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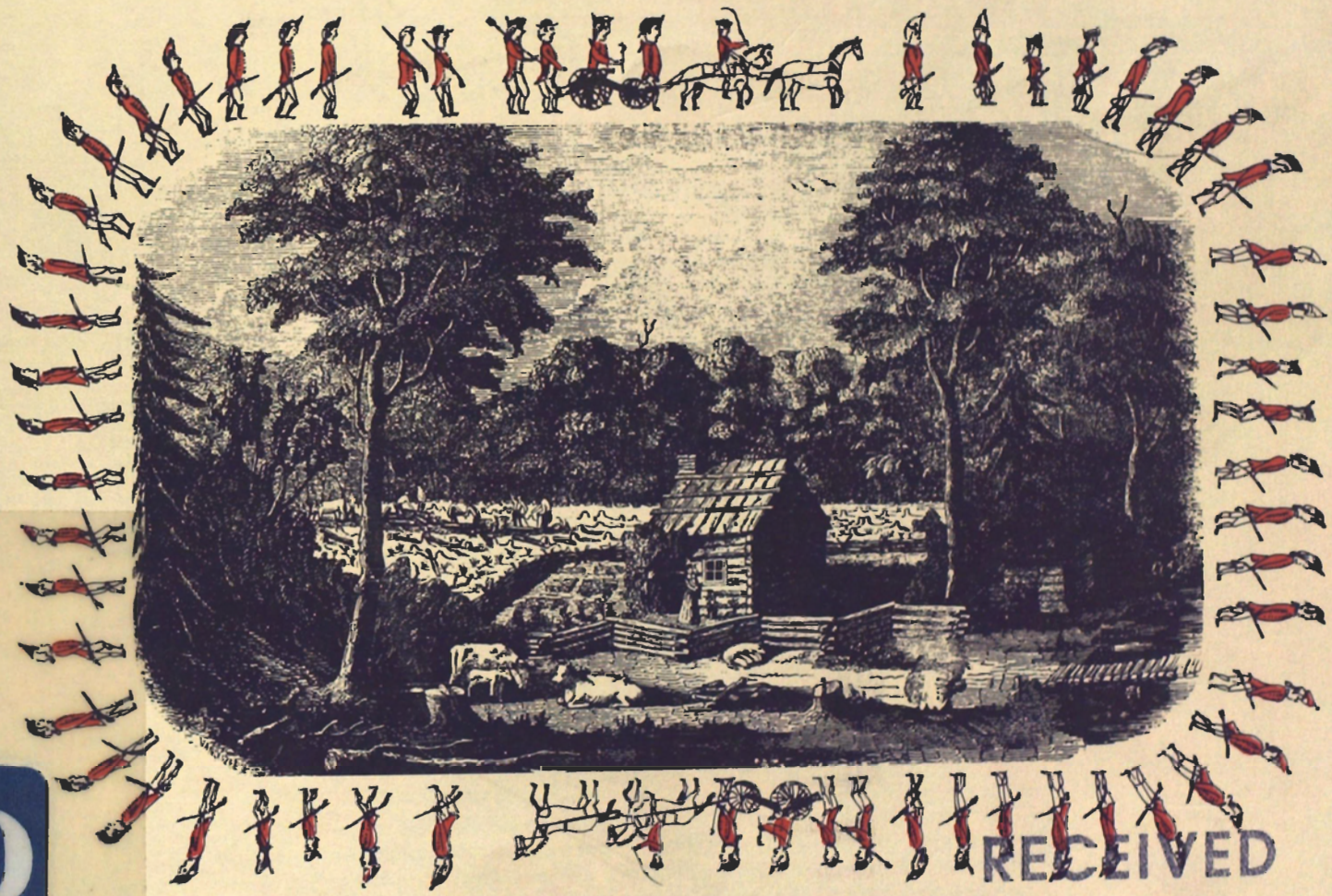
WAR over WALLOOMSCOICK:

Land Use and Settlement Pattern on the Bennington Battlefield—1777



New York State Museum
Bulletin No. 473

The University of the State of New York
THE STATE EDUCATION DEPARTMENT

Cover: *Engravings from an 18th century powder horn surround a rural frontier scene, symbolizing the British force that occupied Walloomscoick in August of 1777.*

WAR OVER WALLOOMSCOICK

Land Use and Settlement Pattern on the Bennington Battlefield—1777

Prepared by the Division of Research and Collections of the New York State Museum

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PREFACE

Most living history museums of the colonial period have research libraries full of documentation on late eighteenth century farming practices, along with collections of artifacts and antiques that provide a clear image of the tools and technology of late eighteenth century farming. The reconstructed farms visited by tourists at these museums are usually based on such historical documentation. But how often have researchers at these museums or elsewhere been given an opportunity to see an eighteenth century farm layout in detail, as though mapped by a surveyor?

In regions where structures and field boundaries were originally laid up in stone, one can still wander about the skeletons of eighteenth century farmsteads by merely strolling through a piece of neglected woodlot, or by examining a set of aerial photographs. But in regions where wood was used, fences rot away in a few years leaving hedgerows that may persist for a while, but which eventually fall victim to modern farming. The inevitable march toward the consolidation of fields, permitting the use of large scale mechanized equipment, consumes these archaic remnants of an earlier age of agriculture, when a plow and team could be turned in a fraction of the space required by modern machinery.

How can we study eighteenth century land patterns archeologically, i.e., in the field, with precision and detail? We may be able to locate house and barn sites, roads and lanes; but the spatial arrangement – the field boundaries and their attendant functions – appear obliterated by the march of time, particularly where they were first erected of wood rails and brush. We face a barrier, even in areas where fields were bound by stone fences, in assigning functions, field by field, over 200 years after the fact.

In reconstituting the daily routine of the eighteenth century farm family, the historian may draw liberally on detailed period accounts of farm functions and activity, and that knowledge may be sufficient for the daily round of demonstrations and explanations by the costumed staff at living history museums. Yet how can we relate these accounts to physical space, except in the most general manner?

This study attempts to break through this frustrating barrier. Here, at Wallooms-coick, in mid-August of 1777, we have an opportunity to see complete farms "first-hand" through the eyes of a young Lieutenant of the British Corps of Engineers. We are provided a spatial plan, accurate in scale and detail, as well as the remnant observations of hundreds of pairs of eyes, soldiers and civilians, all viewing an instant in the existence of these farmsteads over 200 years ago.

Such opportunities are uncommon. An eighteenth century farm journal would record many instants of a farm's existence but with no spatial context, its primary purpose being to preserve a statement of process and activity. A farm map of the period would record only one spatial instant, but with no content, its primary function being to preserve pattern and dimension. Here, at Walloomscoick, we have a combination of these elements of process and pattern because of the almost arbitrary coincidence of war. Over 200 years ago human attention focused on this square mile of frontier farmland much as the lens of a camera, creating an image almost as detailed and indelible.

DEDICATION

to Lieut. Desmaretz Durnford, British Corps of Engineers, who by his hand created an eternal window to the past...

For 200 years, every catalog of maps and every battle history attributed the map of the battlefield at "Walmscock" to either Elias or Andrew Durnford.[1] Brothers, both engineers, and both in service in America during the Revolution, they are apparently not related to Desmaretz, nor can they lay claim to participating in the creation of this unique document. The discovery of this historical injustice awaited the 1976 research of Marshall and Peckham[2] into a 100-year-old manuscript history of the Corps of Engineers[3] in England.[A]

Having established his identity, it is now possible to document at least fragments of the life and career of this young officer who, so far as is known, produced no other such map in his brief lifetime.

Little can yet be reconstructed of Durnford's early life in England. He is not mentioned in the Durnford family history,[4] and therefore appears unrelated to the line of Andrew and Elias. He was commissioned an Ensign in the Corps of Engineers in 1770, which would suggest his age to be about 25 when he drew this map.[5] He was promoted to Lieutenant in 1776 and is listed as serving in "America" beginning that year, assigned to "Quebec."[6] Whether he accompanied the unsuccessful British campaign southward along the Champlain corridor in 1776 is uncertain. It is certain, however, that he accompanied Burgoyne on the second, and final, British attempt to reach Albany, because he is mentioned in Burgoyne's Orderly Book[7] as early as June 27, 1777.[B]

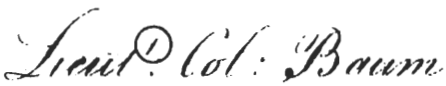
Being attached to the left wing of the Army, he was assigned to accompany Baum's detachment and sent to Bennington on August 10th.[8] Posted at "Walmscock" during the 14th and 15th, Durnford likely directed the construction of fortifications and prepared field notes from which his map was later drawn. By dusk on August 16th, he had been wounded and taken prisoner by the Americans.[9]

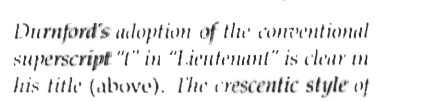
On October 24th, after the British defeat at Saratoga, General Burgoyne and General Gates agreed to the exchange list by which Durnford was traded for an American officer captured by the British.[10] While all other documents relating to Durnford's American career list him only as "Lieut. Durnford,"[11] "Lieut. Dunford,"[12] "Lieut. Donforth,"[13] "Lieut. Donfort,"[14] "Lieut. Durnfort,"[15] or "Lieut. Dumford"[16] – making his distinction from Andrew and Elias Durnford elusive – a copy of this prisoner exchange list clearly indicates "**D. Durnford Eng.**"[17]

After his capture, Durnford was taken to Bennington, Vermont, then across Massachusetts to Woburn, near Boston. The next Spring he returned to England with other captured officers.[18]

On official British Army Lists, Durnford ends his American service in 1778, is in service at the "Cape"[C] in 1780, and ends his career with the brief notation: "Died in India in ....1782."[19]

In his 11-year service as an Engineer,[D] Desmaretz Durnford may have participated in other engagements of note and political import, and he may have created other maps and documents of historical significance. But in the 48 hours he spent confined within a square mile on the margins of New England, he created a document that has historical implications beyond those he could have imagined over two centuries ago. In spite of this, his place in the historical process was so tenuous that his total contribution rested on a single sheet of paper less than two feet square and his connection with that scrap of cartography had almost been lost.





Durnford's adoption of the conventional superscript "t" in "Lieutenant" is clear in his title (above). The crescentic style of the "t" in his endorsement line (below) has led to its mis-interpretation as "E. Durnford" and the mis-attribution to "Elias."

[A] Marshall and Peckham claim "Because of the initial 'E,' the manuscript has been incorrectly attributed to Elias Durnford."[B] Yet what they have identified as a letter "E" is in fact a small letter "t." The double "t" ending of the word "LIEUT" can be seen clearly in the title of Faden's engraving, and in the manuscript version. Comparison of the large "T" and the small "t" in Durnford's signature line reveal them to be identical.

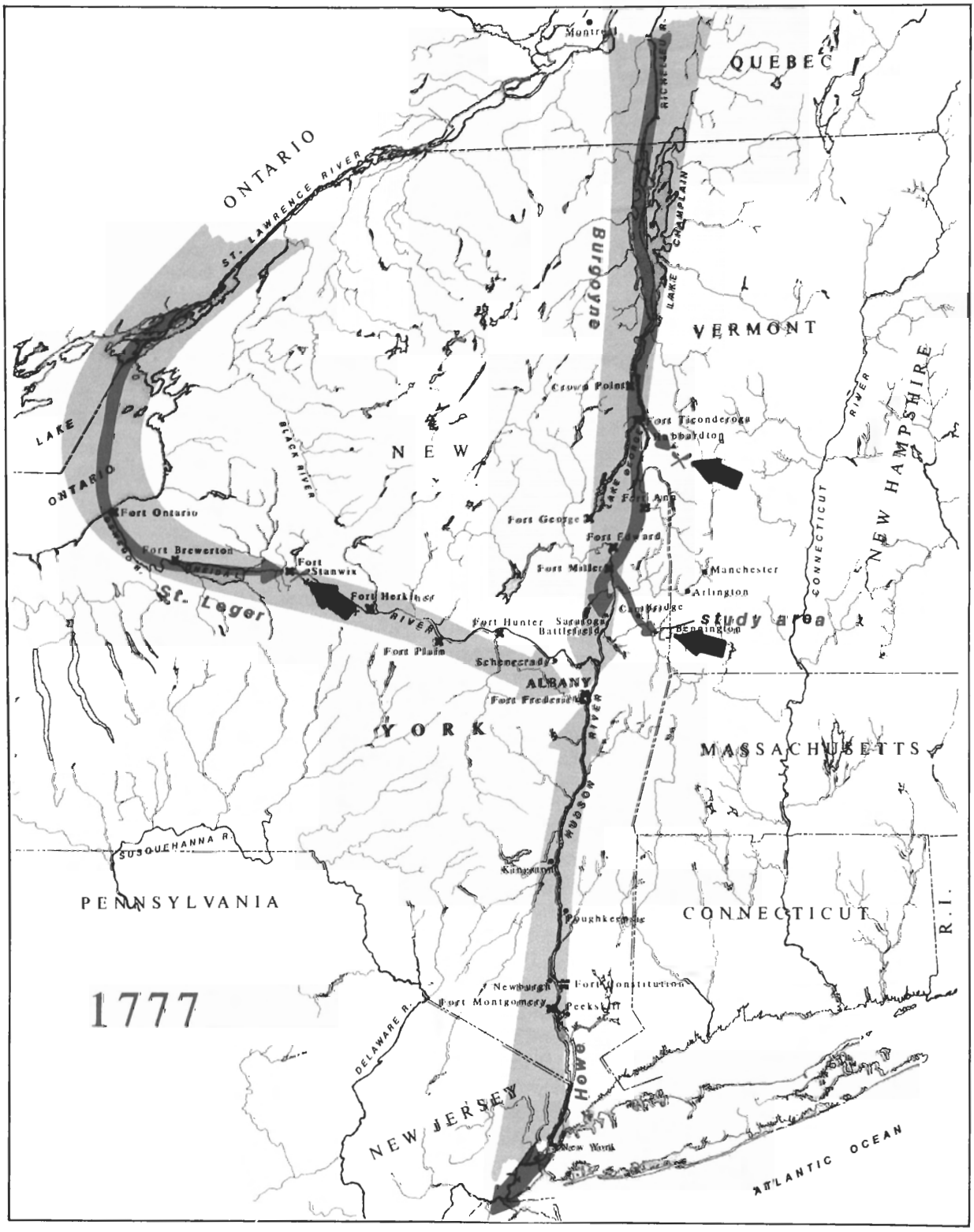
[B] For specific details consult the Appendix on page 176.

[C] British officers were frequently accompanied by a "batman" who looked after their baggage and equipment.

