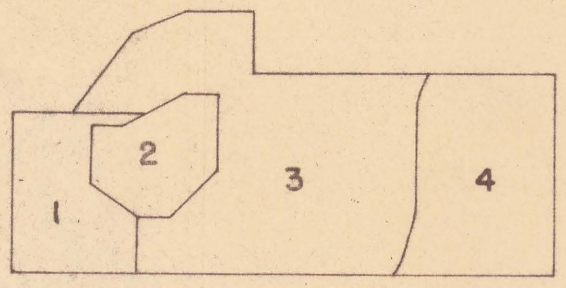
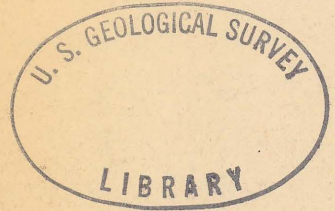


Explanation

(200)  
R 290  
No. 399

U. S. GEOLOGICAL SURVEY

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PLEASE REPLACE IN POCKET  
IN BACK OF BOUND VOLUME

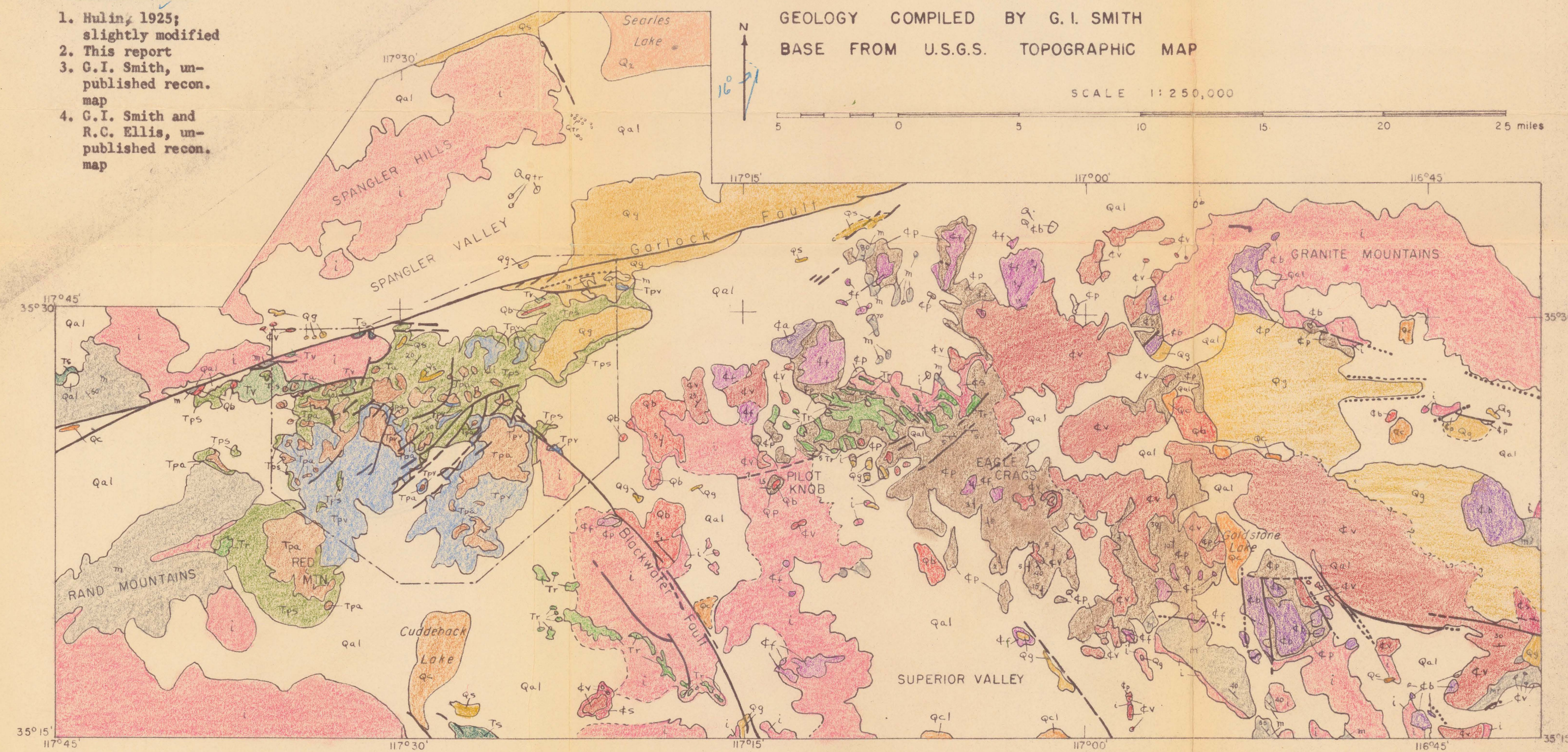
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Sources of data

1. Hulin, 1925;  
slightly modified
2. This report
3. C.I. Smith, un-  
published recon.  
map
4. C.I. Smith and  
R.C. Ellis, un-  
published recon.  
map

GEOLOGY COMPILED BY G.I. SMITH  
BASE FROM U.S.G.S. TOPOGRAPHIC MAP

SCALE 1:250,000



Pleistocene & Recent

middle & upper  
Pliocene

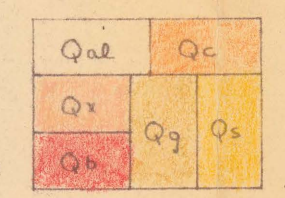
pre-middle  
Pliocene

Quaternary

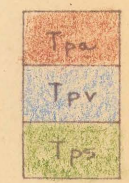
Tertiary

Cenozoic

pre-Cenozoic



**QUATERNARY DEPOSITS**  
Qal: alluvium, some slightly dis-  
sected. Qc: playa lakes with a  
hand-packed clay surface. Qx:  
playa lake with crystalline salt  
surface. Qtr: travertine as  
mounds, domes, pinnacles. Qb:  
basaltic rocks, chiefly tabular  
flows. Qg: older gravels, now  
being dissected; includes the  
Christmas Canyon formation in the  
Lava Mountains. Qs: older sand  
and silt, now being dissected.



**PLIOCENE ROCKS**  
Tpa: Lava Mountains andesite; flows  
and intrusives. Tpv: includes the  
Almonc Mountain volcanics, Klinker  
Mountain volcanics, and the undif-  
ferentiated Pliocene(?) volcanic  
rocks of this report. Tps: Bedrock  
Spring formation; chiefly arkosic  
sandstone; middle Pliocene.



**PRE-MIDDLE PLIOCENE ROCKS**  
Tr: rhyolitic intrusives, probably  
some flows; found as fragments in  
the Bedrock Spring formation. Ts:  
sandstones and conglomerates. Tv:  
assorted volcanic rocks, mostly  
faulted and brecciated.



**PLUTONIC IGNEOUS ROCKS**  
Mostly quartz-monzonitic, some  
dioritic rocks in the south-  
central portion; local swarms  
of aplitic or basaltic dikes.



**METAMORPHIC ROCKS**  
Includes slates, phyllites, quart-  
zites, and limestones; most dip at  
high angles, strike in a northerly  
direction.

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GENERALIZED GEOLOGY OF THE LAVA MOUNTAINS AND VICINITY,  
SAN BERNARDINO COUNTY, CALIFORNIA

**CONTACT**  
Solid where definite,  
dashed where very  
indefinite

**FAULT**  
Solid where definite,  
dashed where indefinite,  
dotted where concealed

**DIP AND STRIKE**