

The October 2, 1915 Pleasant Valley Earthquake – Nevada's Largest Historical Earthquake



Stanley McCoy Collection

Craig M. dePolo

Nevada Bureau
of Mines and Geology



Importance of the 1915 Earthquake

- Largest Earthquake in Nevada
- Remarkable Foreshock Sequence
- Affected a large area of Nevada
- Advanced Geological Science
- Launched Seismology in Nevada

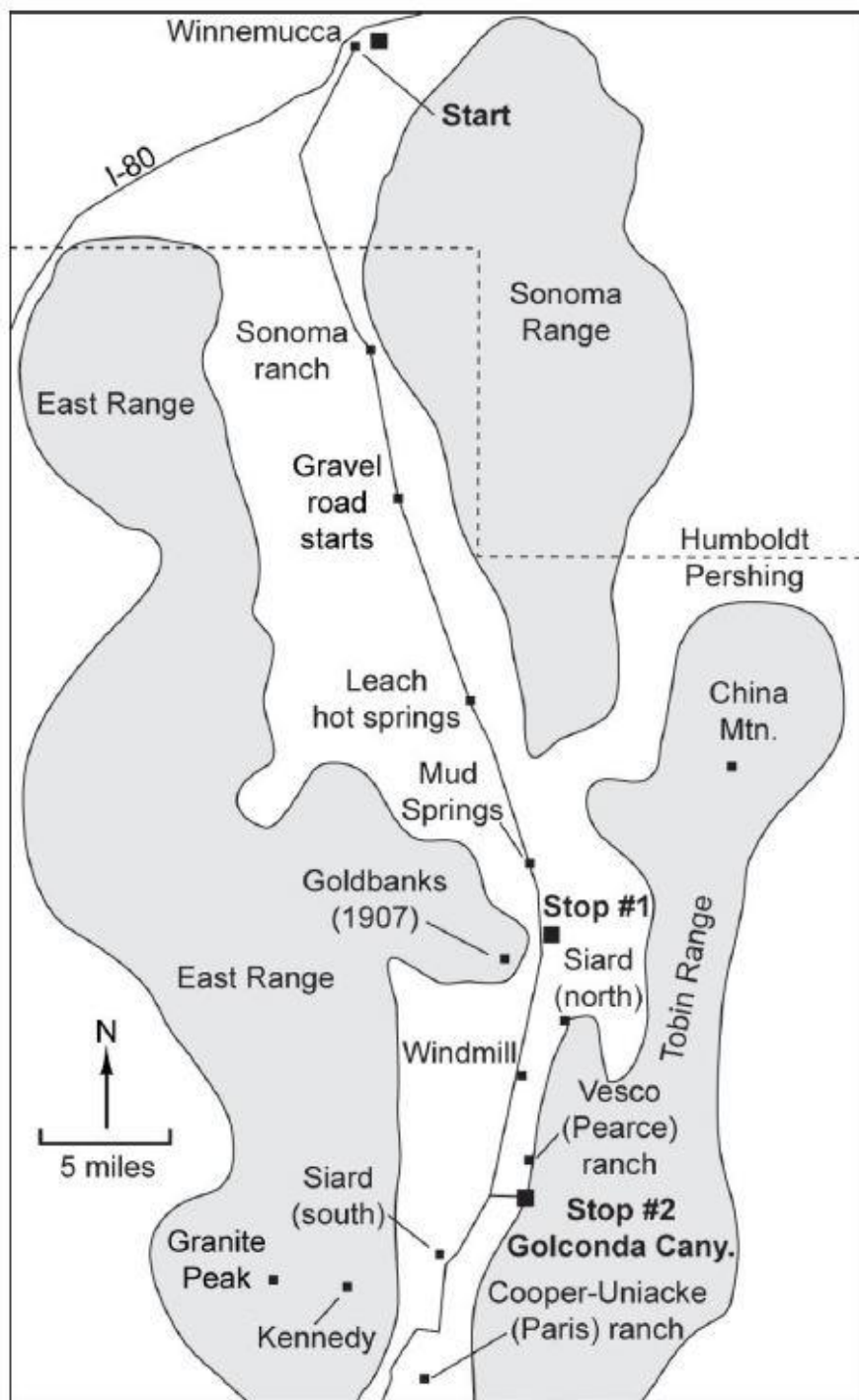
Importance of the 1915 Earthquake

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**Professor J. Claude Jones
(1915)**

Location Map





First Rumbblings

Folgate (1987) NCNHS

Accounts of Mabel Pearce McCoy

1:00 p.m.

“At about 1 p.m., October 2, those on the [Pearce] ranch heard a heavy rumble. We didn’t really notice any shaking, but we were up and moving around at the time.”

The Foreshock Sequence

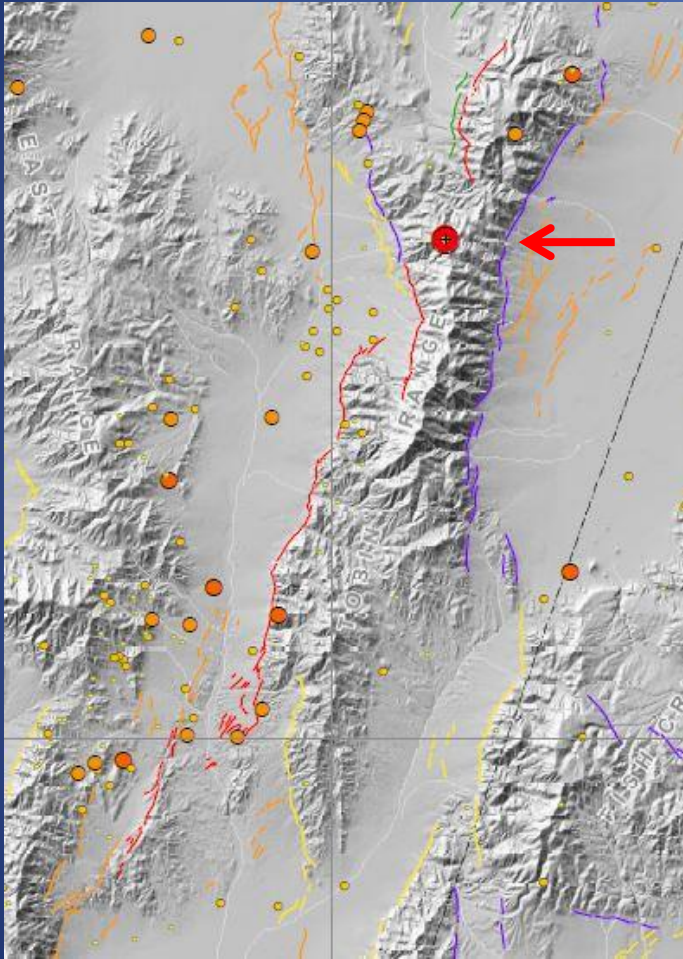
3:40 p.m. M5.0 “with a terrific report, similar to a large dynamite blast, the mountain side of Kennedy gave a lurch due north and then vibrated for five seconds”

5:49 p.m. M6.1 “without the slightest warning a great roar was heard and the earth’s surface began to roll and sway up and down, evidently in all directions. ... This convulsion continued without stop for fully one and a half minutes.”

