

# Mount Helens!



**By: Pranav Dasan**







## When:

Mount Helens is a huge part of Washington history because of its big eruption that happened on May 18, 1980 at 8:32 a.m. Pacific Time.



# CROSS SECTION

The visible portion of Mount St. Helens is built on top of the remnants of an older volcano that formed between 2,500 and 40,000 years ago. The upper cone of the volcano was not today is less than 2,500 years old. The summit of Mount St. Helens before the May 18th eruption was only 560 to 600 years old.

The geologic cross section of the volcano reveals a long history of frequent

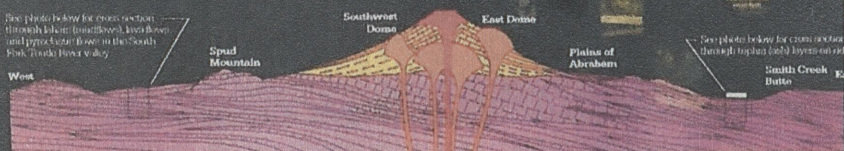
eruptions interrupted by periods of relative quiet. Exposed in the steep crater walls are layers of lava flows, pyroclastic flows, mudflows, and ash and pumice deposits. These layers are less than 2,500 years old.

The older remnants of the volcano (2,500 to 40,000 years old) are mostly covered by the upper cone. The lighter-colored rocks exposed in the lower crater walls are old

domes. Dark-colored vertical dikes composed of younger rocks cut through the domes. These dikes were the pathways through which magma rose to the surface. Deposits from this older period, such as ash and pumice layers, lava flows, and pyroclastic flows, are more richly found beyond the immediate flanks of the volcano along river valleys.

Five photos below for cross section through Helens (east-west), West Fork, and pyroclastic flows in the South Fork, North Fork valley.

West



Five photos below for cross section through Helens (east-west), Smith Butte, and pyroclastic flows in the South Fork, North Fork valley.

East

### Modern Mount St. Helens

Cherty andesite and dacite and some basaltic rocks less than 2,500 years old. Deposits consist of ash, tephra, and layers of lava flows, pyroclastic flows, mud flows, and lahars. These are exposed in the upper crater walls.

The 1980 eruption of the dome and lateral magma conduit. The 560 to 600 year old dome was removed by the debris avalanche on May 18, 1980.

### Early Mount St. Helens

Deposits of cherty andesite and dacite, pyroclastic flows, mud flows, and ash, bed washes, and lahars. These are exposed in topographic lows such as in Smith Creek valley and along the Swift Creek River.

Cherty dacite domes between 2,500 and 40,000 years old. Some of the domes are now exposed in the lower crater walls.

### Early Volcanic Rocks

Volcanic rocks are high in proportions from basalt to rhyolite that are 21 and 36 million years old. The beds, including layers of lava flows, pyroclastic flows, and some of pumice and ash, are exposed. The layers generally dip westward as can be easily seen around Spind Lake.





The Length:

Before the eruption, Mount Helens was 9,677 feet (2,950 meters) tall, and was the fifth tallest mountain in Washington. But now it's only 8,366 feet (2,549 meters). That means the eruption blew up 1,311 feet (399 meters) of land!



Before.



After.

After the eruption, a crater was formed. It was 600 feet deep, 1.24 mile wide and 1.87 feet long.



How:

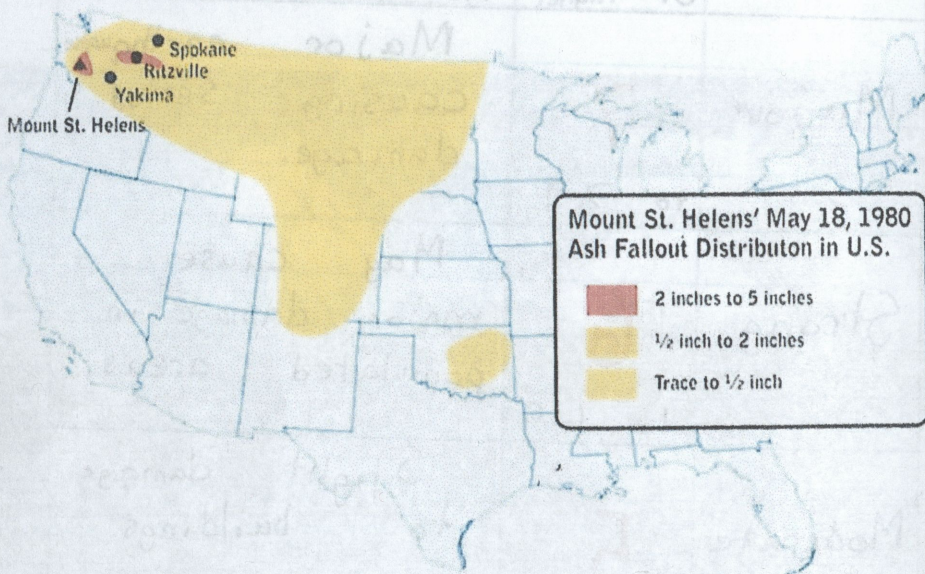
The Mount Helens eruption was caused by an earthquake that occurred 1 mile (1.6 km) below the volcano. The magnitude of the earthquake was 5.1.

