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Mosquitoes and Buffalo Gnats on the Santa Fe Trail

by Phyllis Morgan

Among the countless hardships and irritants faced by the people on the routes of the Santa Fe Trail were annoying insects, which included bedbugs, fleas, flies, gnats, lice, mites, mosquitoes, and ticks. Those insects were especially common along the rivers, creeks, streams, ponds and in river bottoms or low places where water collected after summer rains and storms. The pain inflicted on the people by this host of unrelenting pests caused much suffering for a caravan or company, fraying nerves and wearing patience extremely thin.

Animals also suffered greatly from insect bites and stings, causing them to be more recalcitrant and difficult to manage. Author Stanley Vestal described the animals’ plight in his book The Old Santa Fe Trail: “Mosquitoes, horseflies, buffalo gnats, kept them twitching and itching, stamping, rolling, and tossing their heads day and night, so that men had to drape spare articles of clothing over the wretched creatures, in order to give them enough peace of mind to graze a little.”

In the sweltering heat and sticky humidity of the summer months, in particular July and August, people and animals were nearly driven to madness. Of all the different types of insects, the mosquito and the buffalo gnat were more frequently mentioned in diaries, journals, and letters as the causes of travelers’ discomfort and inability to rest their weary bodies and minds after a long day’s journey.

In 1804 the Corps of Discovery, co-captained by Meriwether Lewis and William Clark, contended with the dreaded mosquito. In fact, it can be stated with certainty that the members of the expedition found mosquitoes very troublesome. Clark often complained in his journal during late June, July, and August about the annoying pests bothering the Corps as they worked their way up the mighty Missouri River, passing land where, in less than two decades, the dramatic era of the Santa Fe Trail would commence. Remarks from journal entries written by Clark attest to the Corps’s problems with mosquitoes (“musquito” was the spelling commonly used in the 1800s):

July 27 “I killed a deer in the prairie and found the musquitoes so thick and troublesome that it was too disagreeable and painful to continue...”

July 30 “A great number of musquitoes this evening.”

August 1 “The musquitoes very troublesome this evening in the bottom.”

August 3 “The musquitoes excessively troublesome.”

August 5 “The musquitoes very troublesome.”

A reader of Clark’s journal can almost hear a huge sigh of relief in his entry of August 16: “Every evening a breeze rises which blows off the musquitoes and cools the atmosphere.” As the Corps of Discovery entered the higher, drier country of the plains, the comments about mosquitoes being troublesome ended. Gnats and ticks also caused much suffering for the men.

Matthew (Matt) C. Field, thespian and writer turned adventurer, included mosquitoes in several of his poems written during July and August of 1839, when he traveled over the famous “Road” with a group of friends and new acquaintances. On July 24, Matt Field wrote an untitled poem devoted mostly to mosquitoes and the agonies they inflict. A part of that poem follows:

We question not the great design,
Or aught that touches things divine.
But still should really like to find
For what musquitoes were designed.
Hungry, bloody little creatures—
They’ve no respect for limbs or features.
And with their pointed needle noses,
They bite us in our evening dozes.
We can as easy fly, as Sleep.
Our blood to them I think is Brandy
They suck it in like sugar candy
And they are quick as they are thick,
You may kill a hundred at a lick.
But who the Devil wants to kill
When ’tis our own blood that we spill!
And then for every one that dies,
A hundred hungry ghosts arise.
To beat them off is all in vain,
Twice doubled they return again
For they are quicker than the light,
And thicker—Yes—They darken night.

Although he often saw humor where many others saw little or none, Matt suffered as much as anyone else from those annoying pests. In another poem titled “The Night Camp,” he wrote on August 10, 1839:

Night comes. The evening meal is o’er,
Blankets and buffalo skins are spread
Thickly about the grassy floor
To form the prairie travellers bed.
Musquito Bars are stretched (sic) on stakes,
Near rivers, creeks, or swampy lakes,
To guard the sleeper from the sting
Of tiny foe with buzzing wing.
The “musquito bar,” mentioned in this poem and other
travelers' writings, was a box-shaped frame over which a see-through mesh fabric was stretched or draped. It was designed to fit over a person's sleeping area to provide protection from the bites of insects, while also providing adequate air to breathe and some ventilation.  

