

2017 Presbyterians for Earth Care Conference

Blessing the Waters of Life: Justice and Healing for Our Watersheds

Pre-Conference Spirit of the Salmon Immersion

Sunday 24 September

Geological history of the Columbia Gorge

Geologist Deborah Resley

Volcanic Activity

- ◆ 20 million years ago there was thick ash, mudflows and boulders from strata volcanoes' many different flows. Vista House sits on 600 feet of it.
- ◆ Columnar basalts formed in relatively flat areas.
- ◆ The ancestral Columbia River passed through a valley near where Mount Hood later arose. The river carried sediments from erosion and erupting volcanoes, in places building a 2 mile thick delta.



2. Volcanic Activity

- **17 to 12 million years ago:** More volcanic activity flood basalts
- Layers of thick lava covered the "flat" Pacific Northwest
- In the west, it followed the ancestral Columbia River- in places 60 miles wide!

3. Cascade Range and Columbia River Gorge are formed

- **12 to 2 million years ago:** Folding and faulting produced the Cascade Mountains
- Cascade Range volcanoes produced lava flows covering much of area
- Our most famous strata volcano? Mt St Helens!
- (as we know) the Columbia River kept on cutting through- forming the Gorge!

3. Geologic Events "Speed Up" at the Gorge!

Ice and Water

- **10 million years to 100,000 years ago** Ice-age glaciers, dams in Canada
- Intervals of melting separated by approx 50 years starting near present-day Montana
- As many as 90 floods came down the Columbia River at 60-70 miles per hour!

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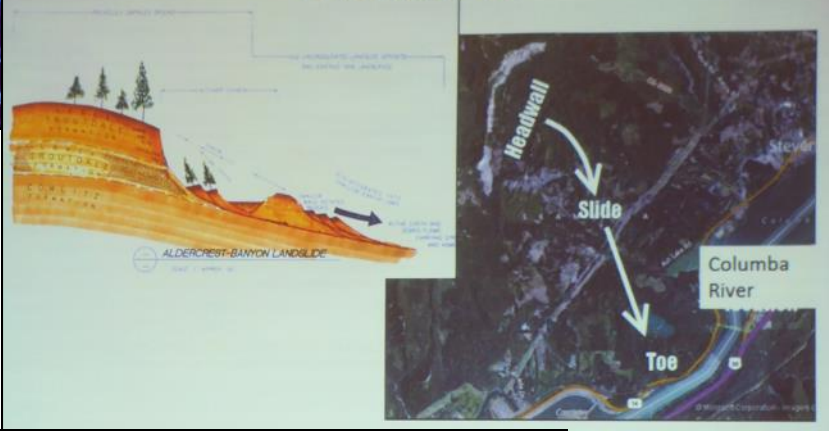
Geological history of the Columbia Gorge (continued)

4. More than 70 waterfalls along the Gorge

- > 18-15,000 years ago as land kept uplifting- streams continue to cut back
- > Predominantly on the wetter, steeper sides of the Gorge- Oregon

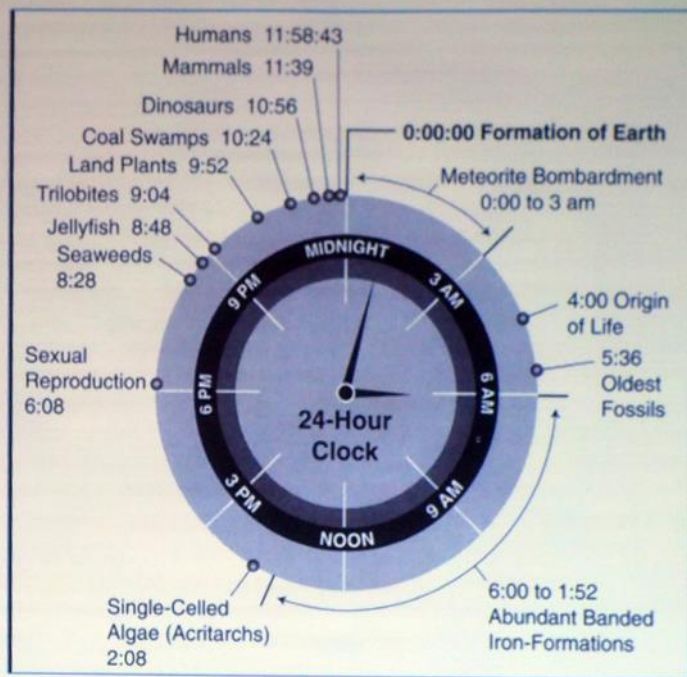


5. Land slides have occurred throughout



Bonneville Slide occurred about 550 years ago and was said to have created the Bridge of the Gods (right aerial photo).

Geologic Time Scale of Our Earth



The Cascade Gorge was formed between 11:30 pm and midnight!

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“Native Ways of Being and Knowing”



Ilarion (Larry) Merculieff, Aleut from Pribilof Islands, Alaska.



Lana Jack, Celilo Wyam and Columbia River Indian Center



Jefferson Greene, Cultural Liaison Confederated Tribes of Warm Springs

“Mother Earth has a disease and that disease is humans.”

