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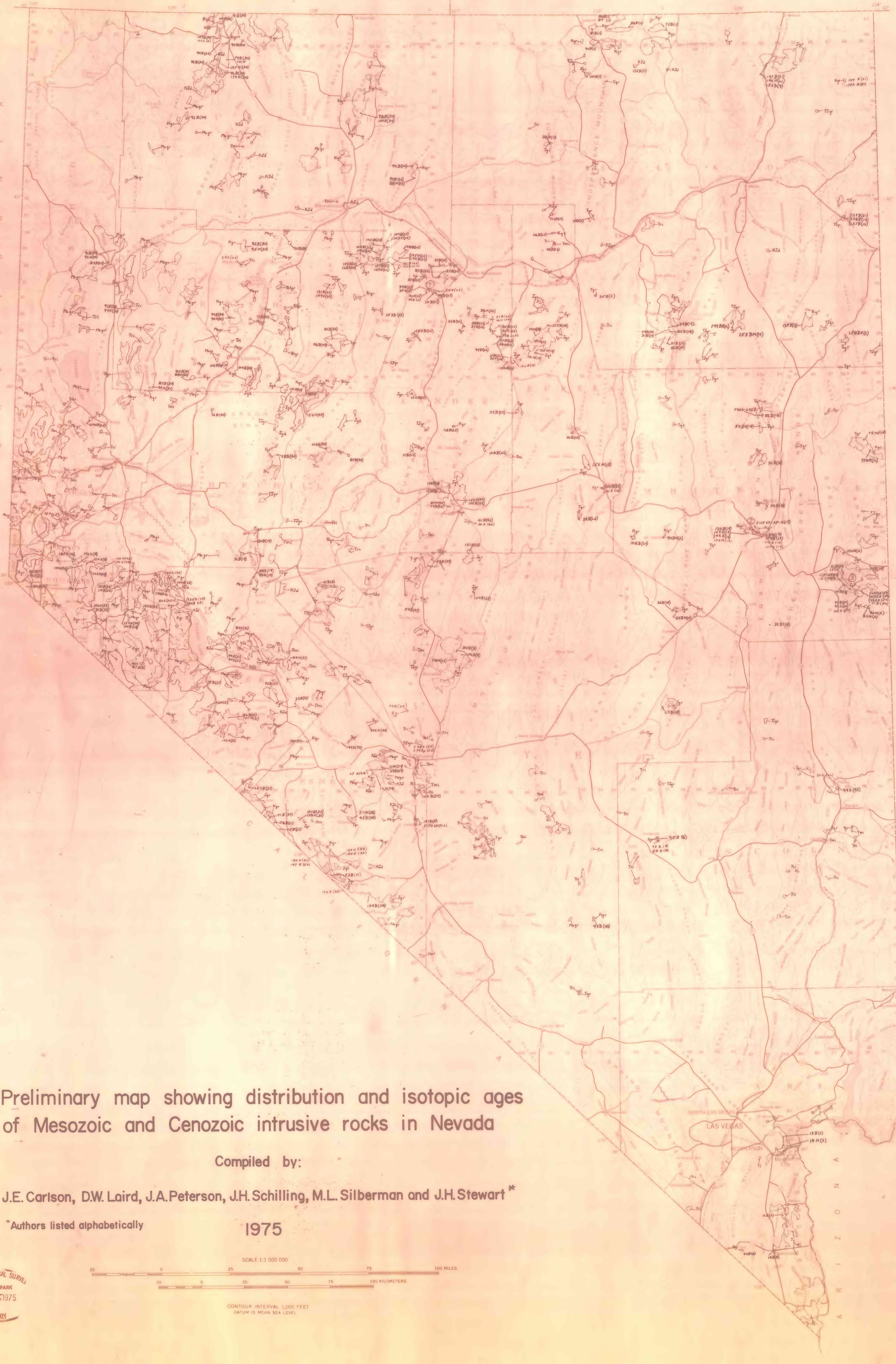

Preliminary map showing distribution and isotopic ages of Mesozoic and Cenozoic intrusive rocks in Nevada

Compiled by:

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1975

SCALE 1:1 000 000

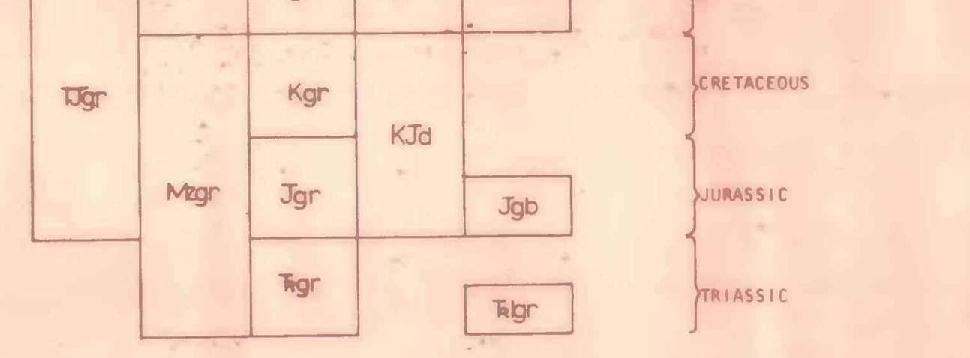
25 0 25 50 75 100 MILES

25 0 25 50 75 100 KILOMETERS

CONTOUR INTERVAL 1,000 FEET
DATUM IS MEAN SEA LEVEL

EXPLANATION

Correlation of map units



Description of map units

Tri	RHYOLITIC INTRUSIVE ROCKS
Tmi	INTRUSIVE ROCKS OF MAFIC AND INTERMEDIATE COMPOSITION
Ti	INTRUSIVE ROCKS--Aphanitic, porphyritic, and granitic rocks ranging in composition from diorite to granite. Clark County
TJgr	GRANITIC ROCKS, CENTRAL AND EASTERN NEVADA--Mostly quartz monzonite and granodiorite. Inconclusively dated or not dated radiometrically
Tgr	GRANITIC ROCKS--Mostly quartz monzonite and granodiorite
Mzgr	GRANITIC ROCKS, WESTERN NEVADA (Mesozoic)--Mostly quartz monzonite and granodiorite. Inconclusively dated or not dated radiometrically
Kgr	GRANITIC ROCKS--Mostly quartz monzonite and granodiorite
KJd	DIORITE
Jgr	GRANITIC ROCKS--Mostly quartz monzonite and granodiorite
Jgb	GABBROIC COMPLEX (Lower and Middle Jurassic)--In Churchill and Pershing Counties
TRgr	GRANITIC ROCKS--Quartz monzonite in northern Esmeralda County
TRlgr	LEUCOGRANITE AND RHOLITE PORPHYRY (Lower Triassic)--Intrusive rocks related to Koipato Group

Symbols

· 142 B (19)

Sample locality

142, age in million of years
B, mineral used in determining age, as listed below
(19), reference (see References)

Contact

Unlocated boundary between rocks of different age

Most samples are K-Ar dates. A letter before the sample number indicates the method used in all other cases. r, Rb-Sr; f, fission track; u, U-Pb-Th.

Material used in age determinations

Ap	apatite
B	biotite
BH	mixed biotite and hornblende
H	hornblende
KF	orthoclase, microcline, K-feldspar
M	muscovite
MB	mixed muscovite and biotite
P	plagioclase
S	sericite
Sp	sphene
WR	whole rock
Z	zircon

(1) See Theodore and others (ref. 27) for discussion of isotopic ages in Antler Peak area.

(2) See McDowell and Kulp (ref. 14) for discussion of isotopic ages from Robinson mining district.

(3) See Lee and others (ref. 50) for discussion of ages from Snake Range.

Description of map

This map represents a compilation of the location and isotopic ages of intrusive rocks in Nevada. Outcrop patterns are slightly generalized from those shown on the Preliminary Geologic Map of Nevada (Stewart and Carlson, 1974, U.S. Geol. Survey Misc. Field Studies Map MF-609). Ten categories of intrusive rocks are shown, two of which (TJgr and Mzgr) indicate rocks that have not been dated isotopically or cannot be dated by field relationships. The map does not show Precambrian intrusive rock or all Tertiary intrusive rocks related to rhyolitic flows or flow domes. In places, isotopic ages are indicated where no outcrops are shown. In some of these places, original descriptions of the sample locations may be erroneous; in other places, intrusive rocks may occur, but are too small to be shown; and in still other places, the sample may be from a drill core or from a mine where intrusive rocks do not crop out at the surface.

Isotopic ages were compiled from 49 references, including published and unpublished sources. Compilation of isotopic ages is as nearly complete up to January 1975 as it has been possible to make it. It is probable, however, that some references have been overlooked, particularly those reporting single or small groups of ages as part of studies that are not concerned specifically with geochronology, such as quadrangle maps.

We have not attempted to evaluate or interpret the data in this presentation other than to locate the samples as nearly as possible. Readers are urged to refer to the quoted references for evaluation of the ages in any specific area. A complete listing of all the data, by county, and by reference, is being prepared; and in that compilation, some discussion of the meaning of the distribution of ages will be attempted.

On one area, the southern Snake Range, the large quantity of available data were too great to place on the map conveniently. Only selected data were used, with a note to refer to the original reference reporting the data. In other selected cases, we have indicated that reference should be made to discussions of age relations in selected references where large numbers of dates were determined (for example, the Antler Peak Range and the Robinson mining district).

In this initial open-file version of the map, we are willing to make additions and corrections. Please refer these to M. L. Silberman or J. H. Stewart, U.S. Geological Survey, Menlo Park, CA 94025.

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