[D] The Cape Colony at the Cape of Good Hope on the southern tip of Africa.

[E] For details on his life after 1778, see the Appendix.

INTRODUCTION



The summer of 1777 found the British Army well into the campaign season of the third year of the American Revolution. General John Burgoyne, at the head of over 8,000 troops, with accompanying artillery, baggage train, and supply of boats, had been driving southward for three months, capturing major and minor forts and sweeping aside the Rebel navy and armies which constantly harassed his advance.

His campaign was part of a broad British strategy designed to divide the Colonies in half with one massive, three-pronged attack. Burgoyne, with the main force, was to drive south through the Champlain Valley, across the highlands beside Lake George via the Wood Creek corridor, and into the upper Hudson Valley. Colonel Barry St. Leger was to sweep eastward along the Mohawk Valley out of Oswego on Lake Ontario, and General Sir William Howe was to insure the success of the expedition with a naval drive north out of New York, a British stronghold, to wrest the lower Hudson Valley from American control. The goal of these spearheads was the city of Albany, where all three forces must meet before the winter of 1777 ended the campaign season.

By early August, Burgoyne found his army slowed by lack of provisions and an elongated supply line that suffered from lack of wagons and carts. In addition, the effectiveness of several key units was undermined by the lack of horses,[A] thus weakening as well as retarding his offensive. In order to relieve this potentially threatening situation, Burgoyne dispatched a small expeditionary force eastward into New England via the supposed Loyalist strongholds of eastern New York, an area commonly called "Dutch Hosack."

Meanwhile, in New England, militia and supplies were being gathered at Bennington to be sent to oppose the advance of Burgoyne down the Hudson Valley. This store of provisions, which included horses, cattle, and wagons, attracted Burgoyne's attention, and his expeditionary force of 500 men under Lieut. Col. Friedrich Baum was directed toward it.

In mid-August these two relatively minor forces collided, somewhat accidentally, in the tiny valley of the Walloomsac River, in the extreme northeastern corner of Rensselaer County, New York. That confrontation, which lasted less than 48 hours, is believed by many to have been the death knell of the Burgoyne invasion. The failure of Baum's expedition, coupled with the loss of support from Howe and St. Leger, directly contributed to the defeat of the main British force at Stillwater a few weeks later. Most historians believe this battle turned the tide of the Revolution and was one of the most significant battles in the history of the world.[3] [B]

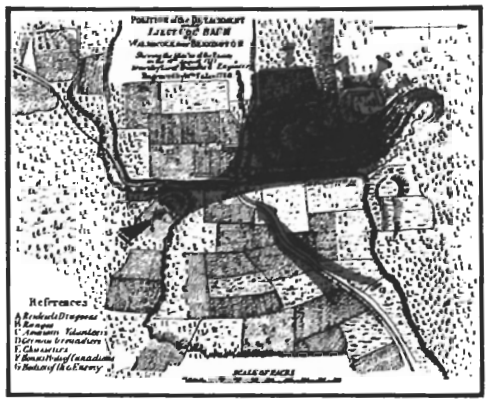
"It was universally understood throughout the army, that the object of our expedition was to effect a junction with that under General Howe, and by such means become masters of the Hudson's river, dividing the northern from the southern provinces. You can easily conceive the astonishment it occasioned, when we were informed that General Howe's army had gone to Philadelphia, and it was the more increased, as we could not form to ourselves any idea how such a step would facilitate, or effect a junction. It is natural to suppose, when two armies are to meet, that the northern one would advance to the southward, and the southern one to the northward; or if they are to meet any where about the center between each, that they would set out in those directions, much about the same time. But it would seem that those who have the direction at home of the armies upon this Continent, despising such simple and natural means of effecting a junction, dispatch the army at New York further south, and send the army from Canada in the same direction, that if both continued their course till doomsday, it would be impossible to meet." Thomas Anburey, with Burgoyne's Army, 1777[2]

[A] "Because the Regiment of Dragoons were to be mounted, surely it was no reason they should be detached with swords weighing at least 10 or 12 pounds, particularly as Dragoons cannot be expected to march or manouvre well on foot and be expert at treeing or bush fighting . . ." *James Hadden, with Burgoyne's Army. 1777*[1]

[B] The degree to which the "Battle of Bennington" was seen as a mortal blow is reflected by British military historian John Fortescue who concluded that "A stronger man [than Burgoyne] might indeed have retreated, whatever his instructions, after the reverse at Bennington."[4] It is also reported that "When Washington heard of Bennington, he regarded it as deciding the fate of Burgoyne and dismissed from his mind all further anxiety about this invasion."[5]

It is generally believed that the defeat at Bennington delayed Burgoyne's readiness for battle long enough for the American army to convene sufficient numbers at Stillwater to oppose him. Had he gathered the support expected from Baum's expedition and been able to engage the American forces at an earlier date, when they were more vulnerable, Burgoyne may have yet been able to reach Albany on his own, particularly as the British had finally left New York to begin a diversion up the Hudson by mid-October.

Although one of the more decisive engagements of the American Revolution, the "Battle of Bennington" is one of the most poorly documented actions of the War. There are few primary sources on which to draw for clarification, and many of the secondary sources are either ambiguous or contradictory. A good deal of the reason for this rests with the paramilitary and semi-official nature of the American forces, which were less equipped to keep such records, and felt less obliged, politically, to do so.



The BATTLE

"Women and Children flying before the enemy with there Effects, women crying, sum walking, sum Rideing, the men Joyn our army, the yowmen left to shift for themselves, sum Rideing on horses with there Children at there Brests, Sum before, sum behind tyed to there mothers. People Packing there Goods Loading there teams..." John Wallace, Hoosick, August, 1777[7]

In order to alleviate his supply crisis, and perhaps also to divert American attention from his main line of march, British General Burgoyne decided in early August to dispatch an expeditionary force into New England under Lieutenant Colonel Friedrich Baum, a German officer in his command. The goal of this expedition was to capture military supplies held at Bennington, Vermont (now Old Bennington) and to collect cattle and horses along the route for shipment back to the main army.

Under Baum's command were over 200 Brunswick Dragoons, originally a German mounted unit which was forced to march on foot for lack of the horses they were being sent to procure. Accompanying the Dragoons were two crews of Hesse-Hanau artillery assigned to two 3-pounder brass field guns on carriages. While these last were the only true Hessians in this force, the entire German complement became erroneously labeled thereafter as "Hessians."[A]

Also attached to this command were a number of British marksmen, 150 Tories from Peter's Provincial Corps,[B] some 56 Provincial and Canadian Volunteers, which Baum hoped to augment from local Loyalist supporters en route, and over 100 Caughnawaga Mohawk Indians aligned with the British cause.[2] As guide and advisor, Governor Philip Skene[C] of Skenesborough (now Whitehall), a prominent Loyalist of the region, was dispatched to assist Baum,[4] who spoke no English.

By August 10th, Baum had reached Fort Miller on the Hudson, south of Fort Edward, and turned eastward, leaving the Hudson Valley for the highlands of New England. The road Baum was to follow was the main highway from Saratoga (now Schuylerville) to Bennington, and passed from the Battenkill through Cambridge to the old settlement of SanCoick (now North Hoosick), where a mill stood. From there to Bennington were only scattered houses[5] and farms and a number of bridge crossings of the Walloomsac River.

Baum reached Cambridge on August 13th, and after a brief skirmish with a party of Americans, secured his position. Six prisoners taken there gave him indications that a force of over 1500 men were defending the stores at Bennington. But Baum, apparently confident of the weakness of these forces in the face of disciplined professional troops, and encouraged by his expedition's progress, determined to move forward the next day.

By sundown on the 13th, Baum halted his march about 8 miles west of Bennington, near the hamlet of SanCoick. General John Stark had been assembling a force at Bennington and diverted his attention from this effort to confront the invading force. At about this time, Colonel William Gregg was sent by Stark with a detachment of 216 men westward along the Saratoga road to "make discoveries,"[6] having been alerted to the British advance by refugees from Cambridge. Gregg's troops advanced during the evening some 7 miles and posted themselves at the mill in SanCoick.

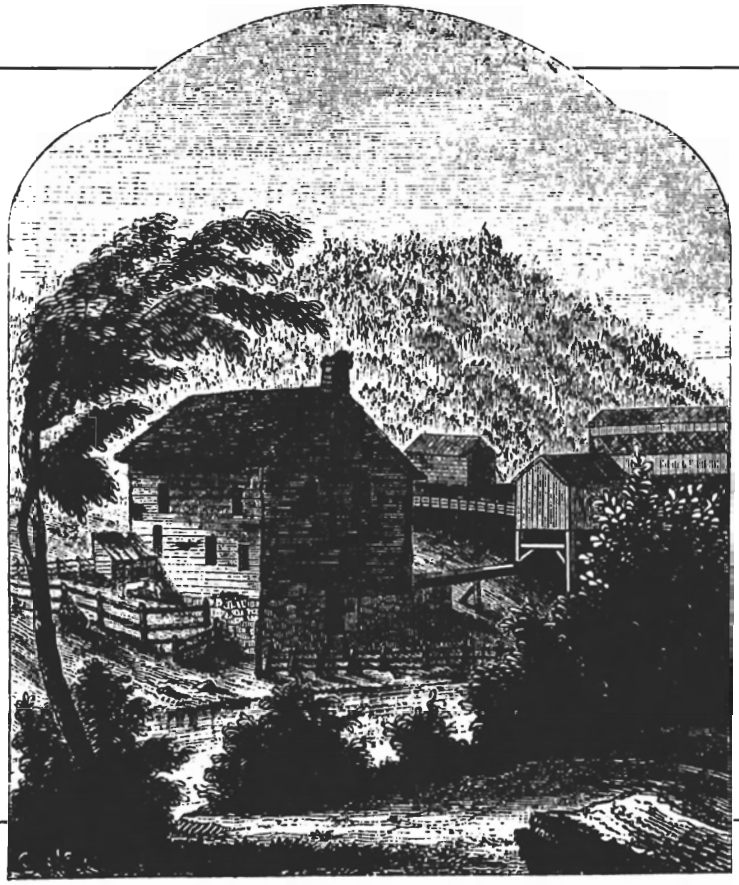
Very early on the morning of the 14th, Baum moved forward into SanCoick. Here, at the mill, he encountered Gregg's scouting party and a skirmish ensued. By 9 a.m. Baum had driven off the guard and secured the mill and its contents.

About this time, Stark and "the Whole Brigade"[9] marched out of Bennington to confront the enemy. Along the road east of SanCoick he encountered Gregg's scouting party in retreat, and being informed of the size of the British force, he withdrew to

[A] "Hessians" were German troops who came from the district of Hesse-Cassel, whereas most of the troops with Baum were from Brunswick, and therefore would have been correctly designated "Brunswickers."

[B] As many as 350-500 may have been assembled by the time of the battle.[1]

[C] It was Skene who led Burgoyne to believe he could expect support from the local Loyalist population along the line of march to Bennington. This assumption was not without foundation. The eastern district was a hotbed of loyalism, and local Tories like Pfister easily recruited several hundred to fight with Baum.[3]



Sancoick, Aug. 14, 1777, 9 o'clock

Sir: I have the honor to inform your Excellency that I arrived here at eight in the morning, having had intelligence of a party of the enemy being in possession of a mill, which they abandoned at our approach, but in their usual way fired from the bushes, and took the road to Bennington. A savage was slightly wounded. They broke down the bridge, which has retarded our march about an hour. They left in the mill about seventy-eight barrels of very fine flour, one thousand bushels of wheat, twenty barrels of salt, and about one thousand pounds' worth of pearl and potashes. I have ordered thirty provincials and an officer to guard the provisions and the pass of the bridge. By five prisoners here they agree that fifteen to eighteen hundred men are in Bennington, but are supposed to leave it on our approach. I will proceed so far today as to fall on the enemy tomorrow early, and make such disposition as I think necessary from the intelligence I may receive. People are flocking in hourly and want to be armed. The savages cannot be controlled; they ruin and take everything they please.

I am, etc.
F. Baum

P.S. Beg your excellency to pardon the hurry of this letter; it is written on the head of a barrel.[8]

San Coick Mill, c. 1850

a height of land on the east edge of the river flats shown on Durnford's battlefield map. His intention was to draw the British out of the ragged hills flanking the road from SanCoick and engage them in the open. Given his position on the heights overlooking the floodplain, Stark would have had the advantage in such an engagement.

Leaving a small guard, and having been delayed an hour by the need to repair a small bridge damaged by the retreating Rebels, Baum moved eastward along the dirt road that skirted the hills above the Walloomsac River, and by noon arrived on the crest of a hill overlooking the tiny bridge shown on the 1777 battle map.