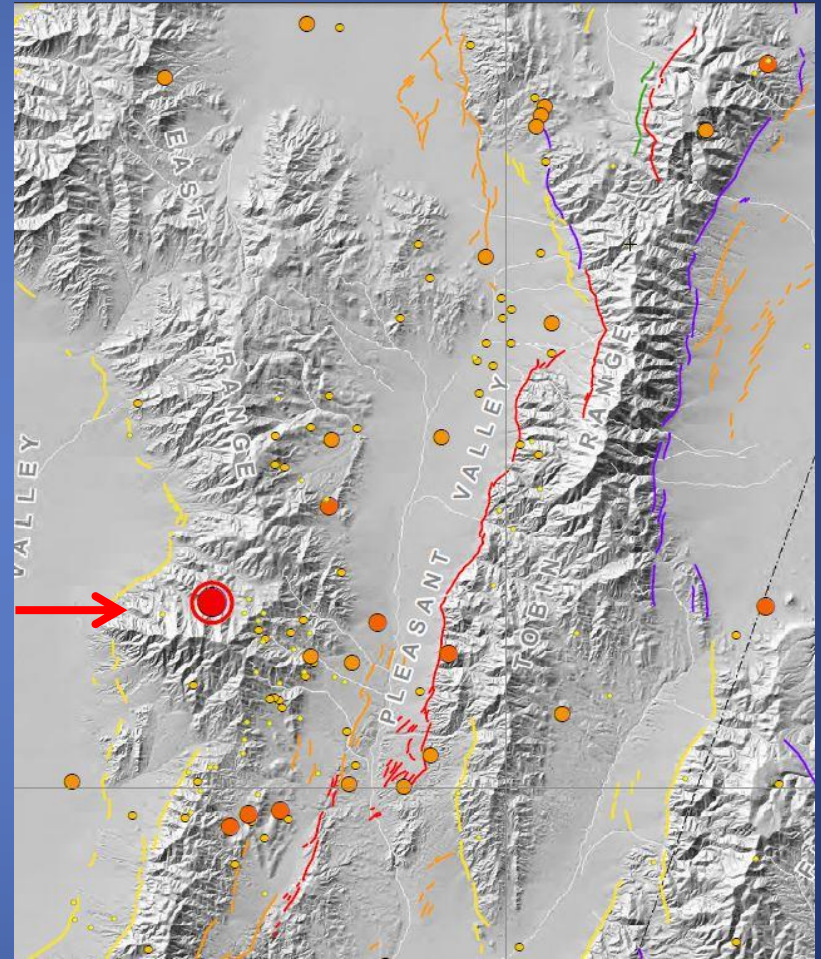
“from this disturbance on, it was an incessant, continued disturbance, the earth never appeared quiet.”

From Leon St. D. Roylance (1915)

Traditional and Proposed Epicenters



Traditional Epicenter
40.5°; -117.5°



Proposed Epicenter
40.3°; -117.8°

Pearce Ranch

3:40 p.m. M5.0

“there was another rumble “which made us kind of nervous.” We also noticed animals were nervous; the horses were moving around.”

5:49 p.m. M6.1

“Mabel, Lester and Mrs. Pearce were feeding the chickens out by the ranch’s huge rock barn when they felt a heavy earthquake.”

Water splashed out of both sides of the horse trough; trees swayed as if there was a heavy wind, but it was calm.

Folgate (1987)

Pearce Ranch

“Mrs. Pearce told her daughter, Annie, to get the horses out of the barn. I am not sure why she said that, but the barn was kind of rattling.”

“They [the horses] didn’t want to go out of the barn, but they didn’t want to stay either.”

Folgate (1987)

The Main Shock

10:53 p.m. M7.3, Kennedy

“things had quieted, or perhaps we were unconscious in sleep, when without the slightest warning a great roar or rumbling was heard and we were thrown violently out of bed and buffeted in all directions continuously for not less than 15 minutes.”

Leon St. D. Roylance (1915)

Kennedy



From the Stanley McCoy Collection

10:53 p.m. M7.3

“This disturbance was, to my mind, the most serious and violent that a human being can experience and live through.”

