

GISette



A quarterly newsletter to broaden people's understanding of mapping, geography and the City's Geographic Information System

Volume 3, Issue 3

Summer 2013

For Marlborough's Public GIS Web Site Visit the Following Link:

<http://gis.marlborough-ma.gov>

Welcome to the history edition of the *GISette*! I'm deviating from the norm in this issue quite a bit. Instead of writing an intriguing article about some aspect of geography that you on the edge of your seats, I want to combine my love of history with the work of another GIS professional's. Living in Massachusetts, we are all acutely aware of our state's role in American History. But, now we can use GIS to explore that history as well. I hope you find this newsletter as interesting as I do!

What this map tells you about GIS

- This one map incorporates over a dozen maps from the Library of Congress that were used to create this GIS base map.
- Written accounts from historical texts have been transformed into geographical representations.
- Databases have been created from the muster rolls of soldiers who participated.
- By "layering" information, inconsistencies can be represented visually and, possibly, rectified.

ABOUT THE MAPMAKER

His name is Charlie Frye, and although I have never met the man, I am inspired by his work. I first came across his map during a course I took on cartographic design. The instructor showed us his work and offered to share the map he had produced and the data that went with it. Charlie works for ESRI, a company that makes GIS software. He combined his passion for history and cartography to create this map. I wanted to share it with you because it shows how truly versatile GIS can be.

The Battle of Breed's Hill

No, I don't mean Bunker Hill, but you might think I do.

An obelisk in Charlestown marks the spot on which the Battle of Bunker Hill took place. And most of us have heard the saying "Don't fire until you see the whites of their eyes!" It's a moment of national pride. A David and Goliath story. There's only one problem with this: That battle didn't happen on Bunker Hill, it happened on neighboring Breed's Hill. And technically, we lost. There's a little more to that "whites of their eyes" bit as well, but that isn't what this newsletter is about. This newsletter is as much about looking as it is about reading. Page 2 of this newsletter is a map. And the map tells a story. By using various sources of information, Charlie Frye, the author of the map, weaves together a narrative of an important event using GIS and tells his own ancestor's story in the process. I like his work for several reasons. First and foremost I am a true history buff. I like to see a story told accurately and concisely. Too often the true story of an event is lost because of inept authors, rumors and even bugs bunny cartoons. History has become one big game of "telephone". The other reason I like this map is because it shows you just how versatile GIS can be. It takes into account written narratives, lists of names and places, historical maps and a variety of other sources and turned them into a visual representation of the facts. By creating layers of information and arranging them in a clear and concise fashion, we can derive information that tells us, and more importantly, shows us, what happened that day in American history. I encourage you zoom in and really explore the attached map. I promise you'll enjoy it.

The Battle of Bunker Hill, June 17th, 1775



The Battle

Starting Locations of Forces
 For reasons unknown, the rebels constructed their redoubt on Breed's Hill and not on Bunker's Hill, as originally planned. Breed's Hill measured only 60 feet in height, as compared to Bunker's 110 feet, and was closer to the eastern and southern shorelines, making it a target for artillery both offshore and in Boston. Breed's proximity to Boston also posed a more substantive threat to the British encamped in the town, ensuring their immediate retaliation.

After construction of the redoubt, COL Prescott extended the defenses to the north by almost three hundred feet with the construction of breastworks. Colonel Knowlton and Stark were given the task of securing the American left flank, along the Mystic River. Knowlton added to a pre-existing stone wall which ran north to the beach. Stark extended the wall with wooden rails to the edge of the water. As the edges of the breastworks and stone wall did not meet, other men built fleches to plug the gap. With the addition of expert in abandoned buildings in Charlestown the Americans had created a line of defenses from 2000 - 4000 strong, depending on accounts.

The British started in Boston, delayed in their attack by both the tide and a shortage of boats. General Howe's senior officer, General Howe, planned to move westward from Moulton's point, flank the redoubt on Breed's Hill, capture Bunker Hill and Charlestown Neck, and encircle the colonials.

The Grenadiers, delayed by broken terrain and stone fences hidden in the tall grass, then attacked, suffering the same fate as the infantry. They fell back in disarray, leaving the beach soaked in blood.

Reorganizing quickly, Howe planned his second assault to use the same avenue of approach, turning left at the last moment to attack the fleches constructed north of the redoubt. Coordinated with Howe's attack was Pigot's assault directly on the redoubt.

Howe was again repulsed hard, suffering

horrible casualties. Understrength to begin with, regiments of 400 or so men were reduced to less than ten men each.

Stark's men, retreating from the rail fence, prevented Prescott's men from being encircled. The retreat was carried out in good order preventing a rout.