Baum was immediately opposed by skirmishers sent forward by Stark, and his scouts perceived a large Rebel force posted on a ridge 1,000 yards before them. Apprehensive of the risk of moving down onto the river flats under the guns of such a formidable force, Baum sent for a reinforcement from Burgoyne's main army, now camped near Fort Miller on the Hudson, and began preparations to secure his position.[10]

The buildings around the bridge were occupied by British troops, breastworks were begun on the west side of the river, and a battery consisting of the two 3-pounders was established on an elevation overlooking the bridge and cabins below.[D]

Unable to draw Baum's army out of their elevated position, Stark withdrew into Vermont and established a base camp about a mile and a half from the British bridgehead.[12]

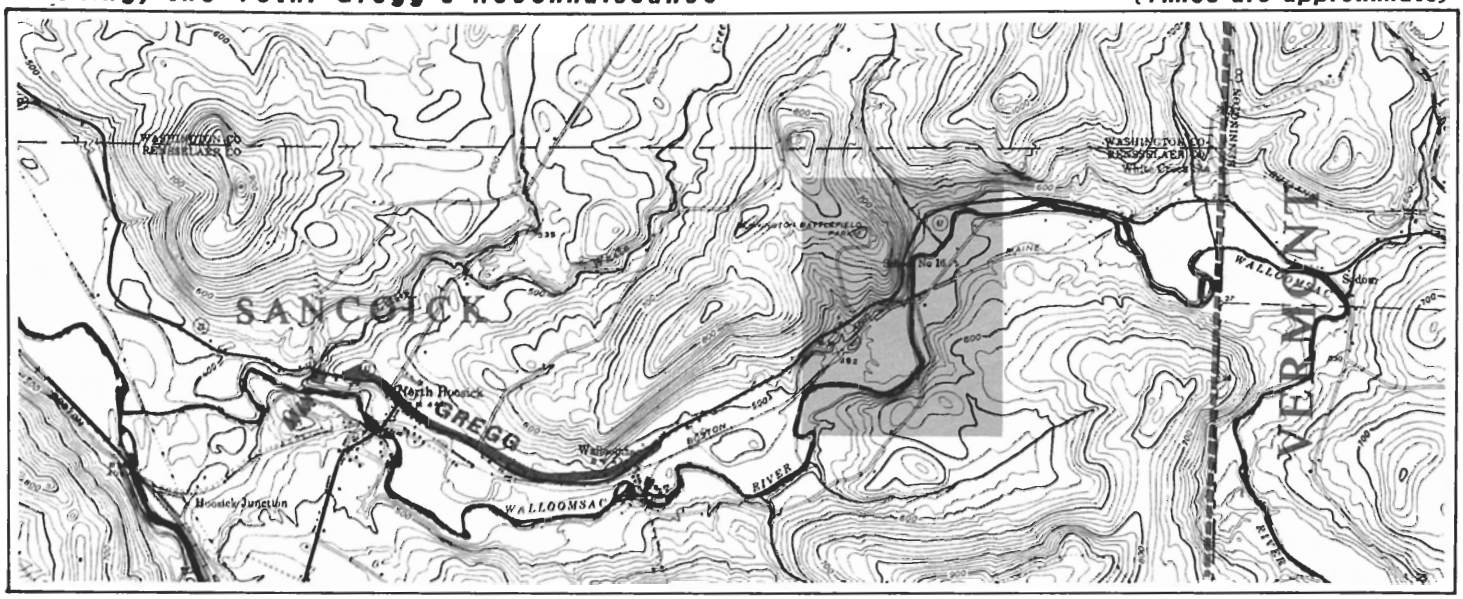
In his own words, Stark describes this first encounter with the British force:

> The 14th I marched with my Brigade & a few of this State's Militia to oppose them, and to cover Gregg's retreat, who found himself unable to withstand their superior numbers. About four miles from the Town, I accordingly met him on his return, and the Enemy in close pursuit of him, within half a mile of his rear; but when they discovered me they presently halted **on a very advantageous piece of ground**. I drew up my little army on an eminence in open view of their encampments, but could not bring them to an engagement. I marched back about a mile, and there encamp'd.[13]

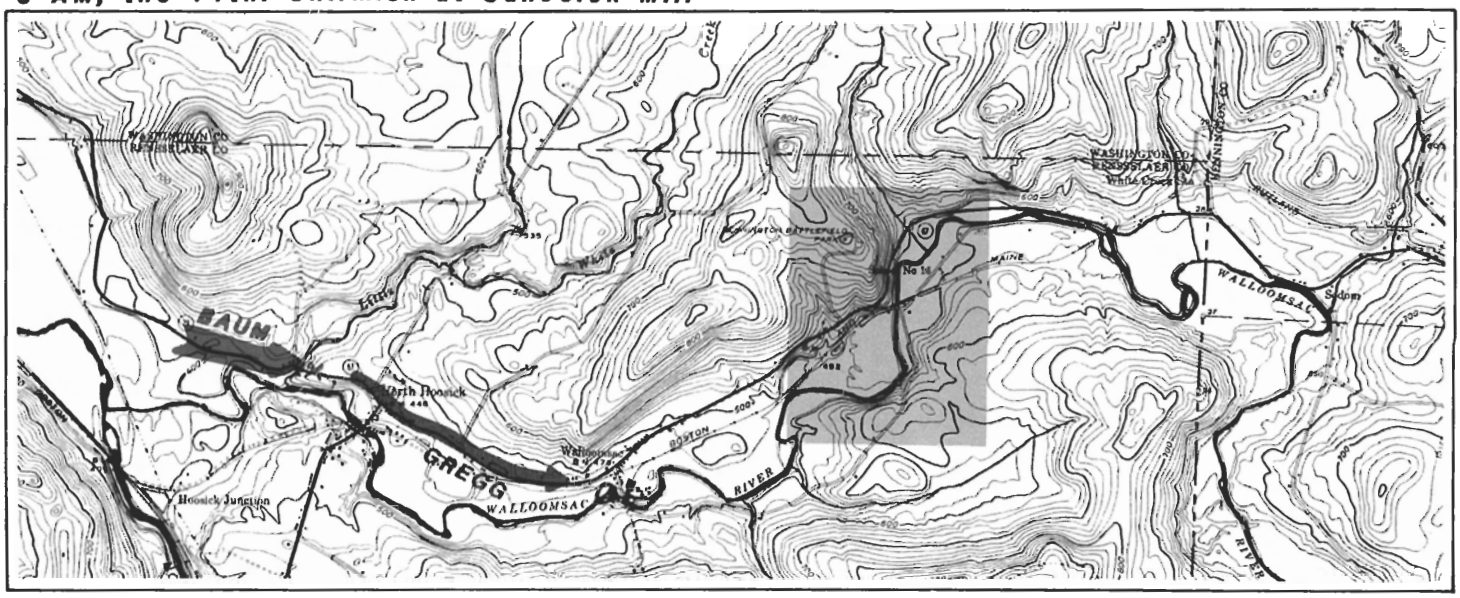
"The savages cannot be controlled; they ruin and take everything they please."

[D] "We the Dragoon Regiment immediately occupied the hill to the left and our cannons were brought on the hill." *Wasmus, August 14th*[11]

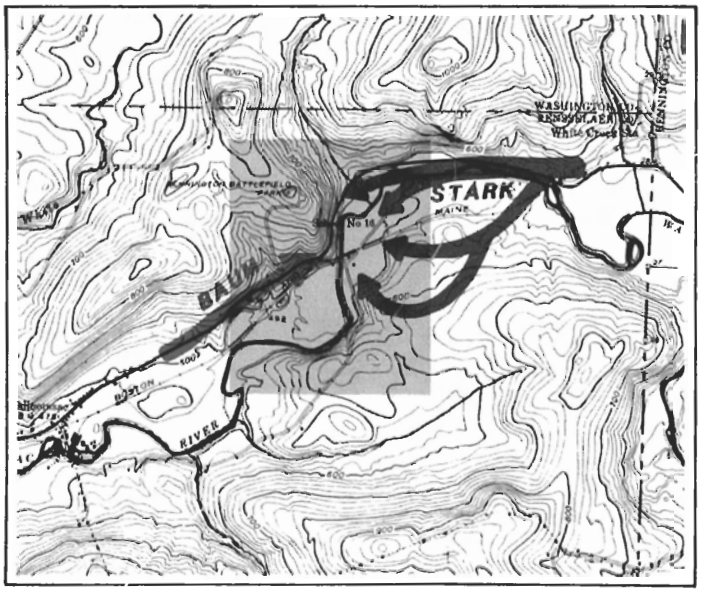
Evening, the 13th: Gregg's Reconnaissance ***(Times are approximate)***



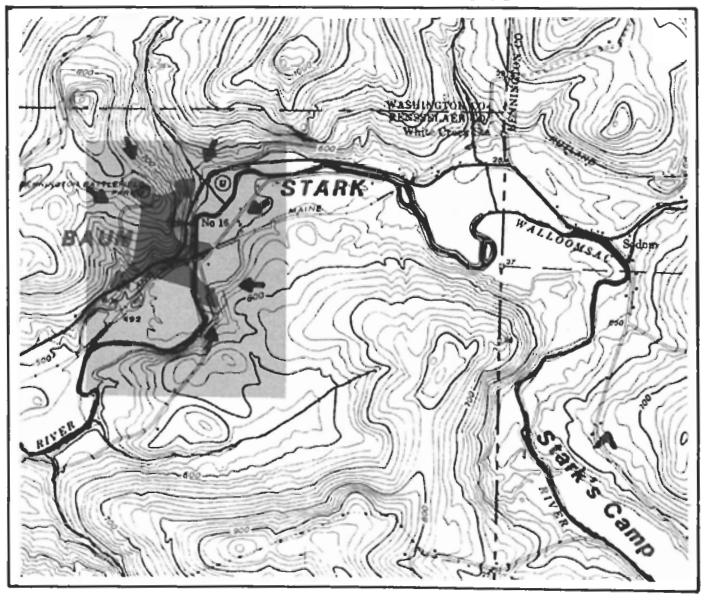
8 AM, the 14th: Skirmish at Sancoick Mill



Noon, the 14th: Baum's First Position



The 15th: Baum's Entrenchment



By nightfall a standoff existed, neither side wishing to press for advantage. The superior numbers of Stark's militia were offset by the tactical benefit Baum had in holding a fortified elevation with professional troops, supported by artillery and flanked by breastworks and occupied buildings.[E] In addition, Baum's position could easily be consolidated west of the Walloomsac, placing that water barrier between his defensive entrenchment and Stark's army, which would be advancing, of necessity, in the open across the cleared lowlands. Thus Baum felt secure to maintain his advantageous post while awaiting reinforcement from Burgoyne.

By dawn on the 15th, this reinforcement, a detachment of over 500 German grenadiers and light infantry supported by two 6-pounder cannon and under the command of Colonel Heinrich Christoph Breymann, had been dispatched by Burgoyne to relieve Baum. However, all the during the 15th the weather was stormy and the deteriorated roads retarded Breymann's march so that he was unable to reach Baum that day.

The heavy rains also prevented an attack in force by Stark, but snipers and skirmishers harassed the front of Baum's position, inhibiting movement and taking a toll of some 30 of the British force.[F] In spite of both weather and enemy fire, Baum spent the 24 hours afforded by this happenstance to improve and expand his position.

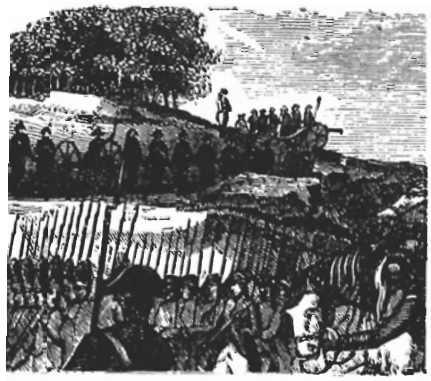
A major breastwork was completed at the peak of the steep hill he occupied, as were small breastworks at the gun position overlooking the bridge and flanking the road immediately west of the bridge. (See Durnford's map.) These provided cover for the bridgehead and the several occupied cabins around the bridge. A force of 50 light infantry was posted on a narrow elevated terrace overlooking the ravine where a small brook entered the Walloomsac north of the bridge. This post covered a side valley through which Stark could direct a flanking movement against the German's hilltop redoubt, as in fact he did the next day.

In addition to this consolidation of the defensive positions associated with the steep hill where Baum first halted his advance, a force of some 200 Loyalists ("Tories"), perhaps mustered by Francis Pfister[G] or joined up at Baum's camp for volunteer service, were posted on a low hill across the river from Baum's post, where a small redoubt was constructed.[17] While this post is reputed to have been created to cover Stark's approach across the flats below, the design suggests its primary function was to block an attack from the southwest, along the roads which dropped out of the highlands to the south of the bridge onto the river plain at the point where the redoubt was constructed.

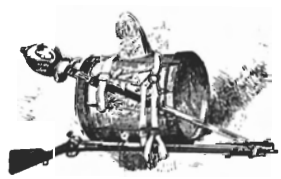
Although Baum was later criticized for overextending his front and for spreading his limited force too thinly, one can visualize the disadvantage of not holding this elevation as part of the defensive perimeter. The fact that Baum stationed local Loyalists here instead of his own troops suggests the degree to which he may have sensed this position was expendable, serving more as an early warning post than as a viable tactical element of his position.

Additional Loyalists, supported by a contingent of German Grenadiers, were stationed along the west face of Baum's perimeter, serving the dual function of rearguard and protection for his sizable collection of baggage and plunder. While Baum's post could conceivably have been surrounded, it seems he thought it unlikely he would be attacked in force on all fronts simultaneously, and probably hoped the major role this rearguard would play in the pending drama would be to alert him to the arrival of Breymann's relief column, which he now knew was on the way. Unfortunately, for Baum, this never came to be.

During the evening of the 15th, Baum's force settled down to an uneasy rest, and Colonel Breymann's reinforcement, having plodded all day through roads fouled with ruts and mud, was encamped a full days march west of Baum's post. Stark's camp, a mile and a half east of Baum's, was the scene of anticipation, due to the perceived success of the skirmishers, who had killed 30 of the enemy. Included among these were two "Indian Chiefs"[18] whose silver ornaments were brought into camp as trophies. The rain continued,



"...and while we were waiting for them, our troops hurriedly dug themselves in and established a two-gun battery." deLorimier, August 14th.[17]



[E] Recent research suggests the more professional forces may have actually been the less experienced in battle.[15]

[F] "The 15th it rain'd all day; I sent out parties to harass them." *Stark*[16]

[G] Pfister was a retired German engineer who served with the British in the French and Indian War and lived in the Hoosick region.

however, and the army of some 1,000 men settled down to an uncomfortable night.[11]

With the arrival at Stark's camp during the night of the 16th of the Vermont militia and the Berkshire County Massachusetts militia,[20] the numerical advantage of the American force rose to almost 3 to 1.

Daybreak on August 16th revealed weather much improved, and General Stark decided to execute his plan to dislodge the British from their stronghold. He had good intelligence from the scouting of the day before as to the strengths of the enemy and the disposition of their defenses. He also had the advantage of being able to draw on local informants for details of the terrain that surrounded Baum's defenses.

Stark divided his force into three divisions and two wide flanking maneuvers were begun. The 200 men under Colonel Benjamin Nichols began a sweep north along the east side of the Walloomsac, passing out of Vermont and swinging westward along the wooded west face of the high hill flanking the small brook guarded by the Chasseurs. At the same time, Colonel Samuel Herrick and 300 men waded across the Walloomsac near Stark's camp, swept south of the Tory outpost in a wide arc, largely hidden by woods on the crest of a long ridge, and recrossed the river a couple of miles west of Baum's post. Taking advantage of the small valley of White Creek, they were able to come up at Baum's rear unobserved. As these two forces converged in the woods behind Baum's hilltop redoubt,[I] a process that took all morning, Stark began deploying his frontal attack. First a reinforcement of 100 men was sent to assist Col. Nichols at Baum's left flank, on Nichol's request. Then Colonels David Hobart and Thomas Stickney with 200 men were directed to position for an attack from the south against the Tory redoubt, and this force itself was later subdivided into two elements. One approached down the crest of the hill above the Tory post, the other marched along the road toward the post from the south.

With these forces in position, General Stark moved his remaining force of over 300 men[J] directly along the Bennington Road,[K] crossing the river on the easterly of the two bridges and approaching the British bridgehead across the river flats.

