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Thwaites, F. T. (Fredrik Turville), 1883-1961

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READING LIST
VIII. Interior Lowland.

Nov 23 - Dec 4

GROUP I. GENERAL

- Schneider
Towns geology
Ellen
Exam on 27th
- omit
omit
omit
- Carlson ✓
- Chadwick ✓
- omit
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Prairie Plains

no neoclathure why prairie
boundaries

| | | | |
|--------------|--------------------------------|-------------|------------------|
| Subdivisions | { | young drift | { eroded flat |
| | | older drift | |
| | Lake plain. | | |
| | Osage prairie | | |
| | Highland Rim or into low flat. | | |

Berms.

Peneplain of prairie - large remnants?
age?? skyline

glaciation - deposits - clay & stony regions
 drainage changes - Miss R. Ohio & Mo Rivers
 Great Lakes - origin of basin - topog. along
 sides - late glacial lakes - movement
 L. agassiz. Niagara Falls
 Soils. weathering? like clays
 Fruit districts. Berms. Loess
 (dry ice??)

Prairies
Cause of Rippled Area

The banks, soil - cause of
beveling of layers - gravel - buried meanders
Highland Rim - basin - cave zone

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127. Austin, Texas, Folio No. 76.
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131. Hartville, Wyoming, Folio No. 91.
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133. Parker, S. D., Folio No. 97.
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140. DeSmet, S. D., Folio No. 114.
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145. Independence, Kansas, Folio No. 159.
146. Belle Fourche, S. D., Folio No. 164.
147. Aberdeen-Redfield, S. D., Folio No. 165.
148. Bismark, N. D., No. 181.
149. Llanó-Burnet, Texas, Folio, No. 183.
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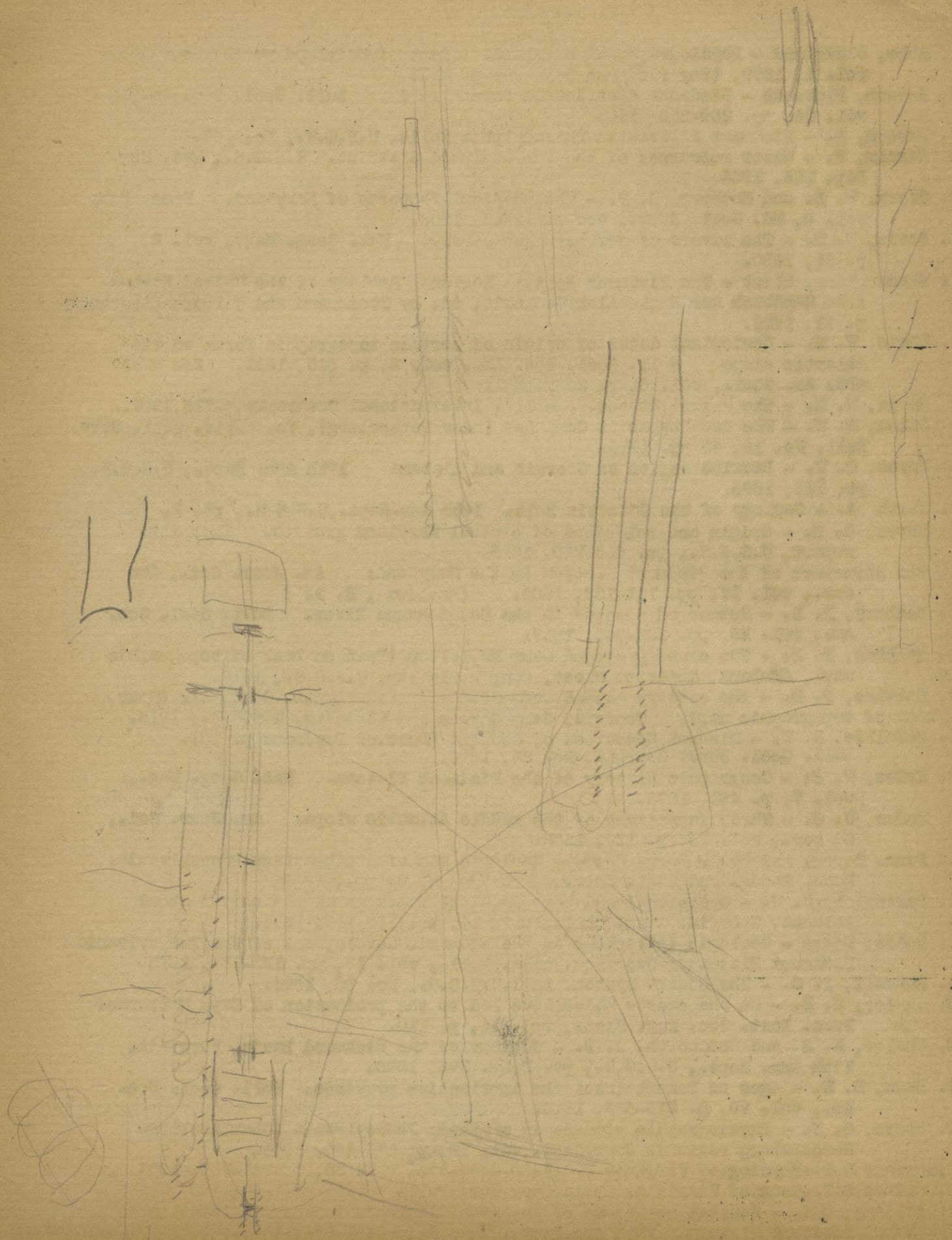
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Laboratory Questions