Susan Shelby Magoffin, young wife of trader Samuel Magoffin, wrote in her diary on Friday, June 26, 1846, about the creatures she detested the most: "I am no friend to bugs, worms, or snakes. These things, snakes and mosquitoes are the only disagreeable parts of my prairie life." A few days later, on June 29, she had one of the most disagreeable experiences of her journey as she was riding in her carriage with the caravan after nightfall in "the mosquito region" along the Little Arkansas River. Earlier in the day, she complained: "It was slap, slap, all the time, from one party of the combatants, while the other came with a buzz[2] and a bite." However, it was much worse later: "I found to my great horror that I have been complaining all this time for nothing, yes absolutely for nothing; for some two hundred or even thousands are nothing compared with what we now encountered."

The mules pulling Susans carriage were becoming increasingly disturbed by swarms of mosquitoes, making it difficult for the driver to control them. Suddenly, a mule jumped to one side and almost turned her carriage over. Her husband discovered a dead ox in their way. Forgetting the swarms, Susan quickly got out of the carriage. When she was able to return to it, her feet were covered with bites and her dress was completely covered.

The caravan was unable to proceed because the biting hordes had made the mules so frantic that they had to be turned out to fend for themselves. While Samuel hurriedly prepared a tent, Susan wrapped her shawl around her head, waited in her carriage, and listened to the din without. And such a noise as it was, I shall pray ever to be preserved. Millions upon millions were swarming around me, and their knocking against the carriage reminded me of hard rain. It was equal to any of the plagues of Egypt. I lay almost in a perfect stupor, the heat and stings made me perfectly sick, till Magoffin came to the carriage and told me to run if I could, with my shawl, bonnet and shoes on straight to the bed (and without opening my mouth, Jane [her servant] said, for they would choke me). When I got there they pushed me straight in under the mosquito bar, which had been tied up in some kind of fashion, and oh, dear, what a relief it was to breathe again. There I stayed in my cage, like an imprisoned creature frightened half to death."

Unable to get under the mosquito bar, Samuel wrapped his clothing around himself and tried to rest on the ground beside her. In the morning, Susan found her forehead, arms, and feet covered with knots: "They were not little red places as mosquitoes generally make, but they were knots, some of them quite as large as a pea." The Magoffs found another place where Susan was finally able to sleep soundly. Upon waking, she discovered the wind was blowing, the air cooler, and no mosquitoes.

Other travelers carried various means of protection against the overwhelming swarms of insects. Vestal told how some of their well-made plans to protect themselves did not always produce the effect they had hoped: "Some travelers carried mosquito nets to sleep under—and then found no sticks on which to prop them. . . . Buffalo chips proved to be good for keeping mosquitoes away. Wet, a chip fire was only a stinking smoke, into which a man was glad to stick his head at night, in the vain hope of snatching a few hours of rest from the torment of the mosquitoes."

As terrible as the mosquito was, the buffalo-gnat was considered to be even worse by some people on the Trail. Josiah Gregg described this insect in *Commerce of the Prairies*: "We had also occasion to become acquainted with another species of prairie-tenant whose visits generally produced impressions that were anything but agreeable. I allude to a small black insect generally known to prairie travelers as the 'buffalo-gnat.' It not only attacks the face and hands, but even contrives to insinuate itself under the clothing, upon the breast and arms, and other covered parts. Here it fastens itself and lingers until completely satisfied. Its bite is so poisonous as to give the face, neck, and hands, or any other part of the person upon which its affectionate caresses have been bestowed, the appearance of a putrid ulceroid [a person with small-pox]. The buffalo-gnat is in fact a much more annoying insect than the mosquito, and also much more frequently met with on the prairie streams."