Baum's troops perceived the approaching forces and prepared for battle. One of the 3-pounders was brought up to the hilltop redoubt and scouting patrols were sent out. At about three in the afternoon, Nichols and Herrick had joined forces in the woods and began the attack on the German redoubt from the north. Simultaneously Hobart and Stickney attacked the Tory redoubt from two fronts and drove the defenders out after just one volley, taking over the position themselves and picking off the fleeing Loyalists as they attempted to escape to the west across the river.

The Canadians defending the bridge were quickly driven back, and the gun po-

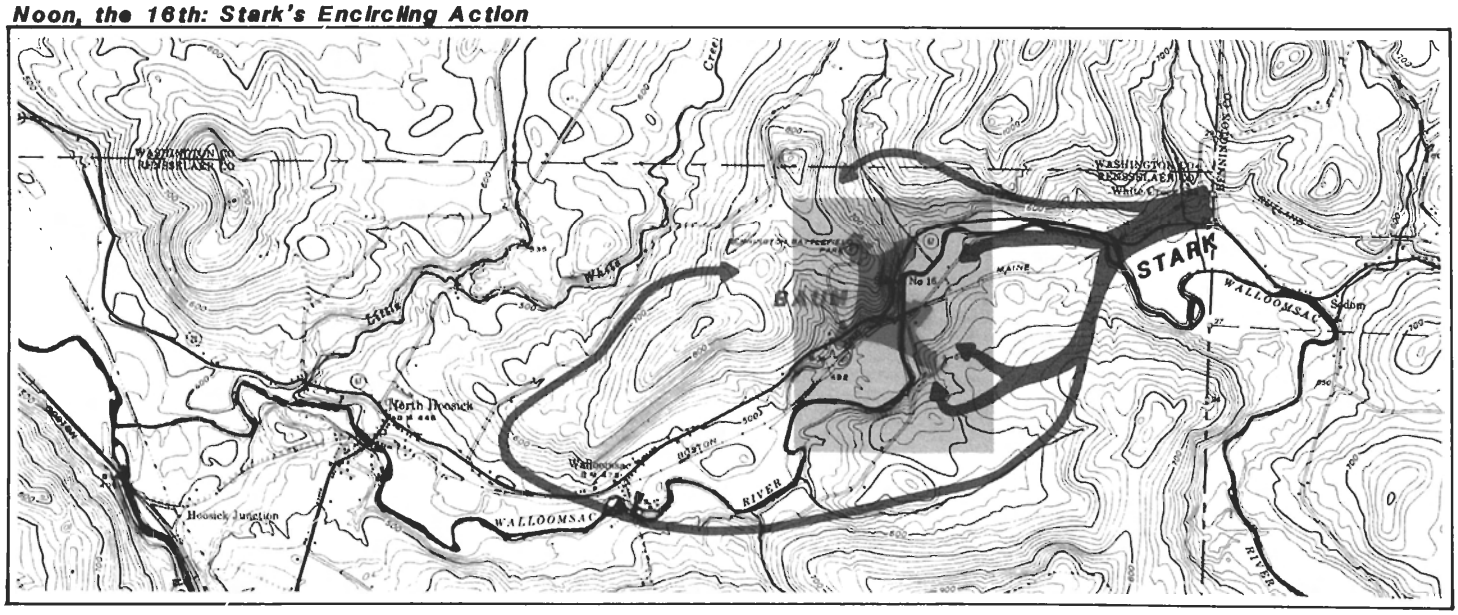
[H] "The rain poured down in torrents during the whole night; and the situation of the Americans, in their brush huts, and the enemy in their entrenchments, was uncomfortable."[19]

[I] Baum himself was posted near the bridgehead.

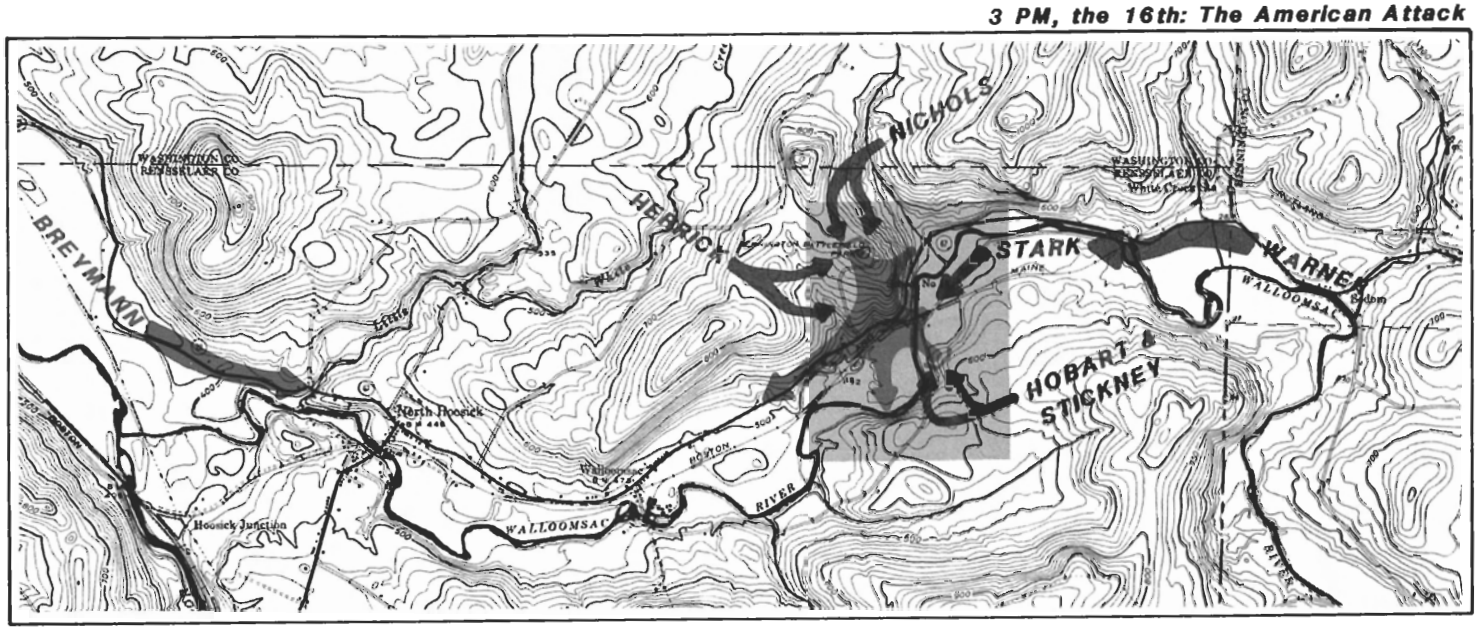
[J] It has been suggested that as many as 1,100 of Stark's force participated in this element of the attack.[21]

[K] As with most early roads, the name given signifies the destination. Thus when movement was westward, one referred to this highway as the "Saratoga Road," and when eastward as the "Bennington Road." For simplicity, the term "Bennington Road" will be used in this text.

Noon, the 16th: Stark's Encircling Action



3 PM, the 16th: The American Attack



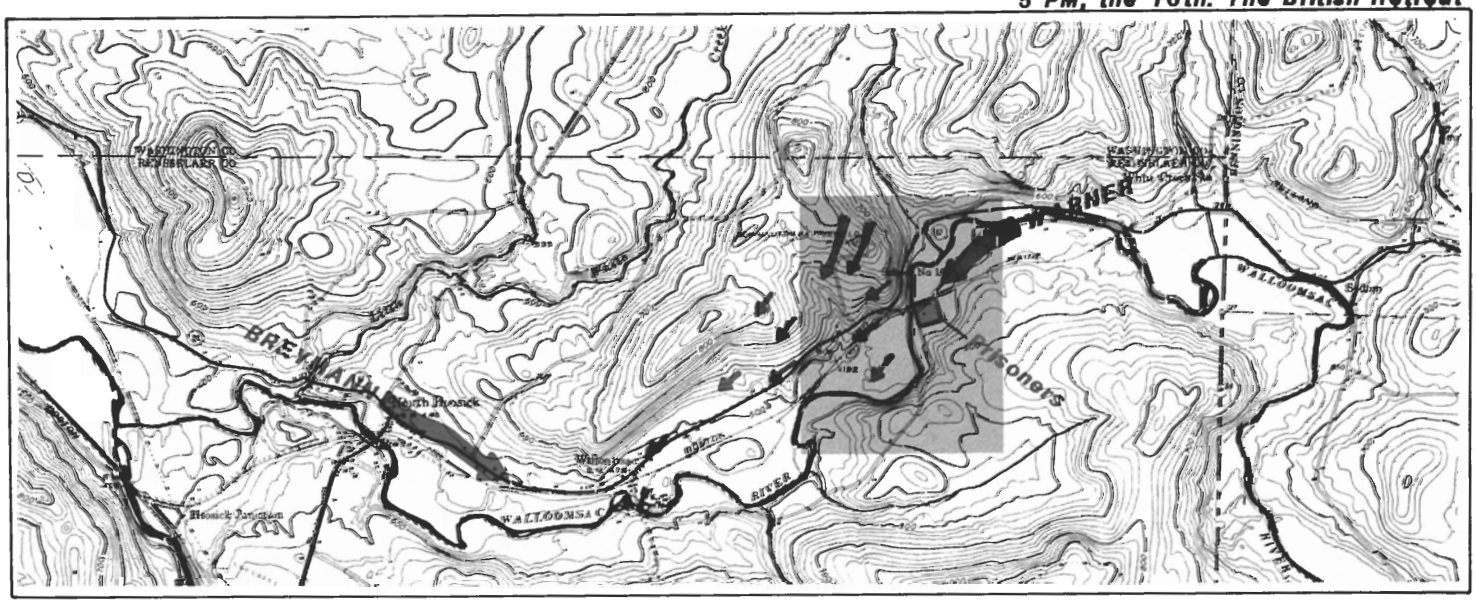
sition supposed to cover the cabins in which they were posted was captured. After a stubborn defense of the hilltop redoubt, their ammunition exhausted and unable to cut their way free with their swords, the Germans in this position were also overrun, and the fleeing survivors were pursued down the wooded slopes to be captured or killed. Baum himself was mortally wounded, as was the Loyalist commander Col. Francis Pfister, whose volunteer force was devastated. Both brass cannon were brought to the road near the bridge, as were the prisoners, who were collected at the cabins. The Indians escaped early in the fighting, after being caught between the pincers maneuver of Nichols and Herrick, and slipped away to the west to rejoin Burgoyne's main force.

About this time a reserve force of Seth Warner's men was entering the battle area, crossing the more easterly bridge on the Bennington Road just as the fighting was subsiding. Also Breymann's relief column was finally approaching from the west along the same route followed by Baum just 2 days before. He had begun his march at 9 in the morning.[22] By the end of the first engagement he was near the bridge at SanCoick's Mill, moving steadily forward, apparently unaware of the carnage just inflicted on the army he was marching to preserve.

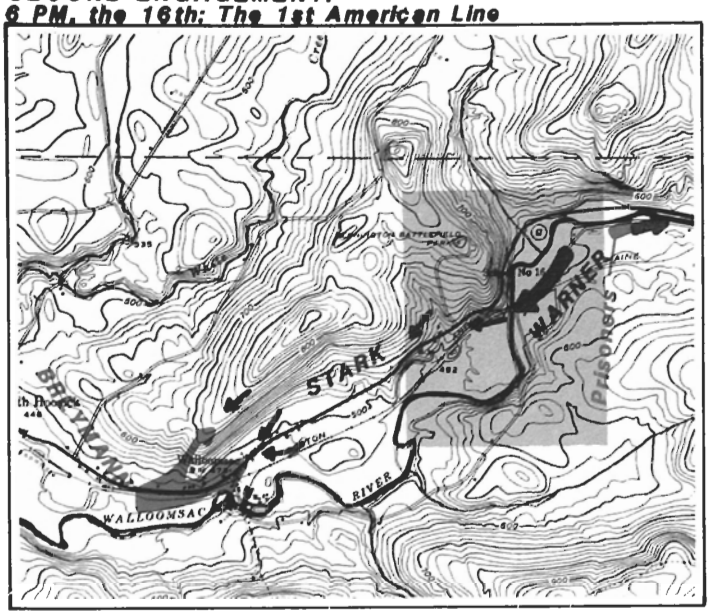
Soon, however, he was being informed by survivors from the battle fleeing westward, who gave conflicting reports of the situation awaiting Breymann.

As he entered the long, natural corridor

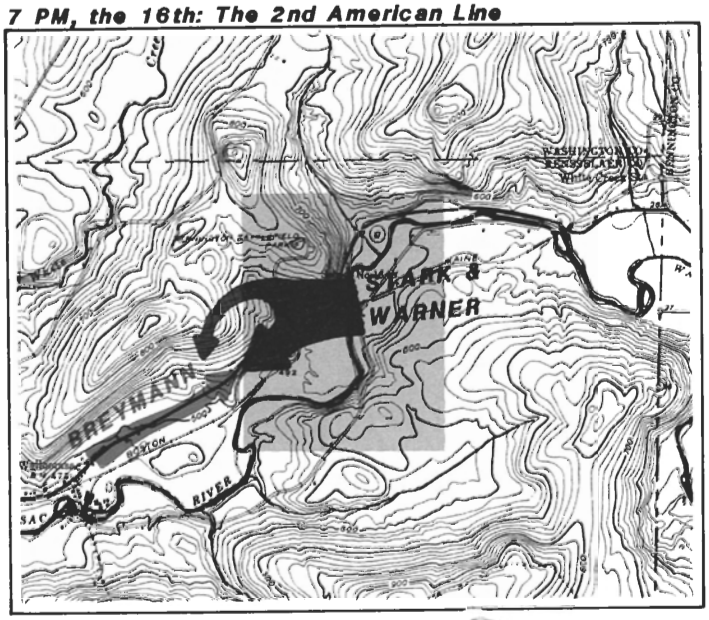
5 PM, the 16th: The British Retreat



SECOND ENGAGEMENT:
6 PM, the 16th: The 1st American Line



7 PM, the 16th: The 2nd American Line



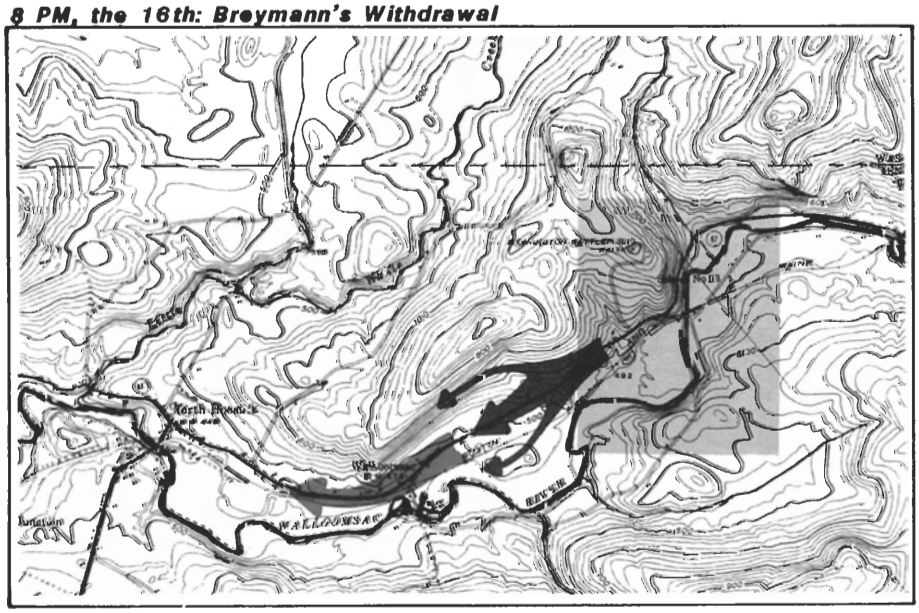
[L]Given the prevailing southwest winds of August, coupled with a high ridge that intervened between the battleground and the Sancoick area, it is possible the sound was inaudible, even less than three miles away. Some histories have suggested that Breymann was intentionally slow in reaching Baum, and he is quoted as having said, "We will let them get warm before we reach them."[24] If this is in fact the case, his miscalculation of the intensity and pace of the action permitted one of the more tragic and unneccessary losses of the War.

