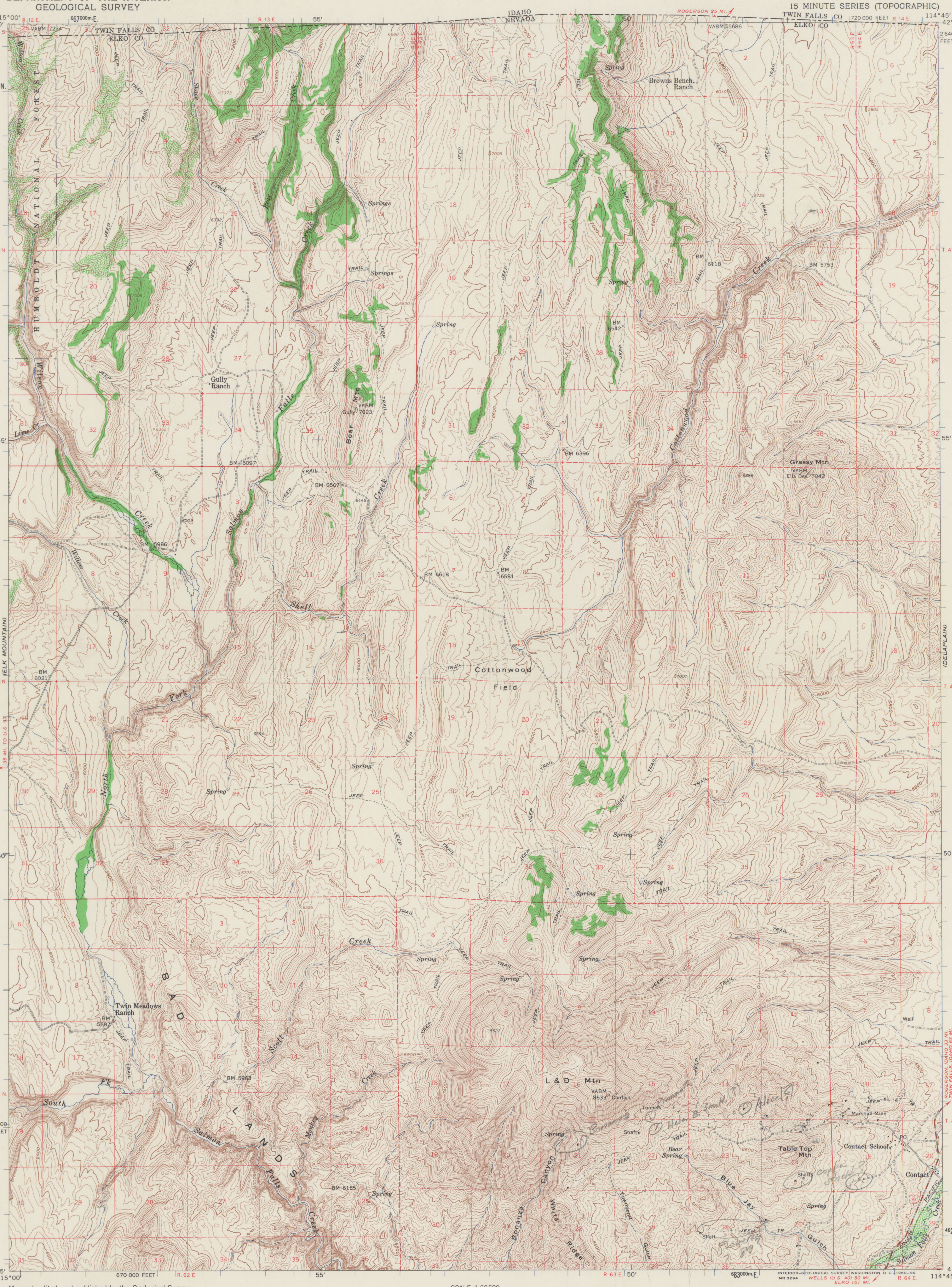
Adapted from Schrader (1935, pl. 2); cross sections from Schrader (1912, pl. 14)

spot all "names" mainly occurrence emphasize by line weight & giving "mine" names

GEOLOGIC RECONNAISSANCE MAP AND SECTIONS OF THE CONTACT DISTRICT, NEVADA

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

CONTACT QUADRANGLE
NEVADA–IDAHO
15 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1956. Advance field check 1957

Polyconic projection. 1927 North American datum
10,000-foot grid based on Nevada coordinate system, east zone
1000-meter Universal Transverse Mercator grid ticks, zone 11, shown in blue

Dashed land lines indicate approximate locations

Unchecked elevations are shown in brown

APPROXIMATE MEAN DECLINATION, 1957

SCALE 1:62500

CONTOUR INTERVAL 40 FEET
DATUM IS MEAN SEA LEVEL

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U.S. GEOLOGICAL SURVEY, DENVER 25, COLORADO OR WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

ROAD CLASSIFICATION

Medium-duty — Light-duty

Unimproved dirt

U. S. Route

CONTACT, NEV.–IDAHO
N4145—W11445/15

1957

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