Great	8 or higher	Great earthquake that can totally destroy communities near its epicentre.
Major	7 to 7.9	Major earthquake causing serious damage.
Strong	6 to 6.9	May cause major damage in populated areas.
Moderate	5 to 5.9	Slight damage to buildings.
Light	4 to 4.9	Often felt but minor damage.
Minor	3 and below	Usually not felt but can be recorded by seismograph.



### The Ash:

The ash plume of the eruption was big too. It spread across many states. By noon the ash plume was in Moscow, Idaho, and by 3:00 P.M the ash was near Missoula, Montana, and starting to spread south. At the end of the day (16 hours after eruption) the ash plume reached central Colorado. That's 1,305.4 miles away from Washington!



The ash formed by the eruption was 3 feet thick and 2 feet deep.



### Effect on People:

57 people died because of the eruption, and many more were injured badly. All the manmade structures near the volcano were destroyed due to the land slides. The two counties, Cowlitz and Skamania were affected badly too destroying nearly 200 cabins and houses that left many people homeless. More than 185 miles of highways and roads were destroyed or heavily damaged because of the big eruption.



The death and damage caused by the eruption was so bad that it became the most destructive volcano in U.S. history.



Mount

St.

Helens





# Fun Facts!!!

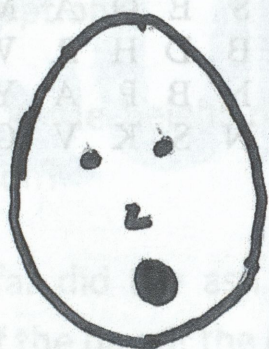
Did you know that the eruption lasted for 9 hours?

Did you know that Mount Helens has the most frequent eruptions of any volcano in the Cascade range. This is because it has many small eruptions that we don't feel?

WOW!



Did you know that most of  
Mount Helens is younger than  
3,000 years old? That's younger  
than the pyramids of Egypt.



**DID YOU  
KNOW?**



# Word Search!

P R N S S T O B C I Q I  
Q O Z O X A A D F M N T  
F N Y E T V W S F P N F  
C A D A G G S M H L K T  
V C L R M H N T E U D R  
L L F T V A I I U M W T  
A O P H P F P S H E T D  
V V W Q E J H Y T S H N  
A O K U U L S S E O A M  
M L V A N D E B D H R W  
D G X K P Q M N B P A Y  
I C Y E T N X N S K V C

1. Helens
2. Ash
3. Plume
4. Lava
5. May
6. Washington
7. History
8. Volcano
9. Earthquake



# Quiz Time!

- A) When did Mt. Helens erupt?
- B) What was the magnitude of the earthquake that caused Mt. Helens to erupt?
- C) What was the height of Mt. Helens *before* the eruption?
- D) What is the height of Mt. Helens *after* the eruption?
- E) How far did the ash plumes spread by the end of the day of the eruption?



Answers: A) May 18, 1980 at 8:32 a.m. PT B) 5.1 on the Richter scale C) 9,677 feet D) 8,366 feet E) Central Colorado



# MY VISIT TO MT. HELENS



I visited Mt. Helens National Volcanic monument on the Dec 23<sup>rd</sup>, 2018 to learn more about the volcano, its eruption and its scientific history. The documentary movie which was played at the Visitor Center Auditorium was very informative and enlightening. There was a lot to cover; I have tried to give a brief photo journal here.



Fig. (a)

These are 7 layers of rocks and dirt found in Mt. Helens. [Fig. (a)]

- Double Soil and Pumice
- Pumice
- Soil
- Dark Ash
- Rock and Ash
- Soil
- Charcoal





*Fig. (b)*



*Fig. (c)*

Compared to the eruption in Mt. Mazama, Crater Lake, Oregon the eruption of Mt Helens was very small. [Fig.(b) and Fig. (c)]



*Fig. (d)*



*Fig. (e)*

These two rocks, Breadcrust (left) Pumice(right), are two rocks found in Mt Helens. [Fig. (d) and Fig. (e)]



# SAINT HELENS

With apocalyptic roar and the sound  
 Of the fifth angel's trumpet, this star's fall  
 From heaven collaps'd the volcanic north  
 Face, releasing in pyroclastic flow  
 Roiling, rumbling, demonic spirits,  
 Dwellers of the Abyss, vaporizing  
 Instantaneously man, deer and bird,  
 Blotting the sun, with roiling death's ash clouds.  
 Today, this scene, once hosting Cascadian  
 Armageddon, now quiet, as the new  
 Heaven and earth reclaim sanctuary  
 Where thrush and grouse hide, deer and elk wander  
 Feeding 'midst heather and lupine. Life does  
 Recover her tenuous hold on earth.

- Sonnet written by **David Palmer**

These two rocks, Breadcrust (left) Pumice(right), are two rocks found in Mt. Helens. (Pg. (b) and Pg. (c))