Outcome
 The Americans were forced to withdraw, but not before inflicting upon the British surprisingly heavy casualties. The revolution became a real war in the minds of Americans and British alike. Never again would the American rebels be treated as a third rate mob.

The colonials had their first real taste of warfare in defense of their freedom. They found that the effectiveness of their fighting ability had been compromised by, among other factors, supply shortages, lack of discipline, and inter-colony rivalries.

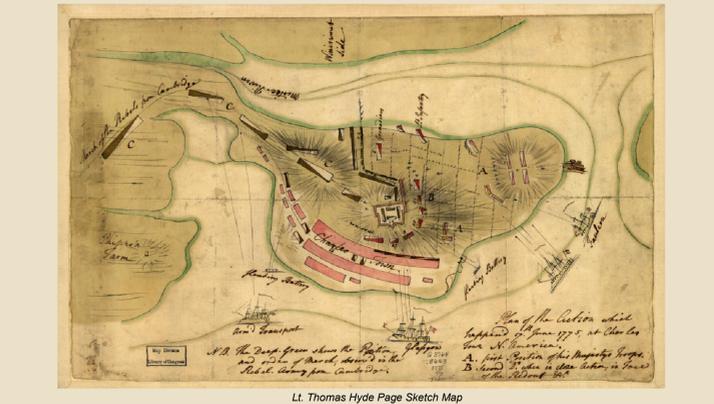
Lessons Learned
 Both armies had fought courageously and learned much. For the Patriots, the lesson was painful. Although they had captured the hill, out of 2200 soldiers engaged, 1034 were casualties. The British attempted no further actions outside Boston for the next nine months. When Howe replaced Gage as military commander in America, the events of that day would continue to haunt him, and he would time and again fail to follow up a victory over the Americans.

The Americans had shown they could stand up to the British in traditional open field combat. But when they had succeeded, it had been through individual gallantry rather than tactical planning or discipline. Some regiments had fought well, others not at all. Of an estimated 2500 to 4000 men engaged, 400 to 600 were casualties. Stronger leadership would be critical to success in future battles.

Source: Worcester Polytechnic Institute Department of Military Science Dept#MSciWAPU http://www.wpi.edu/~academics/Dept#MSciWAPU



LT. Thomas Hyde Page 1:24,000 scale map (size reduced here)



LT. Thomas Hyde Page Sketch Map

Isaac Frye's Story

Allow me to introduce myself, I am Major Isaac Frye. My great-great-great-grandson Henry Frye has asked me to talk about the battle of Bunker Hill during the Revolutionary War since I was there as a volunteer member of the New Hampshire militia.

At the end of April of 1775, I was 28 years old, working in my field in Wilton, New Hampshire when I received word of the Battle of Lexington and Concord. I told my wife Elizabeth and my children, "The war has begun and I must be going." Within five minutes I was on my horse and heading to muster with the rest of the 3d Regiment from New Hampshire. At the time I was a 2nd Lieutenant and the quartermaster for my regiment. In fact, I was one of the first quartermasters in the Continental Army. Quartermasters were responsible for equipping their unit's soldiers with tents, shoes, spades, transportation, anything to do with traveling and setting up camp. Being a quartermaster was tough then as Congress didn't have the funds to properly equip an army.

We mustered at Medford, Massachusetts, which is about four miles north by northeast of Boston. We were tired of the British King taxing us and telling us what to do without any representation in Parliament. When we got word that the British were planning to occupy Dorchester Heights just to the south of Boston, it was determined that the British had to be stopped in order to protect our land and freedom. And so the siege of Boston began.

I was under the command of Lieutenant Colonel James Reed. We were expecting to meet up with the militia from Connecticut, Massachusetts and Rhode Island.

At that time there was no Continental Army, just militias from each colony. In fact, on the day of the battle of Bunker Hill General George Washington was elected Commander in Chief by the Continental Congress. He arrived in Cambridge two weeks later.

On June 16th, we received word that our regiment would be called up and deployed on Bunker Hill. We had 446 fit men in our unit. Colonel Prescott of the Massachusetts militia was going to take 1,200 men and fortify Bunker Hill that night. When day broke at 4:00 AM on the morning of the 17th of June, the British were very surprised to see that the colonials had fortified the Charlestown Peninsula. More surprising was that instead of Bunker Hill, the rebels, as the loyalists called us, had fortified Breeds Hill. The British ships immediately began to cannonade the new fortification. But Prescott's men kept working, building a breastwork to the north of the redoubt they had constructed in the night.