In his book *Dangerous Passage: The Santa Fe Trail and the Mexican War*, historian William Y. Chalfant wrote about the eventful years of 1846-1848 and described the numerous tribulations faced by the men in General Stephen W. Kearny's Army of the West. The men started out from Fort Leavenworth and marched over the Trail to Santa Fe, arriving there on August 18, 1846. On that day the American flag was raised on the Plaza of the Palace of the Governors, and New Mexico was officially occupied without a battle. During their long march to Santa Fe, the men battled buffalo gnats and mosquitoes: "Once on the plains, misery took new and diverse forms. Swarms of buffalo gnats rose from the grass to harass both men and their animals; and when they reached the Arkansas, great clouds of mosquitoes at-
tacked with a ferocity few men had previously experienced. Hour after hour they stumbled through the unchanging monotony, beset by the stings and bites of insects. 18

One of those men was John Taylor Hughes of the First Regiment of the Missouri Mounted Volunteers. He wrote about the bugs assailing the troops as they made their way across buffalo country in July 1846: “... after a hurried march of twenty-five miles, we arrived upon the banks of the Little Arkansas, about ten miles above its confluence with the main Arkansas River. Here the mosquitoes and their allies, the black gnats, in swarms attacked us in the most heroic manner, and annoyed us as much, if not more than the Mexican lancers did at a subsequent period. 19 The black gnat Hughes referred to was commonly called “buffalo gnat,” which is scientifically designated as the black fly. The term “gnat” has long been used for any small fly.

Frank S. Edwards, a Missouri volunteer who marched in 1846 with Colonel Alexander W. Doniphan over the Trail, recalled in his memoir, A Campaign in New Mexico with Colonel Doniphan: “We passed on the 8th (August), the Lost Spring, so called on account of the remarkable difficulty in finding the exact spot where it rises. As we were moving out of camp in the morning, a light rain, which had been falling for some time, ceased and the sun shone brightly. The heat of its rays seemed to engender, from every blade of the wet grass, countless myriads of a small insect, bearing some resemblance to a gnat, which covered us and our horses so thickly that the original color of whatever they alighted upon could not be distinguished. Without biting, they got into the nostrils, eyes, and ears, creating a singularly pricking sensation, and making our horses almost frantic with pain. After an hour’s annoyance, a light breeze arose and swept them away.” 20

Long after Susan Magoffin and Frank Edwards were on the Trail, George W. Hardesty of Missouri headed over the Mountain Route for Colorado in 1878 with his family in mule-drawn wagons. Most of the large wagons carrying freight across Missouri and Kansas had been replaced by the railroad. In June 1878 the rails had advanced to a point west of La Junta, Colorado, where Hardesty found work on a construction crew. Like earlier travelers, he noted the profusion of mosquitoes, writing in his diary on June 12 inside the boundary line of eastern Colorado: “Camped in the river [Arkansas] valley. Mosquitoes annoyed us very much... As for myself they were probably around me but I didn’t know anything about it at the time as it generally takes something of more importance than a few hundred mosquitoes to disturb me when I fall to sleep.” 21 Hardesty filed on a homestead in New Mexico Territory in 1879 and remained there the rest of his life.

Those troublesome insects, the mosquito and the buffalo gnat (the black fly), belong to the Order Diptera, comprised of over 86,000 known species of insects. There are over 3,000 species of the mosquito (Family Culicidae) worldwide, of which 174 live in the United States, and about 1,800 species of the black fly (Family Simulium), which are not known to transmit serious diseases in North America. 22 Of all insects, the mosquito is the most harmful to people as the vector, or transmitting insect, of several of the most serious epidemic diseases in the world. Malaria is the most prevalent and widespread.