Leon St. D. Roylance (1915), Kennedy

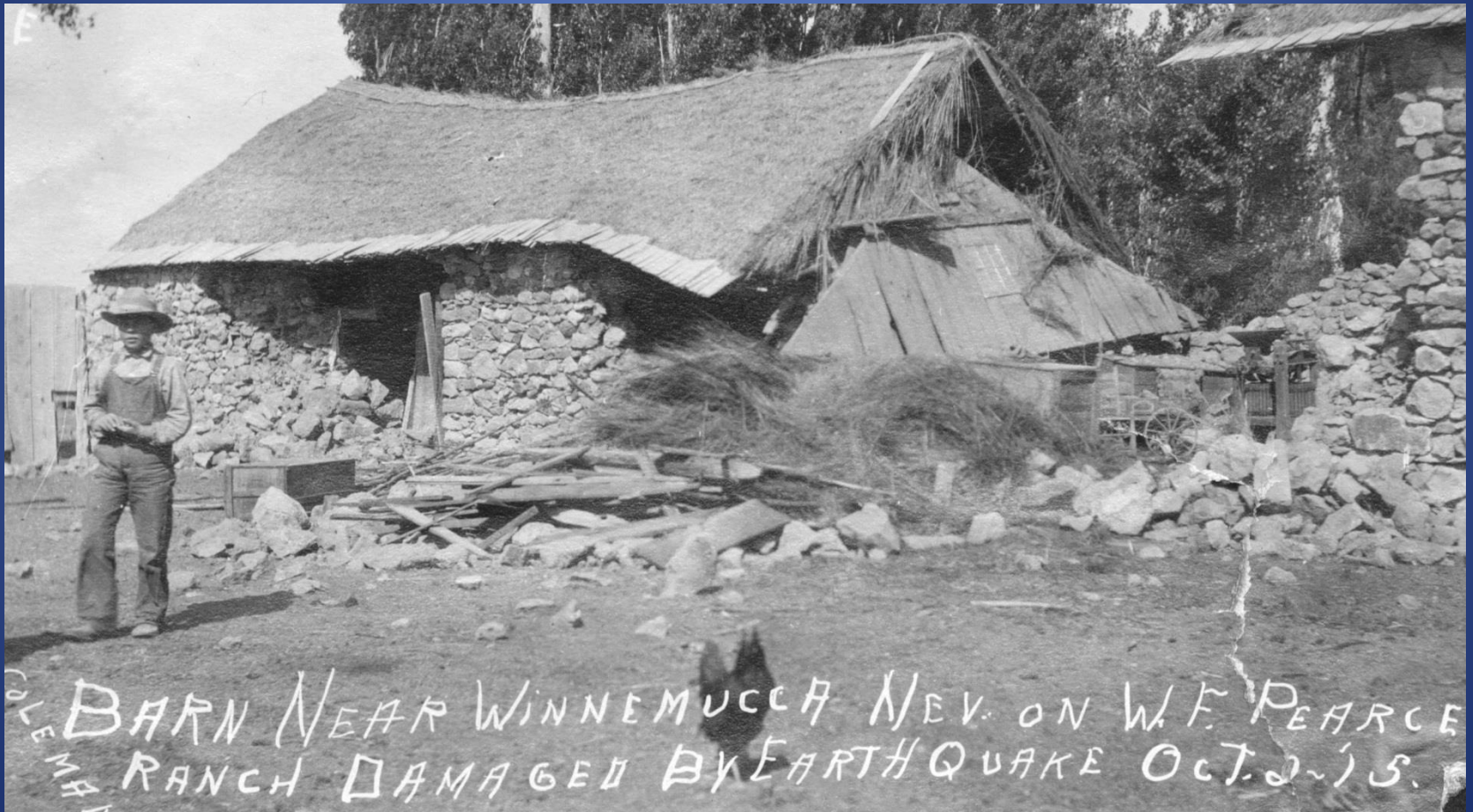
Kennedy

10:53 p.m. M7.3

The mill superintendent, Mr. S.L. Berry, made a flying leap through a window, clearing the sill, rather than negotiating two sets of doors to get out of his cabin.

Leon St. D. Roylance (1915)

Pearce Barn



From the Stanley McCoy Collection

Schell Ranch

“there was one man in the ranch house. The earthquake raised the ground up under the house, tipping it out of the ground. The man was so frightened he ran three miles barefoot down to the Lower Siard Ranch.”

Folgate (1987)

