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[Mt. St. Helens Hazard Analysis Archive - Including Volcanic Ash] Mount St. Helens Diary: A Sunday Holocaust

Of particular importance in this archive are the ash sample and subsequent laboratory work conducted that this ash might pose. The sample, contained in a glass vial and weighing approximately 200 grams, was collected on May 18th (the day of the eruption) by a Boeing employee who was in Washington at the time.

The ash was analyzed using x-ray spectrometry, and optical microscopy, electrical conductivity, and other then-cutting edge materials. The analysis is described in the two reports included. The major, minor, and trace elements constituent in this sample are identified and are consistent with subduction zone volcanism typical of Cascadia volcanoes (see below). No compounds which are particularly detrimental to human health are noted, but concerns about the acidity of ash are raised. However, the identification of large quartz particles is a cause for concern due to their abrasive nature both on the human respiratory system and in the operation of machinery.

The rapid pace of the analysis, conducted just 2 and 4 days following the eruption, speaks to the urgency of this work. Results from this study were shared with insurance agencies, the EPA, NASA, and airline regulators. The damage which airborne ash can do on machinery, and, in particular, aircraft, was as yet poorly understood. The quantification of these threats was invaluable to returning to normalcy after a large proportion of the country was blanketed in ash.

The archive includes:

- *Mount St. Helens Diary* May 28, 1980
- Map of the area around Mount St. Helens
- Analysis of Mount St. Helen's Volcanic Ash -- May 20, 1980 Laboratory Report prepared by R.P. Bossler and approved by K Vaughn
- Analysis of Mount St. Helen's Volcanic Ash -- May 22, 1980 Laboratory Report prepared by E.R. and approved by K.D. Vaughn
- Original ash sample (apparently the sample analyzed above)

The Mt. St. Helen's Eruption

Mount St. Helens, located in Washington, is one of the many volcanoes on the Cascadian Volcanic Zone. Melting in the area is driven by the influx of water underneath the North American Continent as parts of the Pacific Ocean subduct below California, Oregon, Washington, and British Columbia. This melting leads to large amounts of molten rocks being stored underneath volcanoes, which leads to massive, explosive eruptions due to the high water and silica content of the melt.



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Diary: A Sunday Holocaust**

The volcano is best known for its major eruption on May 18, 1980, the deadliest and most economically destructive volcanic event in U.S. history. In the vicinity of the eruption, 57 people died, including the famous volcanologist David Johnston, who had argued that the area should be closed to the public prior to the eruption. The impacts of this eruption were not only local, with ashfall also reaching the east coast within three days of the initial eruption. This would be the most devastating eruption in US history, with damage totaling several billions of dollars. However, not all impacts of the eruption were negative; it was later discovered that certain crops benefited from the increased ability of the ash to retain soil moisture.

Detailed Condition: