

Meteorological Conditions along the Trail of Tears

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1. Introduction

Those who have studied the Trail of Tears (Figures 1 & 2) know that weather conditions were agonizingly harsh. The period discussed in this paper covers the summer of 1838 until the spring of the following year.

Unfortunately for the author, meteorological records of temperature and precipitation do not exist. Weather records for Nashville, Tennessee, for example, which boasts the longest period of record in Middle Tennessee, date to 1870 -- more than three decades after the emigration.

Thus, the only information on meteorological conditions experienced along the trail are those scant reports included in journal accounts by those who were present. No temperature or precipitation measurements are available, and one is left to wonder the exact magnitude of those conditions.

Those who produce case studies of meteorological events today enjoy a monolithic amount of data to analyze -- surface and upper air conditions, radar and satellite data, and computer model depictions -- so much so that the typical researcher sheds some of the data available to him because he finds it redundant to utilize all available resources.

The available meteorological information describes three distinct seasonal periods through which the Cherokees were routed: an extreme summer drought, a harsh, wet autumn, and an insufferably cold winter. Based on the limited accounts available, the author will attempt to weave together a description of the meteorological events which brought about the unusual seasonal extremes that those on the Trail of Tears endured.

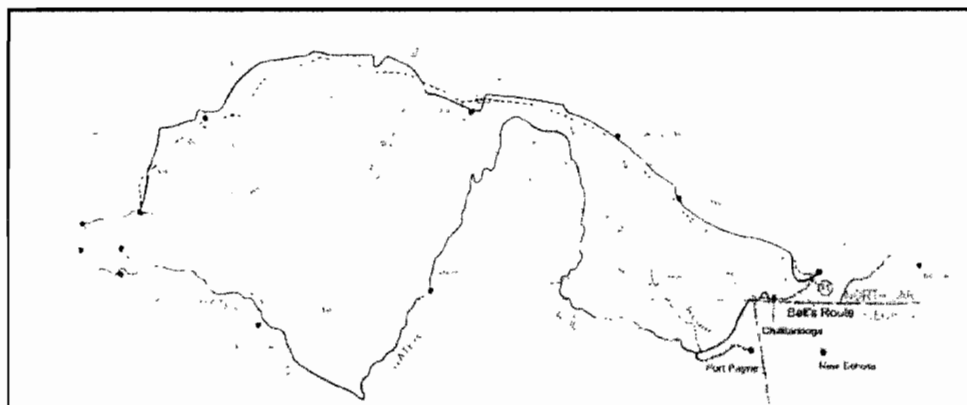


Figure 1. Routes of emigration

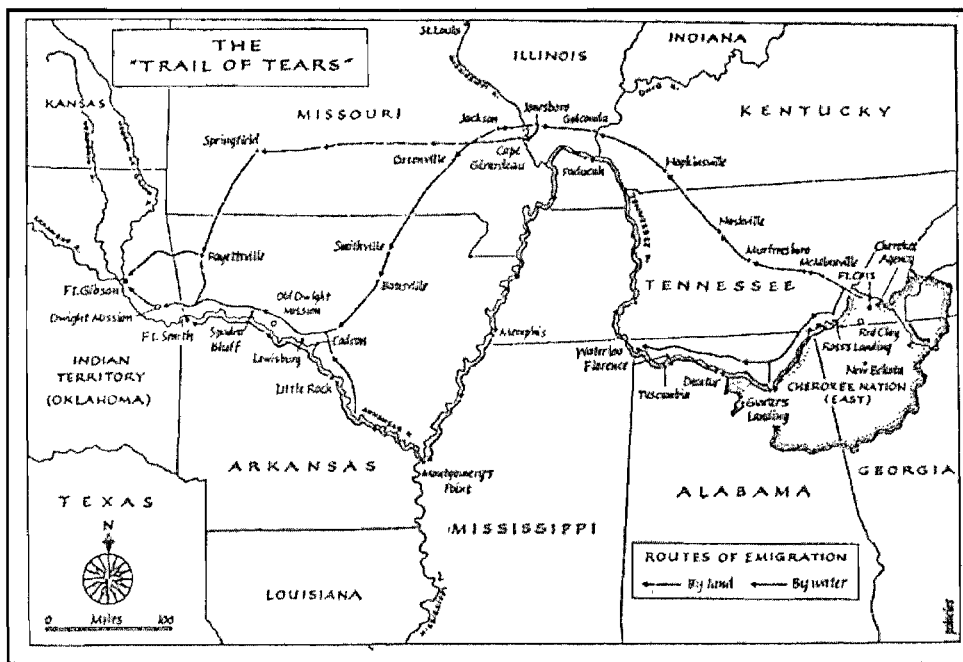


Figure 2. Routes of emigration

2. The Drought of 1838

The unusual weather that was observed in the source region of the emigration we know as the "Trail of Tears" began during the late winter. Wilkins (p. 317) notes that one Georgia settler reminisced "The spring of 1838 opened most beautifully."