leading to the western slope of Baum's hill, he noticed Rebel forces scattered on his flanks and forming to his front. Breymann later stated:

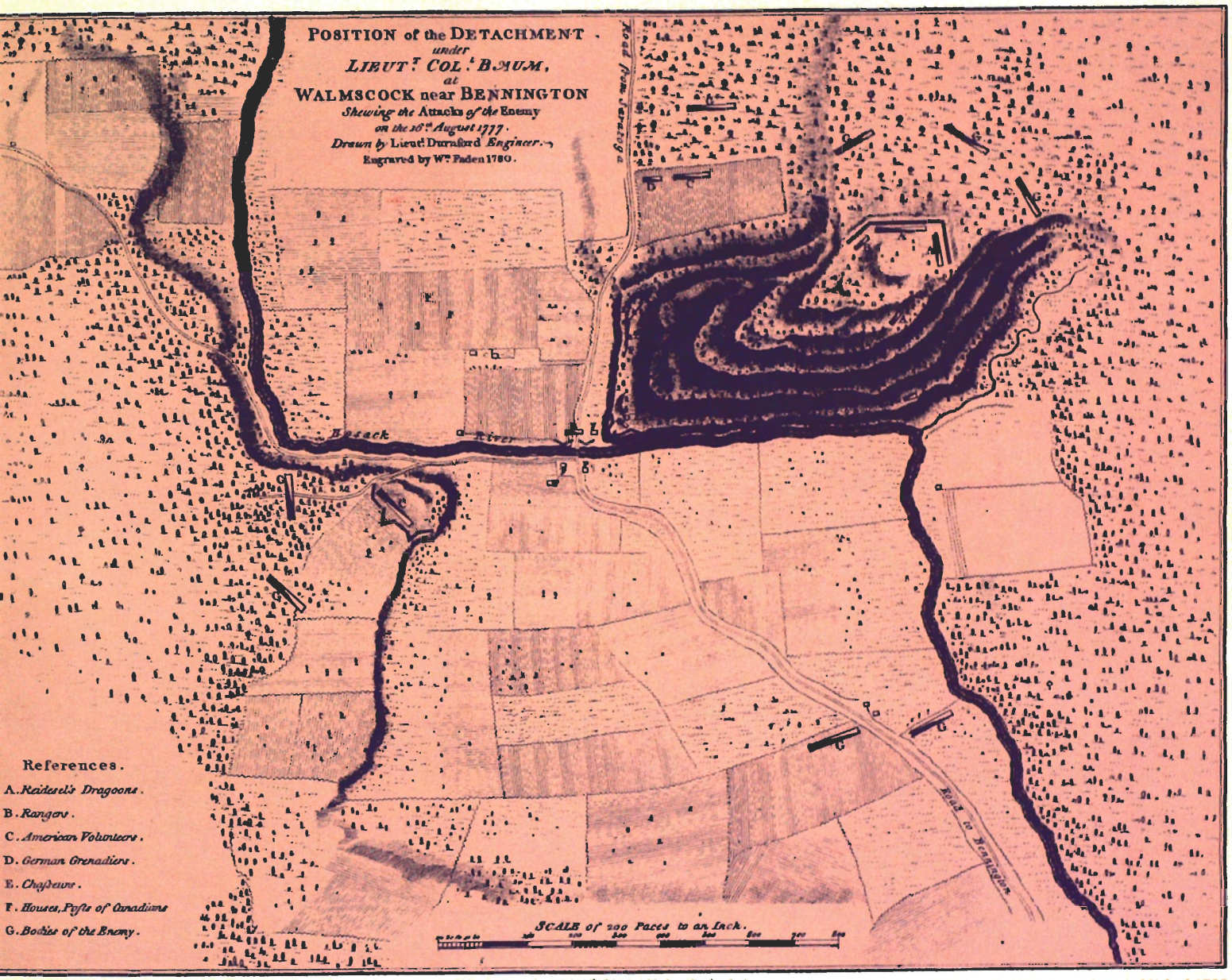
"I did not hear a single shot fired,[L] either from small arms or cannon . . . and we marched on over the bridge near the mill endeavoring to reach Colonel Baum as soon as possible. . . I had scarce passed the bridge 1000 yards when I perceived a considerable number of armed people, some in jackets, some in shirts, who were endeavoring to gain a height which was on my left flank."[23] The American forces were initially able to form a defensive line some distance west of Baum's hill, largely due to the ground covered while chasing the fleeing defenders of the hilltop redoubt. But under fire from the advancing troops in the reinforcement and the two six-pounder cannon, the Americans had to fall back slowly until they were almost pushed to the slopes of Baum's hill again.

Stark, informed of the enemy relief force, mustered reinforcements and posted skirmishers to retard the German column, which continued to advance. Finally, more of his battle-weary soldiers realized what was happening and rushed west to join the defensive front. Supported by the timely arrival of Seth Warner's fresh troops from the east, they slowed the German advance. Stark even had the captured 3-pounders from the first engagement brought into action on the road. Gradually the fire from the German column dwindled. As casualties mounted and ammunition ran low, Breymann had to order a retreat, abandoning the cannon and fleeing westward into the setting sun. Pursued by Stark's troops, the Germans who survived the battle were saved by impending darkness, and during the night they withdrew back to Cambridge. Stark's troops were recalled to the field of the first battle, and there they rested and saw to the wounded, the dead and the prisoners. The fearful conflict known thereafter as the "Battle of Bennington" was over.

8 PM, the 16th: Breymann's Withdrawal



The MAP



NYS Library

William Faden's engraving, published 1780.

Lieutenant Durnford's battlefield map exists today in two original forms. The first, and best known, is the version engraved by William Faden in 1780. This 14 by 11 inch document was published in 1780 as part of General Burgoyne's parliamentary defense of his failed expedition to divide the Colonies and capture Albany in 1777. Invariably the battle maps published during the nineteenth century all claim to be perfect copies of this original, although many inaccuracies are evident.[A]

[A] See the Appendix for other published versions of this map.

This engraving was executed from a manuscript drawing of the battlefield and presumably the manuscript used is a 14 7/8 by 11 3/4 inch ink and watercolor drawing presently in the collections of the Library of Congress.[B] Undoubtedly prepared sometime after the battle and in more secure and comfortable surroundings, this manuscript was based on field notes and sketches taken at the time of the event and that have since been lost or destroyed.

On inspection of the map, one is immediately struck by the level of detail. Roads, buildings, fields and fences are carefully drawn out, and very little of the approximately one square mile covered by the map is devoid of such detail. It is also immediately evident that much of this detail pertains to non-military features, and were it not for the indications of fortifications and troop positions, one might suspect this map was drafted by someone with an agricultural, rather than military, motivation.

The style and conventions used to record these details are typical of maps of the period. Relief is shown by a method called "hachuring," an archaic form of topographic mapping common to the eighteenth century but replaced in the latter part of the nineteenth century by the use of contour lines, the standard form used today.

Each method has its advantages and disadvantages, and by no means is the archaic technique used by Durnford necessarily inferior to more modern methods.

Contour mapping involves the drawing of elevation lines, derived from computing intervals of feet above sea level, on a three-dimensional terrain to show height uniformly over the area mapped. In effect, each contour line connects every point on the map that is at the same elevation, and provides a kind of layer-cake effect, where the landform is sliced horizontally at equal intervals. Where land is steep, the contour lines crowd together; where flat, they are almost absent.

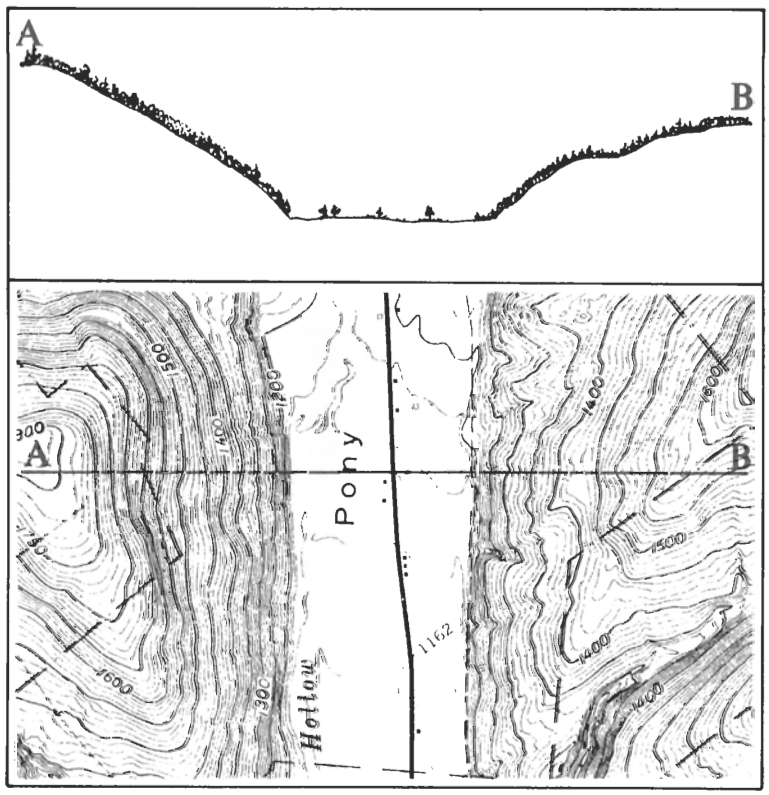
While contour mapping is very accurate and uniform, particularly with the advent of stereo aerial photography and photogrammetric techniques for interpretation, it suffers from the arbitrariness of the interval and of the contour line location. Finer features of topography that might be relevant for identifying types of terrain in the field are often obscured or lost completely if they happen to fall in between the contour intervals used.

Hachuring applies some of the principles of shading (as in engraving) to the rendering of topography and produces an effect that looks more realistic than contour mapping. It is also non-arbitrary, i.e., the beginning and ending of each hachure is in fact the top and bottom of each slope being portrayed. Thus, one can get a clear idea of precisely where level and steep areas exist in the field. This is one reason it serves military mapping so well, where little else but the eye and a few simple instruments are available. Contour lines may give an impression of natural breaks in the terrain, but unless the lines actually fall on those breaks, the impression is only an illusion.

However, hachuring has two significant drawbacks as a mapping technique. First, it is imprecise; i.e., it is akin to a craft, or even an art. It is very much open to observer perception and drafter interpreta-

[B] Map #G3701 S 3132 1777 D8 (Faden 65) Library of Congress. The Faden Collection, now held by the Library of Congress, was a collection of manuscript maps, fair copies and proofs purchased from the British Government by Rev. Mr. Cannse of New Haven between 1835 and 1840. The 100 maps were used as security for a loan made to Cannse by the father of E.E. Hale of Boston. They came into his hands about 1860, were initially studied and described by him, and were purchased by the Library about 1862.

For clarity, features drawn by Durnford will be illustrated from the 1780 engraved version of the battlefield map except where significant differences occur. In the latter case, a comparison between the manuscript and engraved maps will be made. It should be noted that contrary to standard modern mapping convention, both these maps were drawn with north to the right.



Contour lines close together indicate steep terrain; widely spaced lines suggest flatlands.

tion. In Durnford's case, we can assume that his observations were neither as confined in space nor in time as might be expected under battlefield conditions. First, he had access to various points on the mapped area for observation, and most of these points provided exceptional range of vision over the areas to which he could not obtain direct access due to enemy fire or occupation. Second, he spent over 48 hours in the same post, largely due to the delay in the action necessitated by the storms of the 15th of August. Thus, he had sufficient time to complete, check and refine his observations and notes.

The second major drawback of hachuring as a mapping technique is that by its very nature it obscures the map, particularly where steep terrain is common. This makes entry of non-topographical (cultural) data difficult. One can see this in the steeper areas of the battlefield map, where Durnford has left little room for entry of cultural images. This is particularly evident in the upper left corner of his drawing, where a fenceline and cultivated area are almost invisible in the mass of hachures, and on the lower slope of the main hill (right of center), where a troop position and attending label on a narrow ledge above the creek are almost totally obscured.