Small Ranch House on Schell Ranch



From the Stanley McCoy Collection

Siard Ranch – Poultry House



View south – men stand where walls were

Photo by Professor H.P. Boardman

Siard Ranch House



From Toddy Folgate(1987), Photo courtesy of Mabel Pearce McCoy

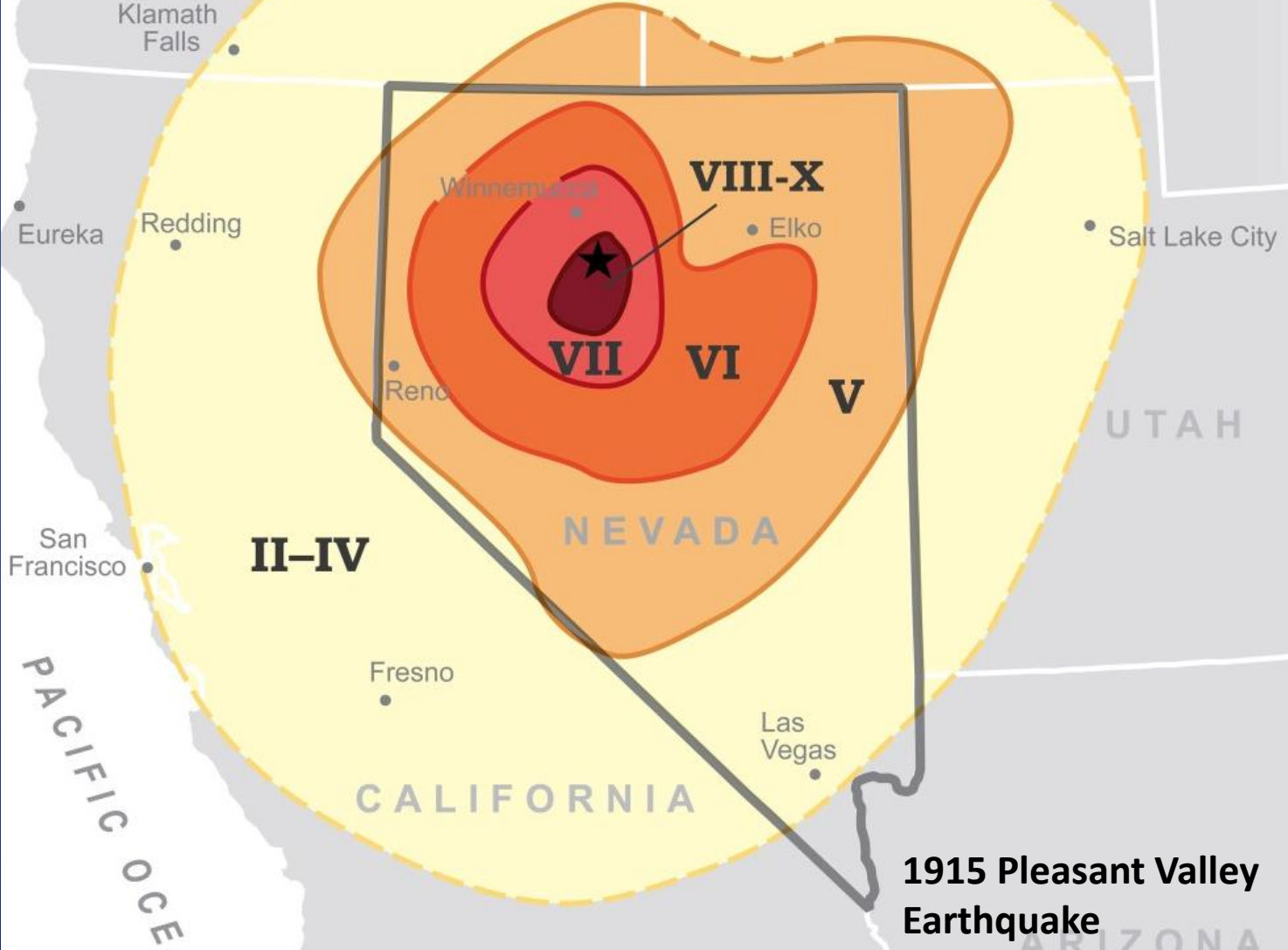
Modified Mercalli intensity Map

VIII-X Collapsed buildings, fissures

VII Damaged chimneys, cracked walls

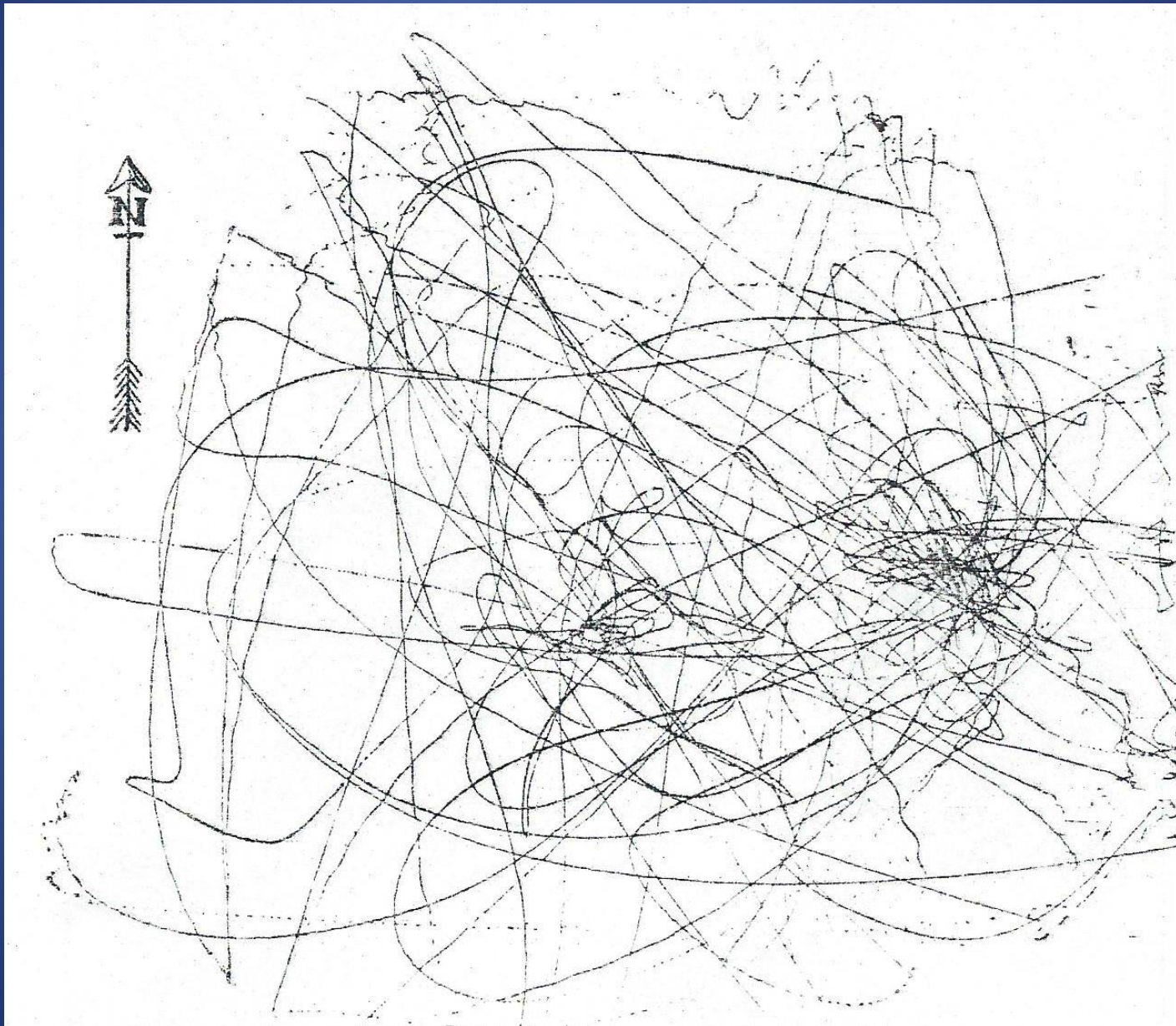
VI Cracked walls, people frightened

V People awakened



1915 Pleasant Valley Earthquake

University of Nevada seismoscope record



Saturday Night Earthquake

Dances all across northern Nevada
were rudely disrupted and dance
halls emptied.



2008 Wells, Nevada Earthquake Damage – Front Street

Winnemucca (Folgate, 1987)

Half the brick chimneys had damage

Winneva Hall – fire walls thrown down, cracks in front

Winnemucca Hotel – lost gable ends of adobe addition

Humboldt County Court House – downed chimneys

Winnemucca Grammer School – cracked ceilings and heating plant damage – one week out of school