There was no cold weather after the first of March. Vegetation advanced without any backsets from cold. The buds burst into leaves and blossoms; the woods were green and gay and merry with the singing birds. The Indians started to work in their fields earlier than before.

The Cherokee roundup began on May 23, 1838 -- a time when the Southeast suffered from its worst drought in recorded history (Trail of Tears Timeline), and Georgia was said to have suffered the worst drought in a century (The Cherokee "Trail of Tears"). Between June 6-19, the first group of emigrants traveled the river trail to Fort Coffee (Norman). Low water forced them to travel overland from Arkansas. A separate source states "...they began to move west...out of the pines and rocks and red clay of Georgia into a drought in Tennessee and Alabama where in hot, dried-out swamps the moss hung listlessly from high cypresses" (Jahoda 1975).

(Oddly, on June 6, Lt. Phelps noted that in Cherokee County, North Carolina "It is almost cold enough for the same date in January.")

By the middle of June, the Tennessee River had ceased to be navigable, shutting off water travel and forcing the emigrants to instead travel by land. But owing to the drought, drying up wells and springs caused a shortage of drinking water. In addition, "the season of fever had set in, making illness

inevitable" (Wilkins, p.322).

Indeed, the three detachments that left under Army control all left from Ross Landing, the first on June 6, the second on June 15, and the third on June 17 (Jones, e-mail). The first two detachments went by water, but the water level had fallen so low that the third group went by wagons to Waterloo, Alabama, then by boat. The remaining Cherokees were placed under the control and care of the Cherokees themselves, and were divided into 13 detachments led by their lead men. (No soldiers were present.)

One of the more detailed accounts (The Trail of Tears) provides that:

River travel was difficult if not impossible because low river levels due to the drought. All in all it took 645 wagons, 5000 horses and oxen and river vessels used primarily for the ill. Grant Foreman, Dean of Indian Historians, recorded this appalling period. He stated that the weather was extremely hot, there was a drought, and water was scarce and there were suffocating clouds of dust mixed with the oxygen. He also stated that at least three but, up to five people died per day on the trail. By the end of June 1838 two to three hundred Indians were sick.

A separate account (Trail of Tears) paints much the same picture.

On a June morning, a long, ragged column of Cherokee began their westward march. Some of the Indians rode horses and wagons, but the majority walked. A Cherokee named William Coodey later wrote, "Groups of people formed about each wagon. The day was bright and beautiful, but a gloomy thoughtfulness was depicted in the lineaments of every face... Suddenly, a low sound of distant thunder fell on my ears. A dark spiral cloud was rising above the horizon and sent forth a murmur like a voice of divine indignation for the wrong of my poor and unhappy countrymen, driven by brutal power from all they lived and cherished in the land of their fathers."

Behind the Cherokee spread the red Georgia clay and the land they had know for generations. Ahead lay an area in present-day Oklahoma that the people had never seen before. The government called the area Indian Territory. In between stretched more than eight hundred miles of forests, mountains, swamps, and tortuous wilderness roads.

Each day, the sun raged like a branding iron in the heavens. The countryside suffered from drought. The Cherokee prayed for rain, but none came. Streams and creeks dried to sand, and the people's throats burned with thirst. Still they marched. And every step took them farther away from the homeland.

Diseases such as measles and whooping cough spread from one marcher to another. Frontier settlers who saw the once-proud Cherokee nation pass sadly in front of their homes wrote their relatives back East, "The poor people. They are dying like flies."

Then consider a quotation from Lt. L.B. Webster, who wrote of the sojourners just eight days into the journey, as they suffered in the heat while thunder often roared tantalizingly in the distance.

We were eight days in making the journey (80 miles), and it was pitiful to behold the women & children who suffered exceedingly as they were all obliged to walk, with the exception of the sick.... I had three regular ministers of the gospel in my party, and...we have preaching or prayer meeting every night while on the march, and you may well imagine that under the peculiar circumstances of the case, among those sublime mountains and in the deep forest with the thunder often roaring in the distance, that nothing could be more solemn and impressive.

In rare cases, the rain did come, sometimes violently. Lt. Phelps noted in his journal on June 4 that "We have thunder showers (sometimes two or three) every day. We are now (11 PM) visited by a particularly violent one. When the Indians passed yesterday, one came up suddenly and drenched them thro'."