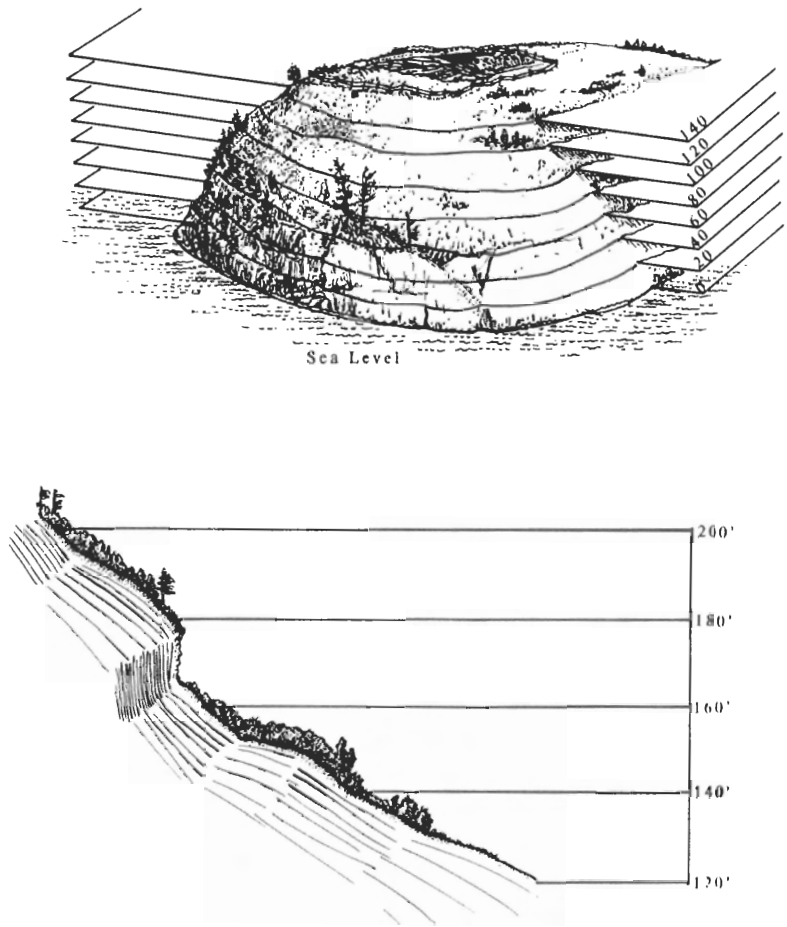
Durnford's map is drawn at a scale of 200 paces to the inch. This scale is not unique but is relatively unusual.[c] Although one source suggests the "pace" used by Durnford was 3 feet in length,[1] and most do not bother to clarify its length, it is clear the pace used here was in fact 2.5 feet. Not only is this consistent with standard documentation, (see below) but it can also be confirmed in the field today. By taking measurements from the bridge (which we know is virtually on the same alignment as in 1777) to the peak of the hill on which the main redoubt was built, and also to a bend of the river which we are fairly certain was not subject to significant movement over the past 200 years, we can determine that a 2.5 foot pace was intended by the drafter.

The advantages of a pace for rapid mapping without instruments are readily apparent:

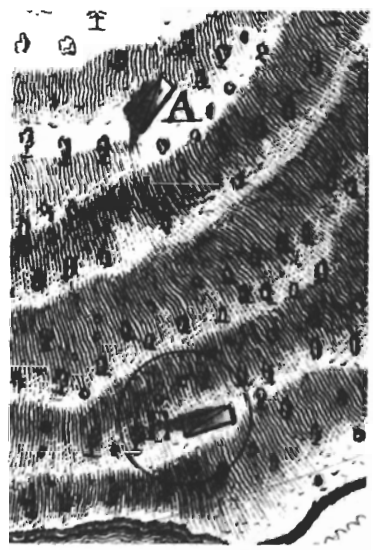
". . . where no chain was available, fortification scales had to be calculated in paces. Even here, orthodox practice was not entirely excluded, and the engineer had been prepared for an absence of proper surveying instruments. The 1740 instructions noted that 100 feet was equivalent to '20 Geometrical Paces or **40 Common Paces**.'"[2] This latter would equal 2.5 feet, the scale already seen to have been intended by Durnford in 1777.

Although the scale at which Durnford mapped is unusual, the resulting map is typical of the cartography of the period, particularly that executed on military campaigns:

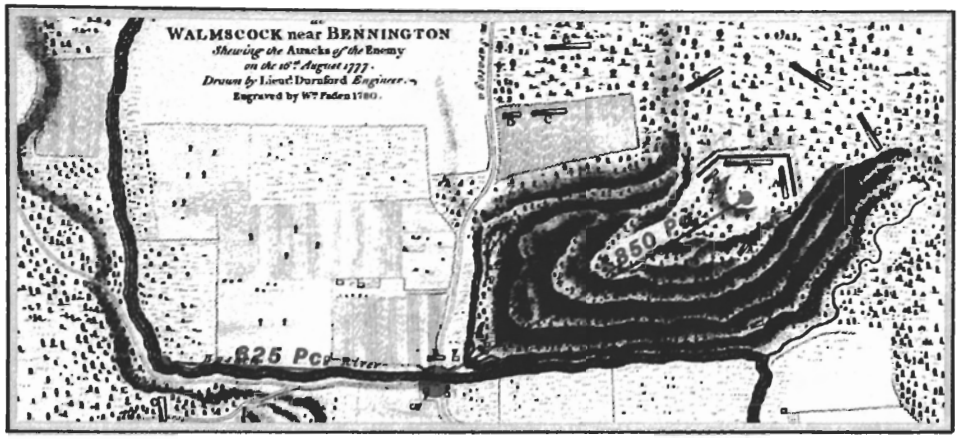
> On finished maps, relief was usually shown by hill shading, with a black or grey to indicate steeper slopes; cliffs and rock faces were drawn in a natural style. Variations in woodland cover included distinctions between deciduous and coniferous forests, with trees spaced according to relative density on some maps; cut over woodland was given

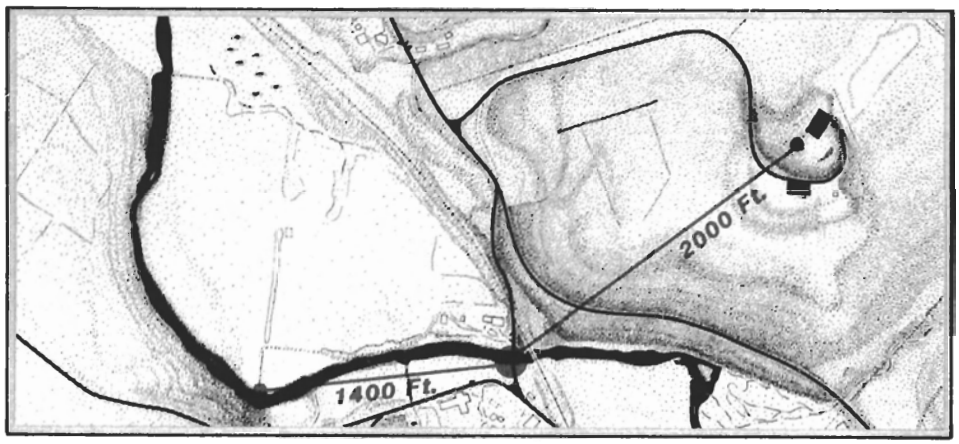


Contour lines slice landforms at ***arbitrary intervals*** (top). *While* ***hachuring*** *may fit the landscape more precisely* (above), *it tends* ***to obscure*** *other* ***features*** *on the map* (below).



[c] A frequency distribution for British maps of the Revolution, compiled by Harley, Petchenik and Towner in their 1978 study, suggests that this is one of only a couple maps drawn to this scale, and certainly an infinitesimal percentage of the total.





By comparing distances between fixed points on Durnford's 1777 map (measured in paces) to these same distances in the field today (measured in feet), we can conclude his "pace" was intended to be 2.5 feet in length.

its own symbol. Water features were invariably colored blue or a bluish green, with a special symbol for marsh. Particular attention was paid to any military features of the man-made landscape, often keyed by numbers or letters to an explanatory legend. Settlements were shown in red either by dots or in plan. Roads were indicated by double or single lines and often colored buff; on cleared ground, diagrammatic field boundaries with an impression of cultivation or pasture were often included. Many of the surviving examples are carefully finished and neatly colored. The symbols used in military topographical mapping were usually so well known, through either training or experience, that the actual maps seldom carry explanations . . .[4]

Whenever time permitted, hills were sketched in by eye, and even during campaigns they could be fair drawn at headquarters in either pen or color wash. The distribution of such areas influenced many important military decisions, including the selection of sites for fortification and encampment, the choice of ground for a battle, and the location of artillery. In such ways, eighteenth century warfare made special demands on the skills of a cartographer.[4]

As well as being typical in image and style, Durnford's map, as we see it in its surviving form, was probably also typical in derivation:[D]

"The maps, though surveyed during the march, survive in the form of carefully finished and colored drawings. They were made after the campaign and probably were designed to accompany written reports submitted to various administrative officials."[5]

Whatever field notes and sketches Durnford had created during his 48 hours at Walloomscoick, we can be certain this manuscript drawing was not prepared on the battlefield. To expect such specific detail to have been rendered from memory is also unreasonable, and we have substantial evidence, both in traditional military etiquette and eyewitness accounts, that Durnford's notebooks and papers probably were not taken from him when he was captured, or if taken, were promptly returned. Julius Frederick Wasmus, a German surgeon accompanying Baum[E] and the author of the most detailed eyewitness chronicle of Baum's abortive expedition, certainly confirms in his journal that the American commanders attempted to uphold the respect due enemy officers in this regard. On several occasions for the first few days of captivity the Americans brought captured baggage to a common collection point, where British and German officers were allowed to locate and retrieve their personal effects.[F] Wasmus' journal itself followed this route, having been taken in the battle and later returned. One could expect that Durnford similarly preserved his field notes, but they have since been lost.

British engineers were frequently

[D] A detailed comparison of Durnford's use of symbols and standard eighteenth century cartographic conventions will be made in various places throughout the following discussion.

[E] Wasmus was 38 years of age at the time of the battle.

[F] Wasmus, August 18th: "Several of our officers got some of their baggage back today. General Stark had much captured baggage unloaded on a place near the church in Bennington and each could pick out his own . . ." August 19th: "More baggage was unloaded where each could pick out what was his . . ."[6]

skilled in general observation and were interested in environmental details beyond the scope of their immediate assignments: "Although engineers . . . were attached to army headquarters during the Revolution, they tended to be independent by virtue of their scientific education and their sometimes separate affiliations, as was the case with the British Corps of Engineers. . . . in any case, engineers were usually men of varied international experience . . ."[7] This may account for the level of non-military detail integrated into Durnford's map.

But if Durnford had this natural curiosity and a penchant for general field sketching, why is his map of "WALMSCOCK near BENNINGTON" his only product? Certainly there were locations along the march prior to August 14th that might have inspired a map, and even other military encounters that might have seemingly demanded one. Undoubtedly it was the potential magnitude of the situation at "WALMSCOCK" that provided the motivation for this extraordinary and uncharacteristic effort.

Although given in a different eighteenth century campaign by a different commander, one can almost hear these same instructions being issued to Durnford by Baum as he realized that his expedition, faced by a growing Rebel force, would have to halt at Walloomscoick to await the arrival of Breymann's reinforcement: ". . . examine all the grounds in the environs of our present encampment and make a written report to me without delay, of the different spots which appear most proper to be occupied in case of any movement of the enemy towards us." *George Washington, Morristown, New Jersey, 1777*[8G] Certainly this initial survey, and the subsequent notations on Baum's disposition of his force, were the ingredients from which the fair copy manuscript map was born.[H]

In spite of its fine detail and apparent accuracy, we will not use this map as a statement of fact, but rather as a medium through which to explore the interrelationships of "facts" which comprise this event. The drawing, it should be remembered, is only one man's representation of his interpretation of the actual natural and cultural environment that existed here in this square mile over 200 years ago. It does not represent that reality itself.[I]

One of our research tasks will be to assess just how accurate this image is. We will explore its uniformity, i.e., the degree to which all parts of the image are equally trustworthy. We will attempt to clarify the degree to which the image is representational as opposed to merely symbolic; i.e., to what extent does it reflect actual observable features of the 1777 landscape as opposed to reflecting an abstract categorization of land type and pattern?

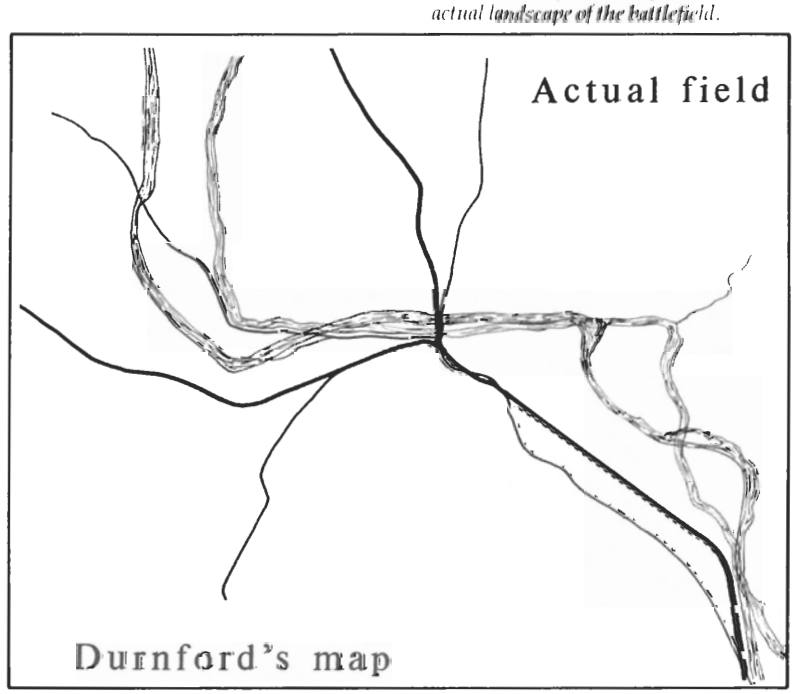
The Durnford map appears to be accurate in terms of recorded details and their *relative position*, i.e., the relationship of each feature to every other feature on the map compared to those same relationships as they would have existed in the real world. The test of this type of accuracy is to actually use the map in the field and see how well one can "get around" and the degree to which things in the field "look like" they do on the map. Durnford's map works very well in this regard. Yet when we attempt to overlay his map, adjusted for scale, on a modern map of the actual field in which the event took place, we see that it is not accurate in terms of *absolute position*, i.e., the relationship of each feature on the map to that same feature in the real world.

[G] For all primary source quotations, the person, date and geographic location is given with the text where directly relevant to the study. Otherwise the source notes and bibliography may be consulted. An effort has been made to indicate the approximate date of each observation, not the date on which these were later published. Where these data are obvious from the excerpt itself, they are not otherwise indicated.

[H] Faden's engraving is inscribed "published Feb. 1st 1780," suggesting the engraving was executed during the winter or late autumn of 1779. Durnford was repatriated in the summer of 1778. Therefore, Durnford and Faden had 18 months to consult on the drawing prior to Durnford sailing to the Cape in March of 1780, right after the engraved version was published.

[I] The distinguishing characteristic of the archeological approach to history is that it begins with the "reality base" (field environment) in which the event took place, and only later goes to the maps and texts. Traditional historical research tends to begin with the documents and only secondarily ventures onto the landscape that was the context for the event recorded in the documentation.

Durnford's map does not precisely fit the actual landscape of the battlefield.