We left Medford and arrived at the Charlestown Neck around noon on June 17th. There was a lot of confusion there. The British ships were firing their cannons onto the Charlestown Neck, and that was keeping a lot of militia from crossing. I crossed with Colonel John Stark, who led the 1st New Hampshire Regiment. Short of General Israel Putnam (of Connecticut), Colonel Stark was the toughest and bravest man I knew. Stark and Putnam had fought together as part of the site of the Redoubt's construction. Colonel James Frye also fought in the French and Indian War. My father Capt. Abel Frye along with our distant cousin, Colonel James Frye also fought in the French and Indian War. Colonel Frye was commanding the Massachusetts 10th Regiment from Andover, Massachusetts where I was born. They were one of the three regiments who built the fortifications on Breeds Hill. Our family was used to fighting.

My regiment took up a position along a low stone topped with a rail fence between Colonel Stark's regiment on our left and Capt. Knowlton of Connecticut on our right.

General Putnam was commander of Capt. Knowlton's regiment and picked Capt. Knowlton's men as being the bravest and most dependable from his regiment. Colonel Stark noticed that the beach to our left was not defended and he sent Capt. Moore to fortify it with a rock wall, and to take up positions there. Colonel Stark walked out front of Capt. Moore's wall and pounded a stake in the ground. He came back and said, "There, don't a man fire till the Redcoats come up to that stake. If he does, I'll knock him down."

We didn't have much powder or ammunition, so we had to make every shot count. General Putnam rode up and down the fence line encouraging us. He said, "Don't fire until you see the whites of their eyes!"

At about 3:00 on that hot afternoon the British assault began. We were ready for them. Standing three deep, one on his knees, one crouching, and one standing, two lines reloading while one line was firing. Row after row of the British infantry and grenadiers fell before us. We soundly defeated the best the British could throw at us that day. Not one man in twenty from the King's own 4th Foot Regiment, who charged us left the field under his own power that day. Stark's men treated the 23rd Royal Welsh Fusiliers even worse, and they got a lot of the 5th Foot Regiment too. Twice the British charged into our musket fire and twice they were beaten.

We fell back to Winter Hill, and even though we were in range of the British cannons, they clearly had lost the will to fight. I can see why, of the 2,200 who had engaged against us, almost half were killed or wounded. It was a major psychological win for the patriots and for the New Hampshire troops. It has long been said that the New Hampshire troops "held the line at Bunker Hill."

As for me, I went on to fight in many of the northern campaign battles, including Ticouderoga, Saratoga, I was with Washington at Valley Forge. The 3rd led the attack on Clinton at Monmouth, and were finally disbanded in 1781. Then I served in the 1st New Hampshire regiment for two more years, mostly guarding the north. For most of the war I was company commander and many brave men from New Hampshire served in my company. "Live Free or Die" became our state motto, we believed every bit of that.

stomped the redoubt and the fighting was fierce. General Warren was killed there and the British Marine commander, Maj Pitcairn was fatally wounded. It was so smoky that the British couldn't see many of the militiamen escaping. About that time we began to fall back and cover the retreat of those men escaping the redoubt. The British had called in reinforcements and with fresh men finally returned a lot of the punishment their units had suffered as the militiamen retreated.

Another of my distant cousins, Ralph Farnum, said of how such slaughter affect us. "The screaming was louder than firearms," Ralph said he was so sick couldn't stand to fire his musket any more after seeing and hearing such a horrific scene. Ralph would turn nineteen in July that year. He lived to the age of 105 and in 1860 would be the last survivor of the battle to die.

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Colonel James Frye, Commander 10th Massachusetts Regiment

If he were still alive, Col. James Frye, who lived at 169 Chestnut St., in North Andover, Massachusetts, until his death in 1776, Frye was a farmer, tavern keeper, and respected leader in the community and military.

Known for his brash speech, Frye fought alongside George Washington in the Battle of Louisburg during the French and Indian War. In 1775, he commanded 400 Andover militia men at the Battle of Bunker Hill.

Historical records from that battle say Frye was responsible for rallying troops who had begun to retreat from the British.

"This day 30 years I was at the taking of Louisburg," Frye shouted from his horse. "This is a fortunate day for America, we shall certainly beat the enemy!"

Minutes later, a musket ball tore through Frye's thigh and the horse's saddle, before lodging in its back. Frye got off the horse, pulled out the bullet, and taunted the British for their aim, yelling, "The regulars fire damned careless!"

He continued to fight, in spite of an injury that would kill him a year later when infection set in.



LT. Thomas Hyde Page 1:4,800 scale map (size reduced here)

Credits & Source Text

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- The War of the Revolution v1 Christopher Ward, 1952. The MacMillan Company, New York, NY
- The War for Independence: The Story of the American Revolution Albert Mann, 1988. Atheneum The MacMillan Company, New York, NY
- http://www2.lcc.gov/government/government/home.html: Library of Congress Map Collections Home Page

Map and Spatial Data Compilation

Elevation: National Park Service Map depicting colonial troop deployments