On June 8, Deas (p. 5) wrote "Last night being clear with the moon nearly at the full the Boats continued to run until near day-light this morning..." and that "The weather has been remarkably fine...."

On June 11, Lt. Phelps again reported "To day's thunder shower was unusually violent, one of its bolts struck very near. On the summits of the mountains red patches are frequently seen in the woods where the lightnings have struck."

The same day, Deas (p. 9) wrote "...yesterday I had purchased 4 days supply of Fresh Beef, but owing to the heat of the weather...most of it became spoiled and unfit for use."

On June 12 (p. 10), Deas remarked "The weather since starting with the present Party has been warm and of yet there has been no rain."

Meanwhile, several chiefs appealed to General Winfield Scott, who was in charge of the forced removal, to suspend further travel until September 1 and the return of the cool season (Wilkins, p.322).

On June 15 (p. 13), Deas observed "The weather continues warm and there has been slight rain thro' today." Deas began his entry the following day with the news that "It rained very hard last night for a short time."

Otherwise, relief from the heat and drought was non-existent.

It wasn't until late September that the drought finally broke. Wilkins (p. 324) writes "On September 23, a short, light drizzle partially laid the dust, and on the twenty-eighth came a heavier, more refreshing rain to break the dry season at last." This occurrence set the meteorological pendulum swinging toward the opposite extreme.

3. A Treacherous Autumn

Benge's detachment at Fort Payne, Alabama, departed on October 1 (Jones, e-mail). The second group left on October 4, the third group on October 5, and so on. All of these groups except the first and thirteenth took the "northern" route. Chief Ross was with the thirteenth group, which departed on December 5. They traveled by water from Charleston, Tennessee. They had planned to begin leaving on September 1, but the drought continued until late September. Since they were to go by land, they were more concerned with the streams along their route than the level of the river, and the level of the water in Rocky River on the Cumberland Plateau in Tennessee was too low until late September.

Weather along the trail was as severe that autumn as the summer was hot and dry. A stray weather report on October 1, at the departure point of the first group to make the overland journey, mentioned that the day was bright and beautiful. "The sun was unclouded -- no rain fell -- the thunder rolled away and seemed hushed in the distance" (Quotations).

It was hot in the beginning and they drank water from the streams when they came upon them. Many people slept on the ground, and they gathered wood to build campfires for cooking meals. After two months it began to rain and the roads were very muddy. Wagons got stuck and some people threw away their belongings to make the load lighter for the horses and oxen. Many people became ill and died (The Trail on Which They Wept).

An account of one traveler from Maine, who passed several Cherokee groups on his way west, testifies to the severity of the rain and cold (Memories). The sojourner

...saw a detachment of the poor Cherokee Indians, about eleven hundred Indians-sixty wagons-six hundred horses, and perhaps forty pairs of oxen. We found them in the forest camped for the night by the roadside under a severe fall of rain accompanied by heavy wind. With their canvas for a shield from the inclemency of the weather, and the cold wet ground for a resting place, after the fatigue of the day, they spent the night. Many of the aged Indians were suffering extremely from the fatigue of the journey, and the ill health consequent upon it. Several then were quite ill, and an aged man, we were

informed, was then in the last struggles of death. The sick and feeble were carried in wagons-about as comfortable for traveling as a New England ox cart with a covering over it-a great many ride on horseback and multitudes go on foot-even aged females, apparently nearly ready to drop into the grave, were traveling with heavy burdens attached to the back-on sometimes frozen ground, and sometimes muddy streets, with no covering for the feet except what nature had given them.

Not only was the autumn wet, it was also unusually cold. Consider that by October, 1838, thirteen contingents of Cherokees had crossed Tennessee, Kentucky, and Illinois. The first of these groups reached the Mississippi River, where the crossing was delayed by river ice flows (Trail of Tears Timeline).

By early November, twelve parties were on the road, which was churned by "thousands of hooves and hundreds of wheels, until with the excessive autumn rains it became an endless quagmire" (Wilkins, p.325).

In his journal on November 7, Rev. Butrick noted "Soon after dark it commenced raining, and the wind drove the water into our carryall so that our bed and clothes became quite wet on one side. The weather also became very cold, and our blankets over the waggon were covered with snow when we arose."

The last of the 13 detachments to make the 800-mile march, which included Chief John Ross, went by water. On November 12, heavy rain and the presence of hundreds of wagons on the muddy route made the roads impassible (The Trail of Tears 3).