In order to make any analytic sense out of this 1777 map, it has to be made to approximate the reality it was meant to record; i.e., it has to be made to fit the real world. This research process involves first a verification of the map itself to confirm the validity of the images recorded in two-dimensional space. Second, it has to be rectified; i.e., it has to be adjusted to overlay the real world. In this case it is essentially the real natural world, since virtually all of the cultural world Durnford saw in 1777 has vanished – has become extinct.

Once we have arrived at a rectified version of Durnford's image, we are in a position to begin our analysis of the eighteenth century farmsteads represented there. A detailed discussion of the map verification/rectification process is presented below.

The process of verification/rectification and the subsequent agricultural analysis are intertwined. One cannot say that one comes first and the other second. Both occur and evolve simultaneously. It is the purpose of the following chapters to reveal the intricacies of that analytical process and to accomplish that evolution from an inaccurate two-dimensional military map to an accurate three-dimensional image of land use and settlement on the New York frontier over two centuries ago.

THE PROJECT AND THE PROCESS

The purpose of this research project, and the associated analytical exercises, is to gain some accurate information about late eighteenth century land use and settlement pattern in areas that were marginal to mainstream cultural development corridors prior to the Revolution.

The particular mechanism employed in this pursuit involves using the battle map to reconstitute a three-dimensional image of the square mile of frontier farmland recorded by Lieut. Durnford in 1777. The process by which we make the transition from eighteenth century military map to eighteenth century rural farm image involves several systematic, complex and interrelated steps.

The first among these is to establish the hypothetical assumption that "the Durnford map is an accurate representation of settlement and land use in the mapped area in 1777." Testing this hypothesis involves the following procedure:

1. "Proof" the accuracy of the Durnford map by selecting strategically located "critical points" (natural features, military positions and constructions, civilian features) and determine the level of correspondence between the Durnford map and the actual field situation established by archeological survey.

2. Relocate natural and cultural features shown on the Durnford map, using surface archeological survey, aerial photographs, nineteenth century maps, historic accounts and other documentary sources, and plot these on a newly drawn base map of existing field conditions drawn to an appropriate scale.

3. Using these relocated features, "rectify" the Durnford map to the correct scale, proportion and orientation by matching identical points.

4. Fill in cultural/agricultural details from eighteenth century eyewitness accounts, and reconstruct the cultural landscape of 1777 by drawing on other late eighteenth century and early nineteenth century accounts (books and diaries) and illustrations (paintings and engravings).

Once this process is completed, we may begin to analyze the newly created image as we would an original eighteenth century annotated farm survey. We can evaluate the resulting cultural landscape and present a summary description of the mile-square study area as an example of a late eighteenth century rural farm district.

The process of "proofing"[J] the map has itself two steps:

A. Locate mapped details that compare favorably with existing field features, i.e., natural features such as rivers and streams, hills and ridges.[K]

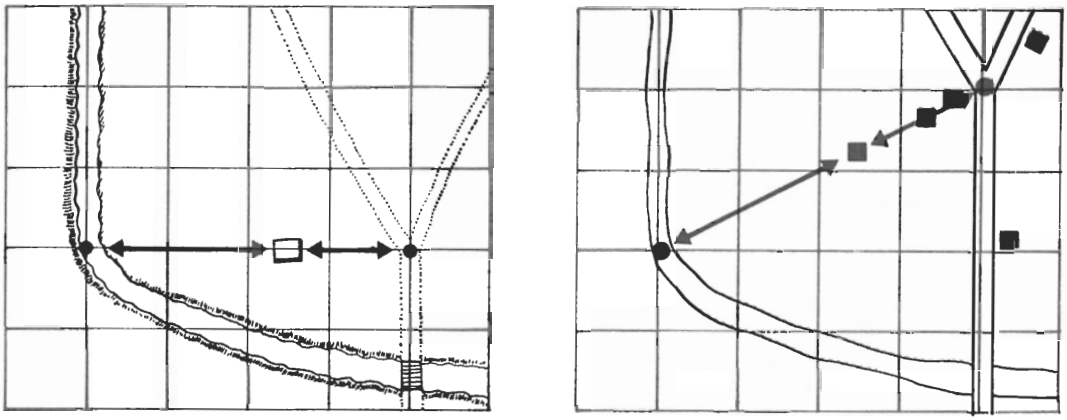
B. Locate mapped details that compare favorably with military details known from eyewitness accounts,[L] including fortifications, troop positions and movements.

This process will establish a certain level of confidence in the 1777 cartography and will allow us to assess the level of detail incorporated into the 1777 map; i.e., how specific and precise vs. general and superficial; how representative vs. symbolic.

[J] We are using the concept of "proofing" less in the sense of proof-reading a text than in the sense of proofing a gun or cannon, i.e., testing the form of the thing to see if it stands up to reality (use).

[K] Since essentially all of the eighteenth century cultural features within the study area no longer can be seen and identified, this process is initially focused on the natural landscape, which is more enduring and less subject to small-scale changes.

[L] For this purpose, the eighteenth century eyewitness accounts are best; but few exist. Early nineteenth century accounts are the next best, as they are retroactive eyewitness accounts, incorporating secondary evaluations of events based on generalized primary data not otherwise recorded. Late nineteenth century histories may still contribute to the reconstruction by incorporating early nineteenth century verbal facts first repeated by the descendents of eyewitness participants. Even early twentieth century accounts may derive from records and verbal information that have since been lost.



To rectify an historic image, we first select two fixed points which are not likely to have changed since the event and which can still be located in the field. In this example we have chosen a bend in a river and a road junction. When the true position of these is transferred to a map of the modern field environment, and their relationship to any third point (the house) is maintained, the positions of all these are rectified. By this method the estimated locations of features no longer in existence can be plotted.

If we have established, by that time, an acceptable level of confidence in Durnford's work, then we will need to "rectify" his image to what we know was the actual field situation he was observing. We already know his eighteenth century image will not overlay a map of the "real world" with enough correspondence to warrant using it "as is."

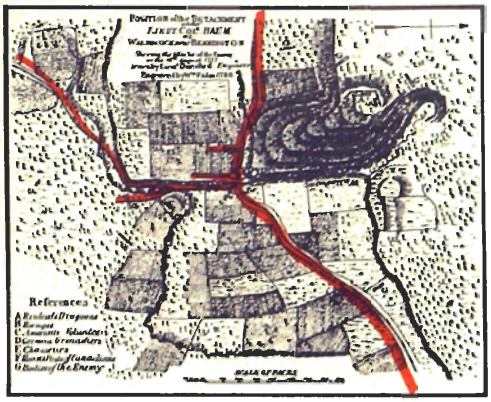
The map rectification process involves the establishment of two grids, one for the image to be rectified and one for the image that reflects reality. The first is usually not created, but is a given, i.e., a pre-existing or "historic" graphic. The second is usually created, often through archeological[M] survey. This new graphic is based on some available imagery, such as an enlargement of an aerial photograph, an existing survey map, or other accurate base – but almost always is, or should be, field checked by survey. The optimum approach would require the creation, by field survey alone, of an accurate base map using only existing field data. But this is normally not practical, particularly where large areas are involved. However, even when a new survey is compiled, it is advisable to refer to older images for data that may be relevant to the rectification process. These transitional images bridge the time gap and reveal stages of evolution, between "Image 1" and "Image 2," for which no observable field evidence remains.[N]

The process of rectification consists essentially of distorting the grid of the first image purposely and in a controlled manner to overlay the grid of the second image by locating known points where the first grid and the second grid coincide. Various means can then be used to uniformly distribute the intervening data points where no direct correspondence was found. These other points, which usually are the fine-scale details we really most wish to see, essentially ride along on the coattails of the major rectification features.

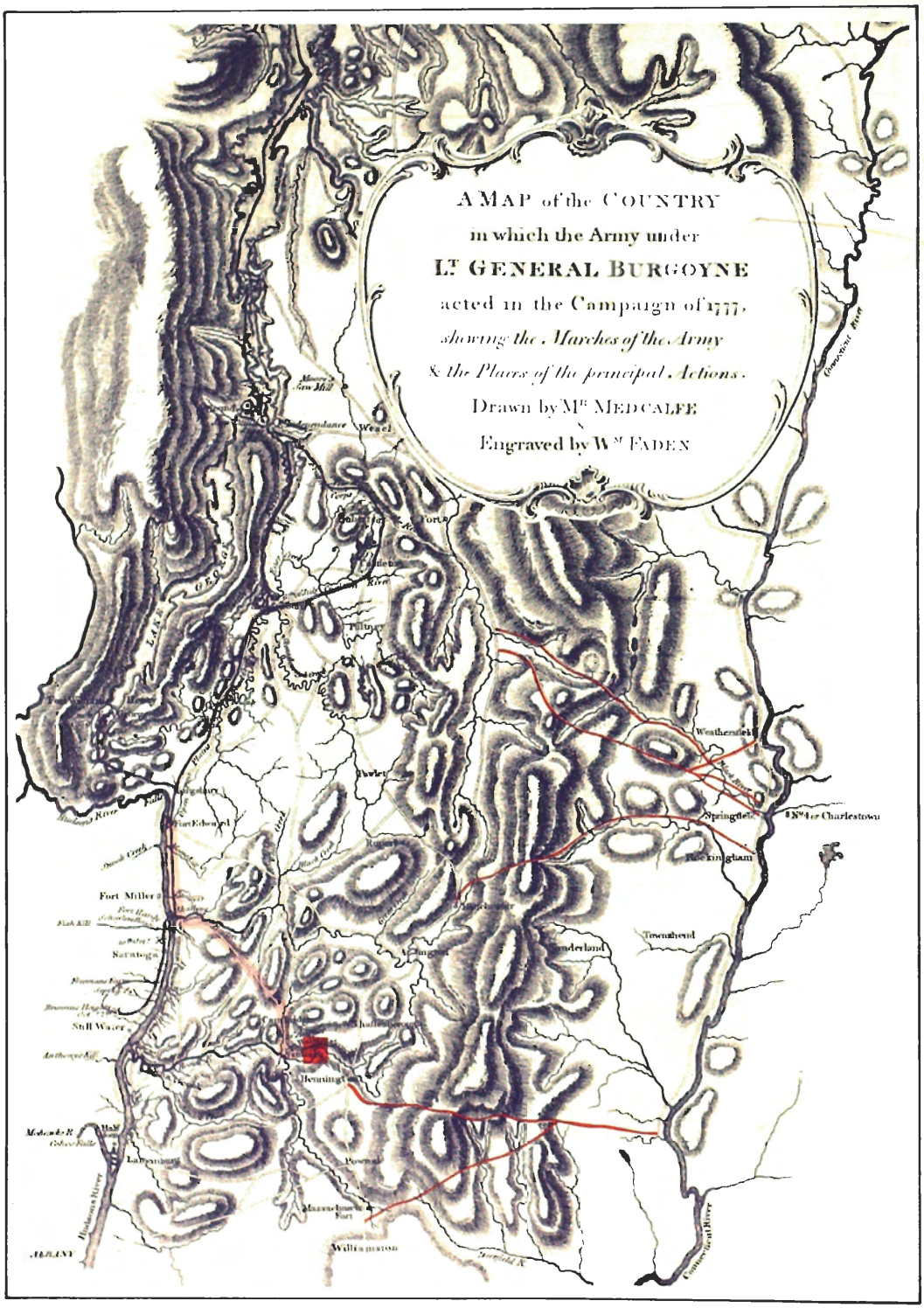
The rectification process is designed to translate relative position into absolute position, and therefore transfer the inherent accuracy of the historic map (documentary entity) onto an archeologically derived field map (environmental entity). This creates a third image – a version of the historic map that can be used in the field as a reference base for further research or interpretation. This resulting image resembles the historic map because it carries forward all of the features as originally shown on that document, i.e., its style. It resembles the actual field environment because it is adjusted to overlay that "real world" configuration, i.e., its form. In combination, it claims to be an accurate representation of the world as it existed at the time of the original observation; in this case, 1777.

[M] We are using the term "archeology" to apply to science in the process of revealing the physical remains of past human activity. While usually thought of as involving excavation, here it applies to a sort of "no-dig" approach, i.e., on-site field research limited to surface reconnaissance and other above-ground investigations.

[N] The base map we created for this study, and on which all field analysis was based, began as a small portion of the USGS topographic map for the region. Several aerial photographic surveys covered the study area, but at very high altitude. One of these, a 1969 air photo, was enlarged to a scale of one inch to 200 feet. This image was then taken in the field with a mylar overlay sheet on which to record features of terrain. Using a combination of color-coded shading and hachures, details of slope were recorded directly over the air photo, and a base drawing was then created. The entire study area was walked over three times during the creation of this graphic, and spot checks were made on several subsequent occasions. A 1948 low-level flight of stereo air photos was obtained from the Department of Environmental Conservation and was used to clarify topographic details and cultural features that did not appear clearly on the 1969 flight, or which had vanished from the landscape by 1986. Old tree lines, building locations, road alignments, field outlines, all change with sufficient rapidity as to require imagery at less than 50 year intervals.



ROADS and LANES



Only a few roads of any substance cut through the mountain barrier separating the Hudson and Connecticut valleys (right). *Most others were little more than tracks in the forest* (above).

ALIGNMENT

The road that bisects Durnford's map represents not only a segment of the highway between Old Saratoga and Bennington, but also a major corridor of communication that joined the settlements of the upper Hudson Valley with those of the Connecticut Valley to the east. Roads such as this linked New York and New England across a barrier zone of highlands and river valleys some 40 miles wide.[A]

In 1777, this frontier area was crossed by wagon roads in only five places for over 100 miles north of Albany. Since Baum was dispatched from Fort Miller on the Hudson and his eventual goal was to reach the Connecticut River Valley via Bennington, his choice of route was, therefore, obvious.

This highway was probably typical of most major eighteenth century roads in design, condition and alignment. The latter is particularly observed if we examine the last few miles approaching the battle area at Walloomscoick, where it skirts the Walloomsac Valley floor. Here it ran on the flanks of the high hills north of the river,[B] elevated some sixty feet above the floodplain and at distances from the riverbank of between 500 and 2000 feet.