Winnemucca

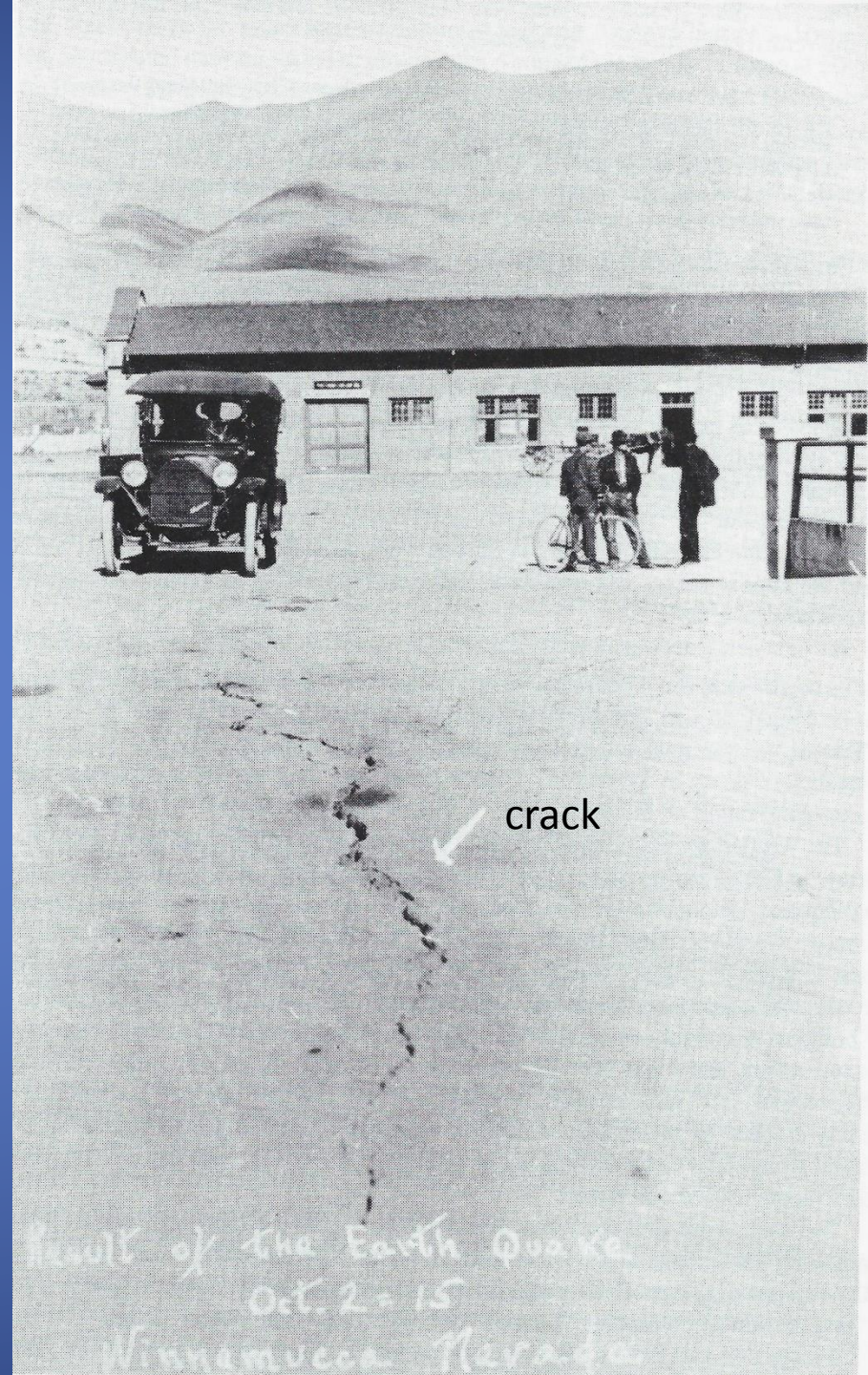
Diehl Lodging House – part of brick wall thrown out

Overland Hotel (under construction) – lost part of fire wall

E. Reinhart Company – two plate glass windows demolished

Western Pacific Railroad Depot

Toddy Folgate (1987)



Location Map



Lovelock



Earthquake Collapsed SP Water Tank, Lovelock - 10-2-1915

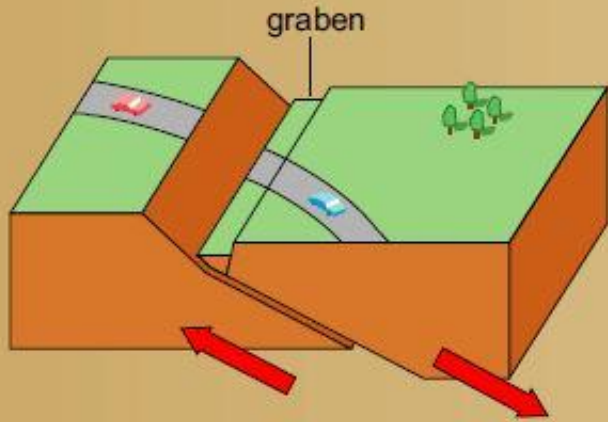
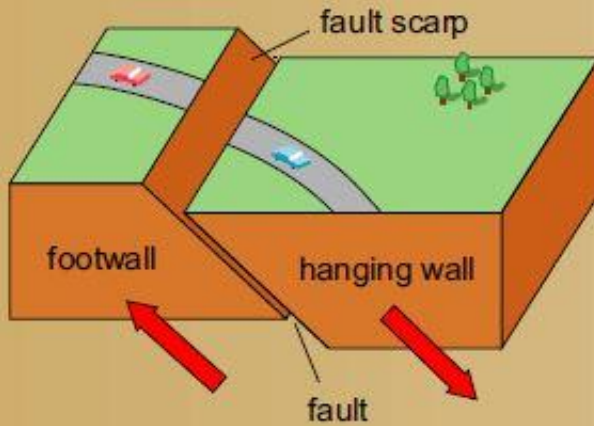
Spectacular Surface Faulting

As the fault moved during the earthquake it reached the surface and created a **fault scarp**.

The surface rupture of the 1915 earthquake was **35-37 miles long** and had a maximum offset of **19 feet**.

Earthquake Faults

Normal Dip-Slip Faults



Strike-Slip Faults

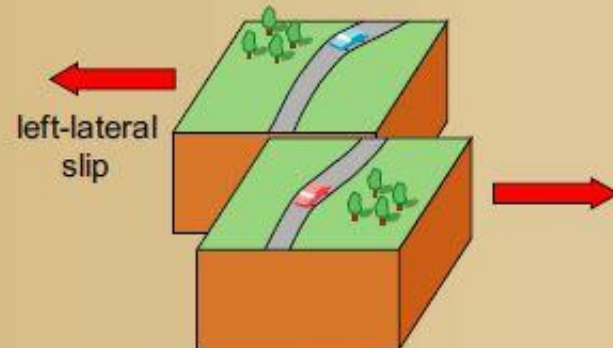
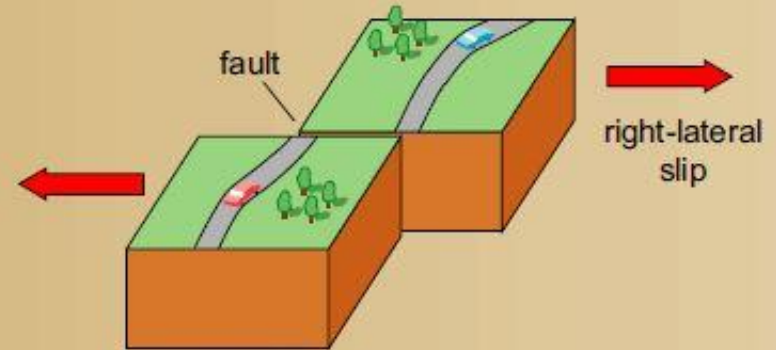




Photo by Professor D. B. Slemmons

1915 Surface Ruptures



From the Stanley McCoy Collection

Pearce Ranch Scarp



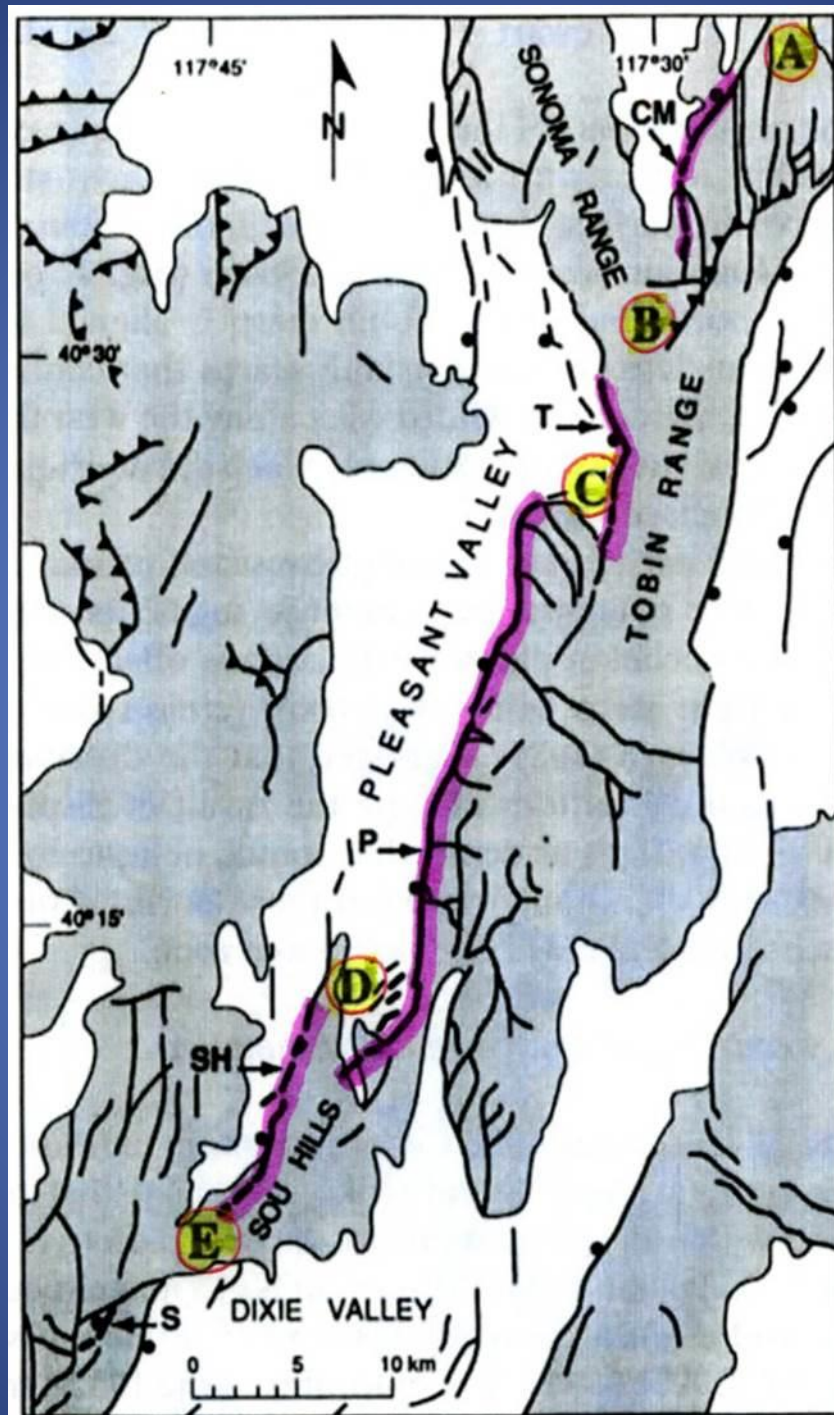
Professor J. Claude Jones (1915)

Pearce Ranch Surface Rupture

Mabel and Lester Pearce



From the Stanley McCoy Collection



dePolo and others
(1991)

Folks at the 1915 Ground Offset



Golconda Canyon

Pre-1915 Earthquake Scarp Discovered



Siard Canyon

Dr. Robert E. Wallace (1984)

Liquefaction

Water-saturated ground liquefies, or temporarily behaves like a liquid, and can flow sideways or vent spouts of water and sand.

Liquefaction

Pearces at Mud Springs –

“at each great lurch of the ground the water of the spring spurted up in the air”

Leon St. D. Roylance (1915)

Liquefaction



Pleasant Valley

From the Stanley McCoy Collection

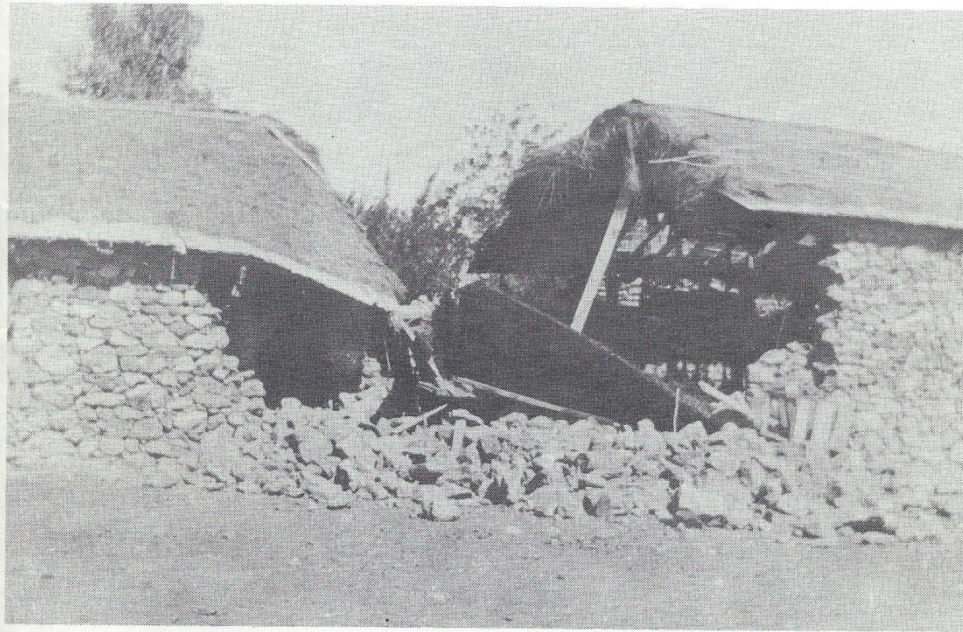
Liquefaction near Lovelock





2015 Photo by Alan Wallace

THE HUMBOLDT HISTORIAN



EARTHQUAKE, 1915

by **Toddy Folgate**

SUMMER-FALL 1987

More Information
And Stories

1915 Auto Tour



Toddy Folgate (1987)