The next day, noted Rev. Butrick, "The rain soon commenced and we rode most of the day in the rain. At night we camped where we have about 1/3 of a mile to go for water. The night was stormy and we had considerable trouble to keep dry."

On November 17, General Scott noted that snow was heavy as he crossed the Cumberland Plateau in Tennessee (Jones, p. 51).

Indeed, bad weather delayed the march to Oklahoma into October (The Trail of Tears 2). As a result, the journey was pushed so late into the year that winter caught them on the trail, causing many additional deaths due to exposure (Trail of History).

4. The Frozen Winter

Gilbert (p. 57) notes the following story handed down by early settlers in the vicinity of Cape Girardeau, Missouri:

Winter came early that year, in 1838. The leaves were still on the forest trees, and the squirrels had not laid in a sufficient

supply of nuts, when without warning, a blast of frigid air from the north swept the river area and overnight froze the surface of the river when only half of the Cherokee nation had crossed... The ice prevented both boat and horses from moving. The horses walked round and round a turntable, winding the ropes that pulled the boat across and back. The ice prevented them from getting a footing and floating ice jammed the boat.

The cold lasted for more than a week.

Indeed, if the autumn was wet, winter was harsh, with river ice flows holding up travel, and prolonging the remaining groups to exposure. In fact, two-thirds of the removed groups found themselves stuck between the Ohio and Mississippi Rivers due to ice flows (Farrow).

As they moved north, the weather became very cold and ice formed on the water barrels in the morning. Food became sparse, and they relied on the resources around them for food. While they were waiting to cross the Mississippi River, snow fell. It snowed heavily along the northern trail and they had to cross many rivers (The Trail on Which They Wept).

The travelers were forced to camp in southern Illinois during the time of entrapment. Survival was nearly impossible, as shelter from the extreme temperatures was sparse (Searching).

Wilkins (p. 326-7) describes the winter, "with its ice and sleet and snow, was as fiercely freezing as the summer had been dry and torrid, and the Cherokees on the road suffered acutely from the cold. Fatigue, overexertion, insufficient clothes and bedding left them prone to illness."

By December, five thousand Cherokees were trapped east of the Mississippi due to the harsh winter. Many of them died (Trail of Tears Timeline.) When the crossing did take place, it still required nearly a month (Accounts).

Davis (p. 329), quotes an unnamed traveler's account:

On Tuesday evening we fell in with a detachment of the poor Cherokee Indians...about eleven hundred Indians-sixty waggons-six hundred horses, and perhaps forty pairs of oxen. We found them in the forest camped for the night by the road side...under a severe fall of rain accompanied by heavy wind. With their canvas for a shield from the inclemency of the weather, and the cold wet ground for a resting place, after the fatigue of the day, they spent the night....

The Nashville Union, on December 14, reported that "The Louisville Advertiser of the 12th says, 'navigation is brought nearly to a stand. From

Pittsburg to Marietta the river is frozen over, and at this place it is rapidly falling; indeed, it is as low as it has been at any time this season. We learn that there is only three feet of water at Flint Island, and some ten or twelve boats are aground there. Several are aground between here and Cincinnati."

On December 23, Rev. Butrick remarked that "The weather is now piercing cold...," and three days later again noted that "The morning is excessively cold. Rode to the encampment, one mile, and found our dear Cherokees comfortable in their tents," and that "It is said the detachments now at the Mississippi are stopped by floating ice, and Mr. Hilderbrand's detachment is stopped by the same means at the Ohio R."

Martin Davis, Commissary Agent for Moses Daniel's detachment, provided one of the most descriptive entries of anyone who wrote about their journey along the Trail of Tears. Describing conditions on December 26, Davis observed (Adams, p.24),

There is the coldest weather in Illinois I ever experienced anywhere. The streams are all frozen over something like eight or twelve inches thick. We are compelled to cut through the ice to get water for ourselves and animals. It snows here every two or three days at the farthest. We are now camped in Mississippi swamp four miles from the river, and there is no possible chance of crossing the river for the numerous quantity of ice that comes floating down the river every day. We have only traveled sixty-five miles on the last month, including the time spent at this place, which has been about three weeks. It is unknown when we shall cross the river....

On December 27, Rev. Butrick wrote "We proceeded with the detachment about 6 miles, where encamped for the week. Here the snow increased to three or four inches, and the weather was excessively cold."

In a December 30 letter on building fires along the road in advance of emigrants, E. Jones observed

Camp of the 4th Detachment of Emigrating Cherokees, Little Prairie, Mo. We have now been on our road to Arkansas seventy-five days and have travelled five hundred and twenty-nine miles. We have been greatly favored by the kind hand of providence of our heavenly father. We have met with no serious accident and have been detained only two days by bad weather. It has however been exceedingly cold for some time past which renders the condition of those who are but thinly clad very uncomfortable.... Every morning [we] make fires along the road at short intervals. This we have found a great alleviation to the sufferings of the people.