The people on the Trail were unaware that infected mosquitoes biting them transmitted the germs, parasites, and viruses that caused such devastating diseases as malaria and yellow fever. In 1880, the year the railroad reached Santa Fe and the Trail began to pass into history, a French army doctor, Charles Laveran, proposed that malaria was caused by a protozoan. A year later, Dr. Carlos Finlay, a Cuban doctor, suggested that infected mosquitoes were the vector in transmitting yellow fever to humans. By 1900, it was confirmed that both diseases are caused by the bite of an infected mosquito. Malaria (“bad air” from Italian mala aria) is caused by a protozoan transmitted by the female of a number of species of the genus Anopheles. Yellow fever, caused by a virus, is transmitted by the genus Aedes aegypti.

Travelers often referred to what was actually malaria as fever or “ague.” A variety of treatments were used for fevers, including bleeding and purging the ailing person and administering medicines containing mercury and other harmful substances. Quinine, made from the bark of the chinchona tree of South America, was found to be effective in treating fevers and malaria, although it was not readily accepted by many doctors, who believed it was a stimulant and would not administer it to anyone. However, some people taking the Trail had heard about the effectiveness of quinine in treating fevers and carried it with them.

A doctor who understood the benefits of quinine was Dr. John Sappington, a resident of the Arrow Rock area of Saline County, Missouri. He preferred quinine sulfate to bleeding, purging, or harmful medicines for patients suffering with fevers. He developed a formula in the 1830s which was sold as Dr. Sappington’s Anti-fever Pills. Susan Magoffin praised those pills over other treatments she had received for fever, most likely malaria. She wrote: “... the chief cure was ‘Drct. Sappington’s Pills,’ which I must ever eulogize as a medicine of fine qualities. One box of them administered by mi alma [my soul, referring to Samuel]

Without biting, they got into the nostrils, eyes, and ears, creating a singularly pricking sensation, and making our horses almost frantic with pain.
cured me, or at least broke the fever. After great prostration of body I am again creeping about.”

In October 1846, the Magoffins left Santa Fe and headed south to El Paso and then to Mexico. During her stay in Mexico and before her return to the United States, Susan came down with another bout of fever. This time it was the dreaded yellow fever. She survived the disease, but her health had been compromised numerous times during her travels, and she died in 1855 at the age of twenty-eight. Samuel, twenty-seven years her senior, died in 1888 at the age of eighty-seven.

In the preface of their book *Mosquito: A Natural History of Our Most Persistent and Deadly Foe* (2001), scientist Andrew Spielman, Sc.D., and author Michael D’Antonio, stated: “No animal on earth has touched so directly and profoundly the lives of so many human beings. For all of history, and all over the globe, she has been a nuisance, a pain, and an angel of death. The mosquito has killed great leaders, decimated armies, and decided the fates of nations. All this, and she is roughly the size and weight of a grape seed.”

Although the people on the Santa Fe Trail were unaware of the life-threatening dangers of the mosquito, the irony of an insect as tiny as the mosquito causing so much suffering and death would not have been lost on them. Today, the irony is not lost on us that with all our marvelous advances in science, medicine, and technology, the mosquito continues to be an ever-present danger in America and around the world, killing millions of people annually. Our battle with the mosquito is ongoing.

**Afterword**

The Santa Fe Trail Hikers (1996-2004), led by SFTA member Inez Ross, also experienced some troublesome insects, in particular when we were hiking close to the Missouri River, headed east toward Old Franklin and New Franklin. I especially remember the first day of contact when I heard a familiar, dreadfully humming, ominous sound caused by the beating of tiny wings. Mosquitoes were trying to attack my face and hands. Fortunately, the rest of me was well protected. Reminiscent of Susan Magoffin on the Trail, “It was slap, slap, all the time . . .” Inez also found ticks in her hair. To my chagrin, I found that I had forgotten to carry insect repellent with me. Please, dear readers, on your summer outings near bodies of water or standing pools of water, don’t forget the insect repellent.

**Endnotes**


7. Ibid., 51.


9. Ibid., 41.


12-15. Ibid., 31, 33, 34, 34.


23. Magoffin, *Down the Santa Fe Trail and into Mexico*, 164.

24. Ibid., xxii-xxxiii.


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