

1816: The Year Without a Summer and Its Impact on Germany Migration

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Mount Tambora, Sumbawa Island, Indonesia

- The volcano erupted on 5 April 1815, sending ash 18 miles into the air. A second eruption on 10 April shot lava into the air, created whirlwinds that caused tsunamis, and rained down pumice stones. Many of the pumice stone landed in the ocean, where they formed fields of pumice that floated for miles.
- Nearby villages were covered in 40 inches of ash. About 12,000 people nearby were killed from the explosion with 70,000 dying later from related impacts (such as respiratory diseases). The eruptions created an ash cloud the size of Australia.
- The volcano's eruptions were 100X more powerful than Mt. St. Helens (1980).
- 55 million tons of sulfur dioxide gas were released into the stratosphere.
- If gas and ash had stayed in the troposphere (about 6 miles above the Earth), rain could have washed this away and the impact would have dissipated more quickly. Because the gas and ash circulated the Earth in the stratosphere (6-31 miles above the Earth), particulates had to be pulled down by gravity. This increased the time needed to clear the air and caused the global impact.

Impact on weather

- The weather impact in Indonesia was immediate, but it took several months for the impacts to be felt in other parts of the world.
- 1816 was identified as the second coldest year in the Northern Hemisphere.
- In December 1815 and January 1816, significantly heavier snowfall was reported in Europe (Italy, Hungary), with the snow colored red, yellow, brown from the particulates in the air.
- Spring of 1816 was cold, rainy (sometimes snowy), with lots of flooding. This continued throughout the summer and into the fall.
- Winter of 1816-1817 seemed more normal to many, but may have felt more normal simply because cold weather is expected in winter.
- Spring and summer of 1817 were slightly warmer than 1816, but still cold and rainy. In spring/summer of 1817, it was warm enough for the snowpack in the mountains to melt...but that resulted in two years of accumulated snowpack melting and more flooding occurred.
- The weather didn't go back to normal until 1818.
- North America had similar cold weather but had drought instead of the flooding experienced by Europe.

Reactions/superstitions

The impact of volcanoes on the environment wasn't well understood by scientists until after the 1980 eruption of Mt. St. Helens. In 1816, the theories for what was causing this included sunspots, ice floating in the Great Lakes and North Atlantic, earthquakes in the lower Mississippi River valley, or that the Day of Judgment was coming.

Impact on agriculture

- Cold weather spring of 1816 delayed planting.
- For anything that did get planted, excessive rain caused everything to rot in the fields.
- Lost 2/3 of most grain crops and prices went up.
- No hay to feed livestock so many people wanted to sell. This actually drove down meat prices for awhile.
- North America had similar issues with planting (ground in Vermont was still frozen in June), but crops dried up from drought rather than rotted from rain.
- Substitutes for wheat flour for bread included potatoes, barley, ground kohlrabi, brewers malt tallow, sawdust, and straw. People also ate nettles, sorrel, cowslips, leaves. Wild pigeon and hedgehog were popular meals. Also lots of oatmeal as oats were hardier than wheat and more survived the challenging conditions.
- Relief efforts included prohibiting using grain/potatoes to distill alcohol (needed to be saved for breadmaking), purchasing grain from abroad, distributing "Rumford soup" (bone broth, usually with peas or barley).

Other social issues

- Napoleonic wars had ended and lots of demobilized soldiers had returned home and were looking for jobs. High taxation by authorities to cover cost of war.
- Unemployment due to industrialization (especially the spinning industry).
- All these tensions (unemployment, high taxation, starvation) led to riots (especially in France, but also a few other places), lots of property theft.
- In North America, riots didn't occur but religious revivals swept through New England.
- Veterans of the War of 1812 received bounty land grants, which encouraged emigration to the west.

Emigration

- Starvation from Year Without a Summer and other societal issues combined to fuel emigration.
- About 100,000 Europeans emigrated because of this, many from German-speaking lands (about 35,000 from Baden and Württemberg; about 20,000 from Alsace-Lorraine). Example from Ireland of emigration increase – in the previous year, 2,000

people in total had emigrated. In 1816, 700 people PER WEEK were applying to leave.

- Also huge emigration from U.S. East Coast (especially New England) to the west (Ohio, Indiana, etc.). Ohio's population increased 73% (1800-1817). Illinois' population increased 160% (1815-1818). Indiana's population quadrupled.

German emigration

- In the early 1700s, German emigration was primarily to the U.S.
- About 1750-1780, German emigration to the U.S. was disrupted due to the Seven Year War (aka French and Indian War) and the American Revolution.
- About that same time (1763), Russian rulers started inviting Germans to settle in the Russian Empire. Additional invitations were issued in 1804 and 1813.
- By the time people were emigrating after the starvation years of the Year Without a Summer, two established emigration options existed: west to America and east to Russia.
- In the 1700s, typical German emigration route was down the Rhine to a Dutch port. Passenger would be extended credit to take the ship for free. Their contract would be redeemed by someone needing labor in the U.S. The emigrant, aka "redemptioneer" would work two to three years to work off their passage money.
- With a flood of emigrants in 1816, this route could not handle the volume. People poured into Dutch ports, but there weren't enough ships to take them. They would wait in Dutch ports, hoping for another ship. Dutch authorities changed the laws to cut down on the number of people loitering in their ports. To enter the Netherlands, emigrants either had to pay or have a Dutch guarantor. Fewer people emigrated on this route and more people went to other ports or made prepaid arrangements. The Year Without a Summer emigrant flow completely changed the pattern of German emigration.
- The German emigration to Russia was considered the first mass migration of the 19th century. Numbers increased after the Year Without a Summer. From 1803/1804 to early 1817, numbers of German emigrants in Odesa about quintupled.
- Tsars made the emigrants promises such as free land, freedom from taxes for 10 years, and exemptions from military service. This made emigration to Russia very attractive.
- In addition to economic reasons, some emigrated for religious reasons. A group of 40 families called the Schwaikheimer Harmonie emigrated to Russia with a goal of seeing Judgment Day in the Holy Land. They stopped at the edge of the Russian Empire in Tiflis (now Georgia) and settled there instead of taking on the danger of continuing.

U.S. Emigration

- The weather extreme also accelerated emigration from U.S. east coast (especially New England) to new lands in the west (Ohio, Indiana, etc.) as people feared that New England was destined to become a land of snow and ice.
- Maine lost 10,000-15,000 residents in four years. Towns in Massachusetts and Vermont reported 40%-60% decreases in population. A newspaper in Ohio said that the number of emigrants in 1816 far exceeded what had ever been experienced before.

Conclusion

Although other societal issues also played a role, an Indonesian volcano had a dramatic impact on German migration patterns and the history of our ancestors:

- Death rates in Germany increased dramatically in the years after the Year Without a Summer.
- The deluge of emigrants in 1816-1817 forever changed the pattern of German migration to North America.
- The starvation from the Year Without a Summer significantly accelerated German immigration rates to both North America and Russia.

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