At the Mississippi River we were stopped from crossing by the ice running so that the boats could not pass for several days.

Here Bro. Bushyhead's detachment came up with us and we had the pleasure of having our tents in the same encampment, and before our detachment got all over, Rev. Stephen Foreman's detachment came up....

Indeed, several of the caravans were stopped at the edge of the frozen Mississippi River "with hundreds of sick and dying penned up in wagons or stretched upon the ground, with only a blanket overhead to keep out the January blast." The ice was too thin to support the wagons, but too thick for boat travel (Wilkins, p.327).

Lt. Prince noted on January 2 that "A party of Emigrating Cherokees passed thru town - Brown's party. It rained all day."

The next day, observed Lt. Prince, it was "Cloudy, warm & dry overhead - very muddy or very slippery. Two days later, the warmth continued, and the following day, the 6th, learned that the ice had just broken."

On Sunday, January 13, Rev. Butrick included in his entry that "Last night was also rainy and this morning during a heavy rain we had considerable difficulty in making a fire. The rain subsided before noon so that we held a meeting at br. J. Pridget's tent."

At Bainbridge in Cape Girardeau County, Missouri on January 28, Rev. Butrick began his entry "Last night it commenced raining, and the storm, snow & rain continues today. That will render it very unpleasant for our dear Cherokee friends to cross the river...."

On February 12, Rev. Butrick describes the slow progress his detachment had made: "We are told the detachment will probably be able to proceed on the journey tomorrow. It will then have been three weeks since our arrival on the other bank of the river. About half the detachment had crossed when the ice began to run and so filled the water as to stop the boats near three weeks."

(This is likely the second time the river froze over, as Lt. Prince noted in his journal that the river had become passable on January 6.)

As the trail wound its way into Arkansas, the travelers found little improvement. The White River was frozen along the banks. At any rate, they forded the river and made camp (The Trail of Tears 4).

An account from Samuel Cloud during the middle of winter, when "the mountains are behind us," the dead were buried in shallow graves because the ground was frozen.

Wiltse (p. 38) notes that Dr. N.I.I. Morrow described the events of February 24 as "rain all day and a hundred and twenty-five miles from where we crossed the Mississippi River." Likewise, it rained all day the next day, although February 27 "was clear and cold," but that it later

"snowed some" during the detachment's ten-mile journey that day.

Dr. Morrow described March 1 as "a warm, pleasant day" with "an appearance of rain." However, it "Commenced snowing about midnight -- a very sudden change in the weather,-- quite cold at daylight," which would have been the morning of March 2, during which Dr. Morrow notes there was a "snow storm from the north," it being "the coldest day we have traveled." Likewise, the following day "was very cold and the detachment did not move."

4. The Promising Spring

While still in Missouri, on March 8, Rev. Butrick was finally able to write:

The day was beautiful, and warm as May, so that we began to talk of Summer clothes. In the night on hearing it thunder and rain as we supposed, I sprang up to secure some things exposed to the weather, when I found our summer had changed to winter; and instead of rain we were beset with hard round snow. Soon, however, the snow fell in flakes and covered the ground about ankle deep. I kindled a fire, but the wind kept whirling in almost every direction so that I could scarcely stand by the fire, without being enveloped in smoke. We soon found ourselves encountering a southern winter, and could not secure ourselves from the piercing cold. I told my dear wife that it seemed almost as if we must perish.

On March 19, still in Missouri, Rev. Butrick reported "The weather was almost uncomfortable warm, and the clouds seemed charged with electricity, and about sunset we heard low thunder. Soon after dark the winds arose almost to a tempest. We retired to rest as usual in our little carryall, but were awakened in the night by a severe storm."

Six days later, it seemed as though the cycle of weather had come full circle from when the removal began ten months earlier. On March 25, Rev. Butrick noted that "The day was windy and dry so that the dust was often troublesome."

Early in the evening it began to thunder, and we had just composed ourselves to sleep in our little carryall, when we were awakened by loud peals of thunder & a heavy rain falling upon us. One shower followed another so that we had but little sleep. The High trees, however, hanging over us, were not commissioned to do us any harm.

The march ended on March 26, 1839 (Ehle, p. 394). Of the 17,000 Cherokee Indians who were rounded up for the westward migration in 1838, it is believed that between 800 and 4,000 perished along the way (Ehle, p. 390-1).

Acknowledgements

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