XVI. Pacific Ranges

1. Base map of United States 1:7,000,000.

Indicate the location of the following features:

- | | |
|------------------|------------------------|
| 1. Olympic Mtns. | 8. Sierra Nevada |
| 2. Cascade Range | 9. Yosemite Valley |
| 3. Mt. Ranier | 10. Klamath Mtns. |
| 4. Mt. Hood | 11. Willamette Valley |
| 5. Mt. Shasta | 12. Salinas Valley |
| 6. Lassen Peak | 13. San Joaquin Valley |
| 7. Crater Lake | 14. Sacramento Valley |

2. Prepare a simple diagram which will show the features of the Crater Lake region. Show the abrupt eastern margin of the Cascades, the truncated cone of Mt. Mazama, with glaciated valleys radiating from its center, the recent cinder cone of Wizard Island with lava flows on its western side.

3. Yosemite, Calif.

Compare the valley of the Merced River west of the Yosemite Valley and in the Valley. Do you see a similar contrast elsewhere on the map? How do you explain it? Explain the origin of the numerous falls about the Yosemite and Hetch Hetchy valleys.

4. Dunningen, Calif.

A portion of the Great Valley of California showing its remarkable level character. To what province do the hills in the southwest probably belong?

5. Yuba City, Calif.

An extremely level portion of the Great Valley of California. Note the artificial levees built to prevent the rivers from overflowing their natural levees and thus inundating the lower country on either side.

6. Woodbridge, Calif.

Explain the origin of Tracy Lake. Do you know any other lakes of similar origin? Name a lake which was formed by the reverse process. Note the meander scarps on the east side of Oliver Lake and across the river to the west. Were those scarps formed by the Mokelumne River while it had its present volume?

7. Coos Bay, Ore.

A portion of the dissected and partially submerged Coast Range. Do you see any feature on the map which suggests the possible elevation of the region in a recent geological time? What is the origin of the land bounding Coos Bay on the northwest?

8. Ashland, Oregon

A portion of the Cascade Mountains in the northeast, while the Klamath Mountains occupy the southwest. The upper and lower table rocks are lava capped mesas. Mt. Pitt is a dissected volcano. Crater Lake is a caldera occupying the summit of a volcano, which is located on the fault line along the east border of the Cascade Mountains. Pelican Bay occupies the down-faulted block and is a part of the Great Basin province. The radial valleys of Crater Lake Mountain have been glaciated and the ~~glacial~~ glacial troughs beheaded by the engulfment of the summit of the mountain. Wizard Island is a more recent volcanic cone with a lava flow toward the west. Compare with photographs of this region.

9. Mt. Adams, Wash.

Submaturely dissected and glaciated volcano of Mt. Adams, rising above the summit of the Cascade Mountain peneplain. The contours indicate the presence of a number of smaller volcanoes in this region

10. Eugene, Ore.

A portion of the Willamette Valley showing a part of the Cascade Range on the east and a projection of the Coast Range on the south. To what class of rivers does the Willamette belong? Explain the peculiar features which it shows.

11. Stehekin, Wash.

A portion of the Cascade Mountains near their junction with the Rocky Mountains. What was the approximate height of the surface ~~in which the valleys here shown~~ were carved. What was the nature of that surface? Explain the origin of Lake Chelan; the broad bottoms of such valleys as Railroad Creek, west fork of Agnes Creek (west central part of map) and the south fork of Flat Creek (just north of Agness Creek). To what class of lakes do the small lakes on this map belong? Locate a good glacial cirque and a good hanging valley.