2015 Auto Tour



More 1915 Information

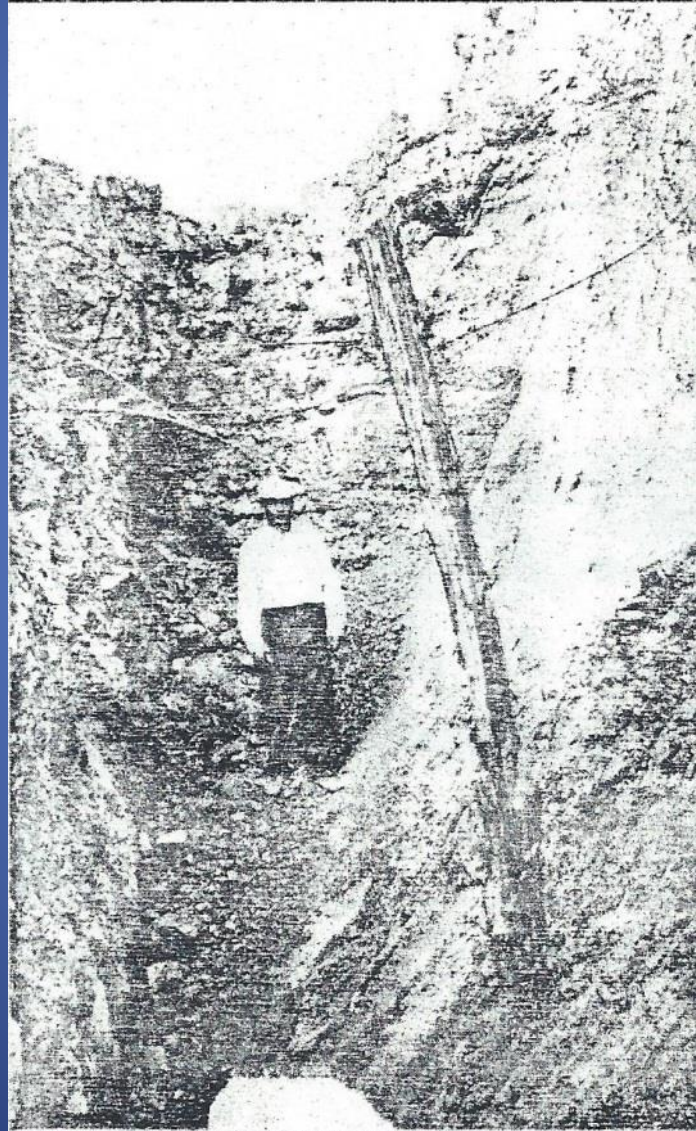
Nevada Bureau of Mines and Geology

1915 Earthquake Centennial Web Page:

[http://www.nbmg.unr.edu/Geohazards/
Earthquakes/1915centennial.html](http://www.nbmg.unr.edu/Geohazards/Earthquakes/1915centennial.html)

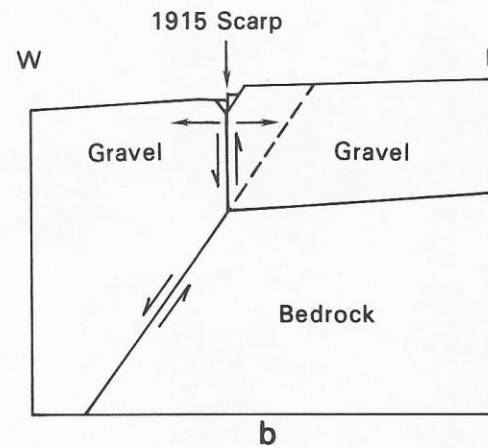
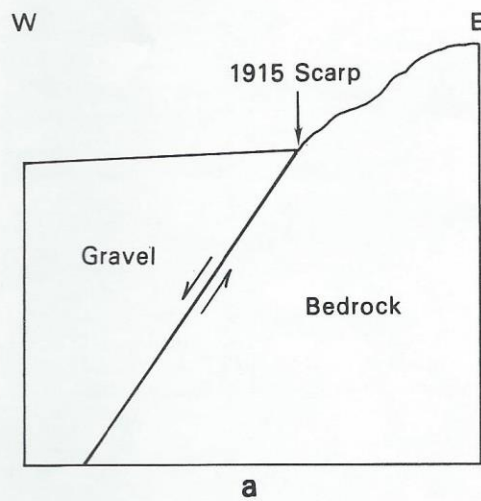
NBMG Education Series E-58 – Field Guide to Earthquake Rupture

Living with Earthquakes in Nevada



Fault Scarp Nature

Miller Creek



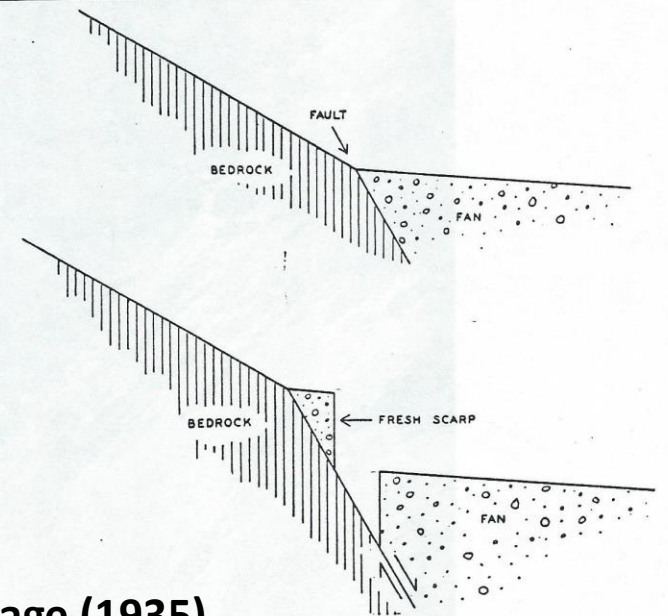
Dr. Robert E. Wallace
(1984)

B



Golconda Canyon fault scarp

Alan. R. Wallace (2015)