12. Bridgeport, Calif.

Northeastern base of the Sierra Nevada, showing mature glaciation of the range. Note particularly the splendid troughs of Robinson Creek and Big Meadow. Note also the good examples of hanging troughs found along Cattle Creek and Tamarack Canyon, and the many good examples of glacial cirques and Alpine peaks. Splendid glacial troughs are also found along Green Creek, Virginia Canyon, Spiller Creek and Matterhorn Canyon.

13. Mt. Lyell, Calif.

Maturely glaciated portion of the Sierra Nevadas. Lyell Canyon near Center is a splendid glacial trough, and Mount Lyell a typical alpine peak. Note the numerous cirques, tarns and hanging valleys. What are the Mono craters?

14. Napa, Calif.

The coast ranges of Calif. with intervening valleys submerge to produce San Francisco Bay and its tributary bays.

15. Colfax, Calif.

Submaturely dissected peneplain forming backslope of the Sierra Nevada fault block. What is the elevation of the peneplain along its highest portion? along its lowest portion? In what direction does it slope? In what stage of development are the larger rivers which dissect it? Explain the drainage relations in the vicinity of Bear Valley, four miles northeast of the center of the map. Note the evidence of glaciation along the crest of the fault block.

16. Sutter, Calif.

A portion of the flat floor of the Great Valley of Calif. Note the very small contour interval and the fact that contours are nevertheless miles apart in places, many of them being represented on artificial banks or ditches only. What is the origin of the nearly straight narrow ridge just west of Feather River? To what class of land forms do the Marysville Buttes belong?

17. Tahama, Calif.

The northern part of the Sacramento Valley, showing the westward sloping edge of the Cascade Mountains in the northeastern part of the map. In what stage of development is the Sacramento River southeast of Red Bluff? What evidences do you see that the river has not always followed its present course? In what stage of development is the river in the northwestern corner of the map? Compare the bends of the river in the vicinity of Moony Island with the Big Bend as to name and origin. On what sort of land form is Lone Pine Camp situated? What has happened to this land form just east of Sesma? Explain the origin of Abraham and Mud Springs Plains.

18. Jackson, Calif.

The dissected backslope of the Sierra Nevada fault block. In what direction does the internal structure of the block trend? What kind of a stream is the south form of Calaveras River? What kind of stream is the Mokelumne River? Notice the remnant of the peneplain of the backslope in the vicinity of Mt. Zion and West Point.

19. Tehipite, Calif.

Back slope of the Sierra Nevada fault block, maturely dissected and the higher portion maturely glaciated. King River Canyon is a splendid glacial trough similar to the Yosemite Valley. Note the splendid hanging valleys of the smaller streams, and also the hanging glacial trough of Bubb's Creek. Tehipite Dome in the north central part of the map is one of the famous granite domes of the Sierra.

20. Santa Ana, Calif.

The Santa Ana River is a braided stream. It empties into a bay which has been separated from the ocean by a bar and later changed into a salt marsh. Newport Beach is a cusped foreland. The terrace along the southwest side of the San Joaquin hills looks like an uplifted marine bench.

21. Downey, Calif.

This map adjoins Redondo Quadrangle on the east. Do you see any evidence of former shore lines or islands on this map?

22. Redondo, Calif.

The western side of the San Pedro Hills shows a terrace which looks like an uplifted marine bench. If this is the case we should find on the map some indication of a former shoreline at the same level in areas now far removed from the sea. Where do you find such evidence?

23. Santa Monica, Calif.

Block mountains separated by waste-filled basins. On which side of Santa Monica Mountains is the fault line probably located? Why?

24. San Geronimo, Calif.

Alluvial fans coalescing to form the alluvial plain of the Mohave Desert. The mountain range along the southwest portion of the desert has the form of a dissected fault block.

25. San Diego, Calif.

A harbor formed by a bay bar.

26. Skykomish, Wash.

A typical area in the northern Cascades. Note particularly the remarkably fine development of cirques and tarns in the southern part of the map. Also the excellent glacial troughs along Cleallum River and other streams in the region. Locate several good hanging valleys and several typical alpine peaks. In what stage of glacial erosion would you consider this region? What is the general elevation of the upland in which the valleys have been carved? What was the probable nature of that upland?

THWAITES

Room 212 Sterling

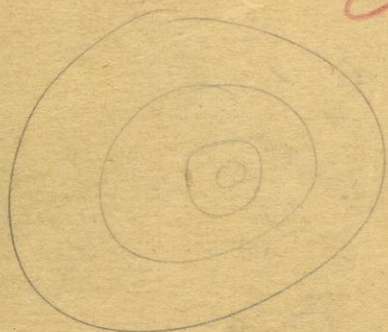
PHYSICS 51

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