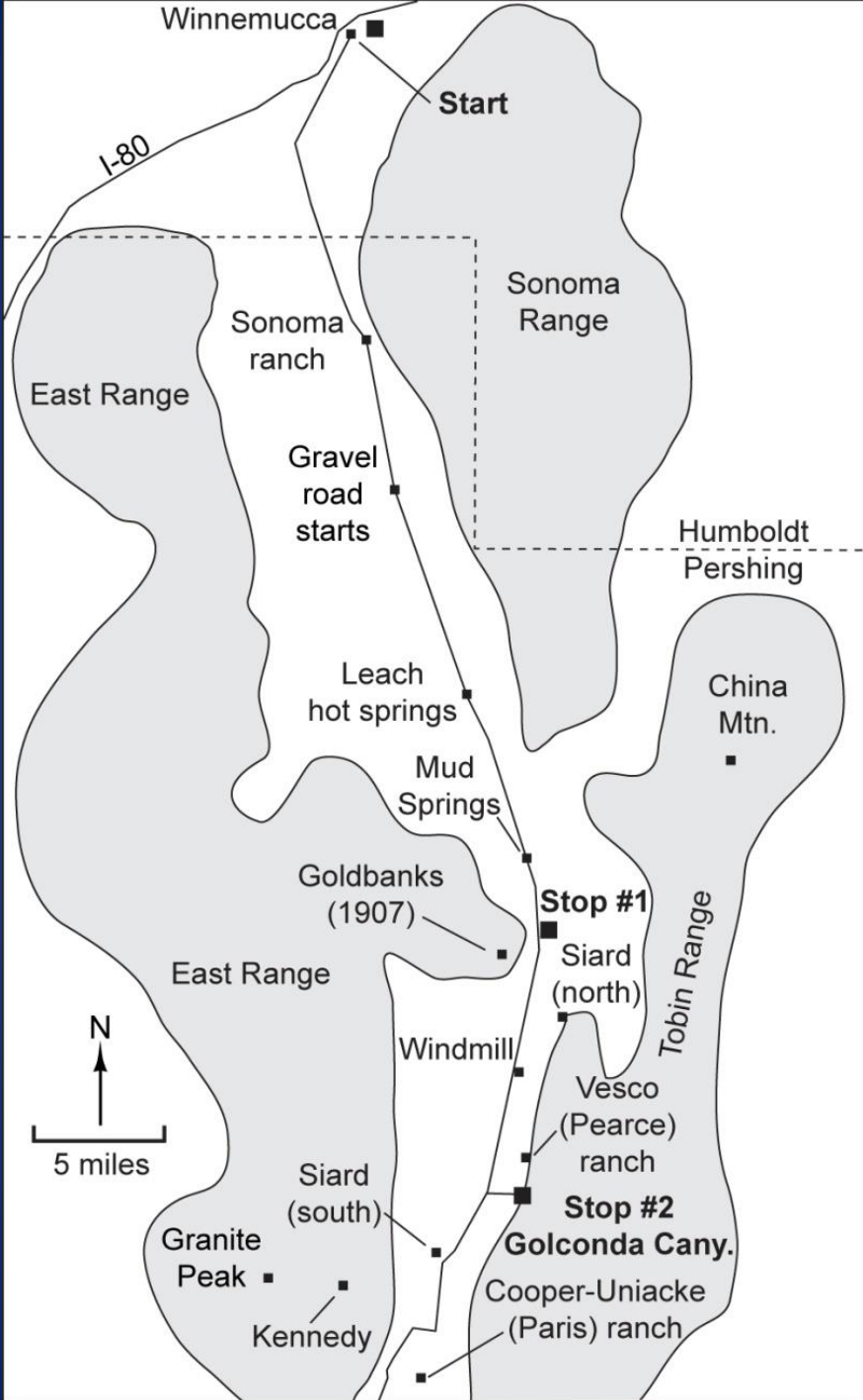
Pearce Ranch

10:53 p.m. M7.3

“The quake awakened Mrs. Pearce who reached out to hold onto a bedroom dresser, only to find it rolling away from her. She got up and gathered the children in the dining room. “I remember her putting pillows out there. I think she wanted to get out of the bedroom and wanted us with her.”

Folgate (1987)

Today's Auto Tour



Thank You!

Alan R. Wallace

Dana Toth

Jim Faulds

William and Louis Pearce – Mud Springs

The Pearces were hauling freight to Kennedy when about at 4 p.m. they decided to stop at Mud Springs because “he found the ground in such turmoil he was afraid to proceed farther owing to the rumbling around and the convulsive motion of the ground.”

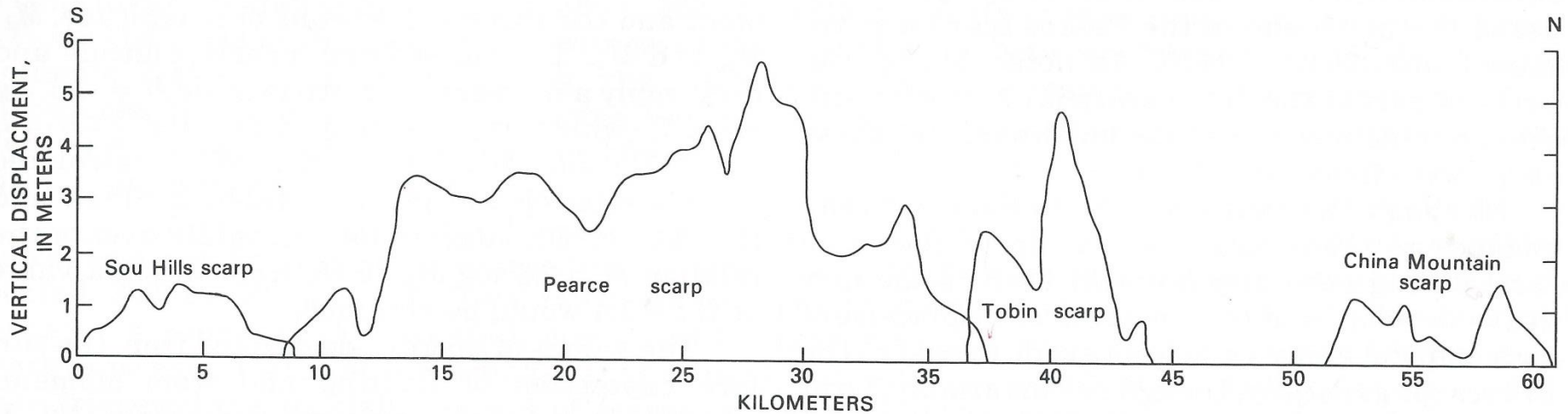
From Leon St. D. Roylance (1915)

1915 Surface Rupture



Ground Offset along the Rupture

1 meter = 3 feet (3.28 ft)



Maximum offset about 19 feet

Dr. Robert E. Wallace (1984)



Alan R. Wallace (2015)