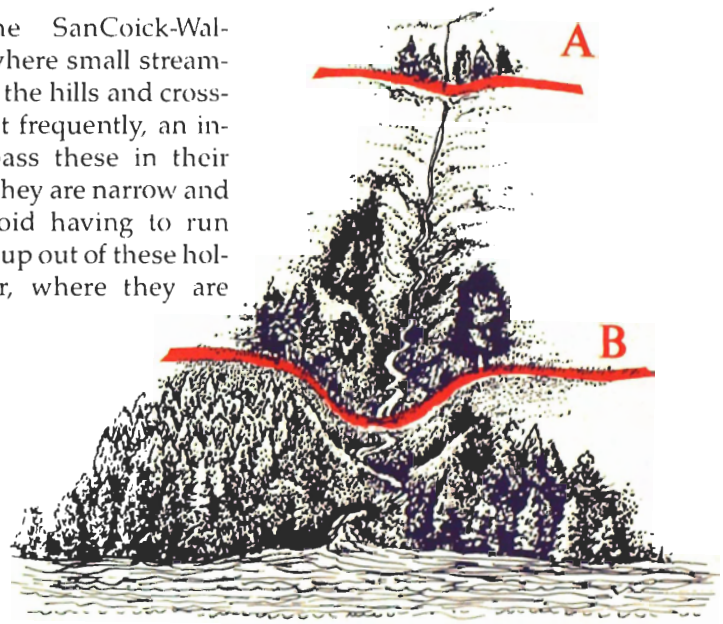
A common misconception about such early roads suggests they ran along the flat bottomlands, often at the river's edge, as they followed the river valleys from point to point on courses first laid out by Indians. While Indian trails often did provide the route for later roads in the eighteenth century, and while they usually followed the courses of rivers and streams, they did not routinely run on the low ground adjacent to those streams.

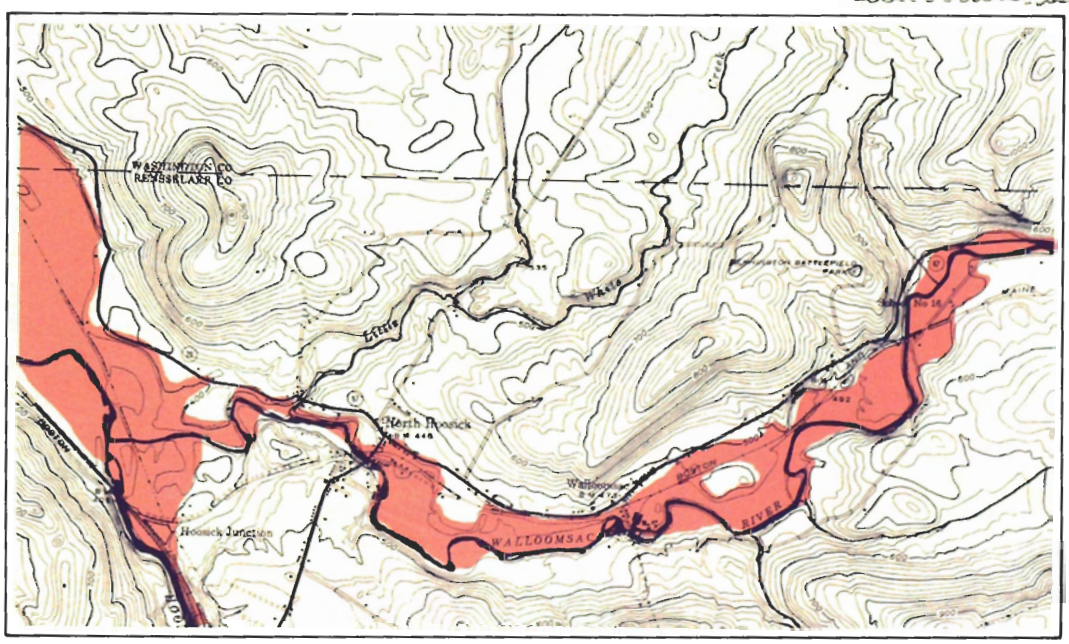
A route along the river flats would appear on first glance the easiest to travel, and tradition has suggested that this very road ran along these flats in 1777, much closer to the river than it does today.[2] However, on examination, an alignment run one or two terraces above the river balances the disadvantage of elevation with the advantage of uniformity. It avoids the swamps and bogs often found on the floodplain, and the soft and miry soils of the floodplain itself.

In areas like the SanCoick-Walloomscoick corridor, where small stream-eroded ravines dissect the hills and crosscut the road alignment frequently, an inland course would pass these in their upper sections where they are narrow and shallow. It would avoid having to run steeply down into and up out of these hollows nearer the river, where they are broad and deep.

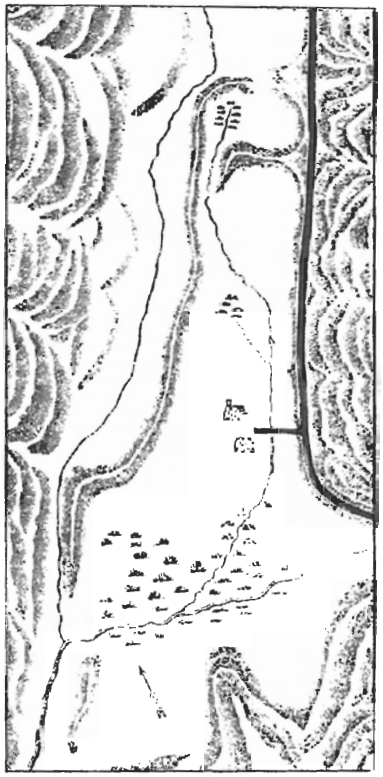
[A] Examining each area of the battlefield in the following chapters, we will first attempt to verify the natural and cultural landscape by examining battle accounts, positioning the informants carefully within that landscape. This will then permit us to perform field investigations and analysis. The facts derived from this interactive analysis of each area can then be related back to the field survey map and from that back to the 1777 map, with adjustments in the latter made where needed.

[B] The modern road and 18th century road in this area are on essentially the same alignment, being constrained by topographic considerations and having been preserved from any major twentieth century improvements.





By keeping to the terraces above the river floodplain (left), the Bennington Road maintained a more uniform alignment. It avoided the steep-sided ravines near the river (B above) for the less abrupt upland terrain (A above).



Moraine on D. McFarland's Farm, Salem.

Recorded by Asa Fitch in 1849, not far from the battlefield, this drawing reveals an early road avoiding irregular lowlands by skirting the hills on an elevated terrace.

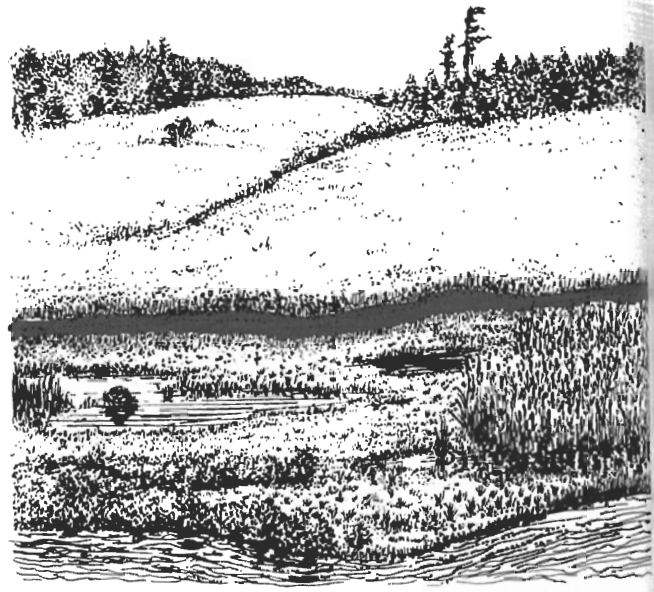
Another consideration in placing roads above the floodplain is the tendency, in uncultivated areas, to have the lowlands fouled by brush, briars and wetland thickets, while the natural meadows or mature woodlands of the drier elevations afforded a path of less tangled or dense undergrowth.[3]

Even where passage was very restricted, roads tended to run on the sides of the valley, not the valley floor.[c] Of course a road had also to avoid running too high along the valley wall lest it be impeded by extremes of slope or rocky outcrops.

That the road from SanCoick was typical in this regard is confirmed during the second engagement on August 16th, 1777. General Stark directed his troops to advance against Breymann's corps only about a mile west of Durnford's mapped area. "By a misunderstanding of orders, they marched left into a swamp, instead of to the right on high ground."[5] The road here was, and still is, threading its way between lowland and highland, seeking that alignment where the disadvantages of each were equalized.

Eighteenth century military roads, where speed and ease of transport was essential, were designed to run on high ground as well, and this was based only in part on increased visibility and security from ambush.[6] While the Bennington Road was not a military road by design, it certainly became one by function. It is important to realize that the criteria for alignment used by military engineers were only a refinement of the criteria held significant by civilians. They included directness of route, stability of roadbed for wheeled vehicles, and uniformity of slope (a minimum of steep grades to climb or descend).

This attempt to "thread the eye of the needle" between highland and swamp is most evident on the western margins of Durnford's mapping area (although not revealed on his map), where the road from SanCoick approaches the battlefield. Having run essentially on the level for some two miles unimpeded, the traveler is faced with a south-trending ridge that reaches almost to the river and looms 50 feet above the level of the road. Expediency would suggest the road bend to the south and skirt this obstacle along the river plain. Yet doing so would have run the traveler first into a broad boggy flat that fills the gap between the ridge and the river bank, and



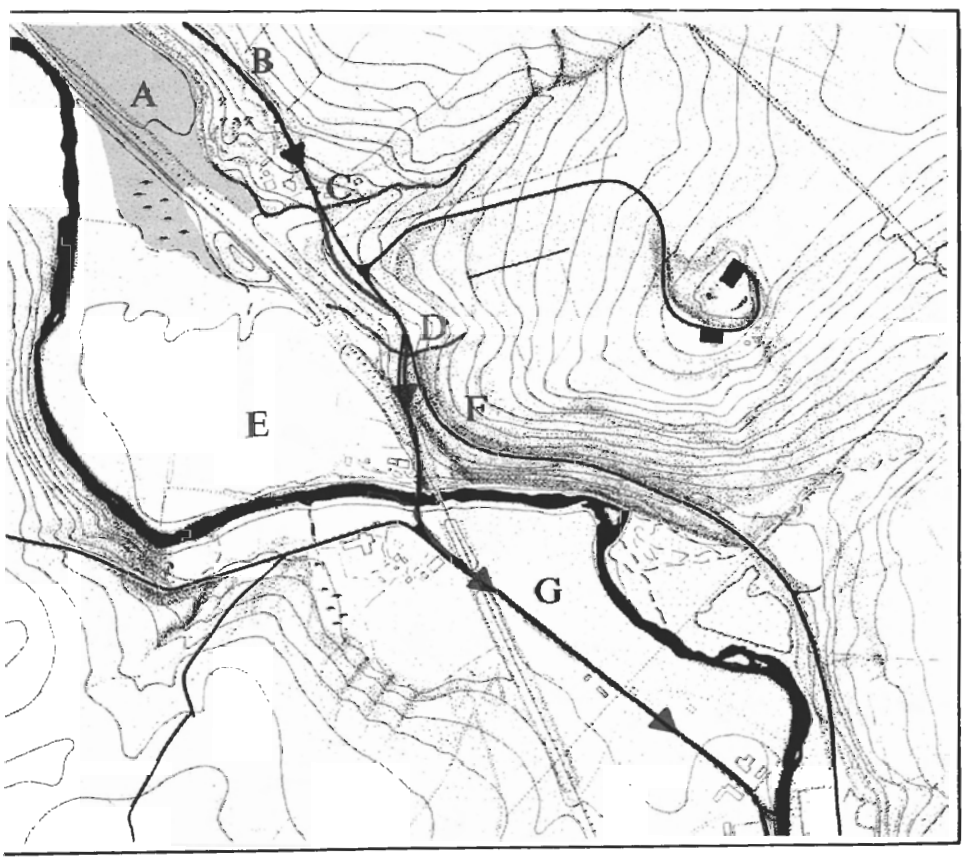
Early roadways avoided the unstable conditions of the lowlands as well as the difficult slopes of the hills and ridges: "...but the best cultivated parts of the country are not seen on the road, which passes chiefly over barren and hilly tracts, called 'ridges.' The reason for carrying the road over these is because it is found to last longer than if carried over the flat part of the country, where the soil is deep . . . for after a road is once cut, they never take pains to keep it in good repair." Isaac Weld, Delaware, c. 1797.[1]

[c] "This gap is nearly a mile wide, and it exhibits a tremendously wild and rugged scene. The road does not run at the bottom of the gap, but along the edge of the south mountain, about two-thirds of the way up." *Isaac Weld, Delaware, c. 1797*[4]

Still ponds, marshes and bogs such as this evolve through a drying out process, becoming first infiltrated by reeds and water plants, and later becoming semi-dry land. Thus we can be sure that as wet as this marsh is today, it was even wetter in 1777

ediately into a swamp which still
ıtains pools of standing water
e dry season.
: road been able to stay just above
lands and run along the base of
hus avoiding the bulk of the ele-
would shortly have had to cross
l ravines where tiny brooks had
ıe south face of the ridge, feeding
ınds below with both flow and
ı order to skirt the deepest part of
ɔ ravines and cross the streams
ey are narrow and bordered by
und, the traveler would have to
:k to an elevation some 40 feet
: margins of the wetland, and he
ı so more abruptly than if he had
that elevation initially. In the
e, he would also have traded a
straight alignment for one extremely convoluted and difficult to negotiate.

Having achieved this height, the road is next forced down onto the river plain, soon after crossing the more easterly ravine, by the steep rocky slopes of "Hessian Hill."[D] After descending the slope to the base of this hill, the road crosses the river. It then runs eastward as directly as possible to the first place where it can recross to the north side of the river without again being blocked by steep, rocky slopes and continues on along the north shore. Here it again runs on the first terrace above the river plain and at times up to 1,500 feet from the water's edge. By doing so, this alignment avoids a steep river-side slope and various wetlands along the New York/Vermont border, even though up to a half mile could be saved by a more direct route.



The 18th century road across the battlefield avoids a low wetland **(A)** *by running on an elongated terrace* (B), *crossing two ravines* (C, D) *at their more shallow upper ends. It is then deflected down to the river flats* (E) *by a rocky hill* (F), *continuing eastward along the floodplain* (G).

natural factors seem to have influ-
he alignment of the Bennington
ne cannot ignore the potential cul-
fluences. Looking at Durnford's
ıe can see that the major portion of
abited and farmed lands in 1777 were within a large meander of the river, on the flats to the south. These settlements would have been ill-served by a road that avoided the flats by staying to the north of the river, as the main highway does today.

[D] After the battle the small mountain occupied by Baum's troops was regionally mis-named "Hessian Hill," and in 1848 James Butler states that ". . . the hill where the Hessians were intrenched is still called Hessian hill."[7] For clarity, and lacking any other more formal designation, we have adopted this early terminology.

[E] In this study we will use the term "battlefield" to signify the square mile of land encompassed by Durnford's 1777 map, not the parcel owned by New York State as the "Bennington Battlefield State Historic Site," nor the area to the west in which the second engagement of the battle took place.

[F] See page 48 for more detail on this feature.

[G] See nineteenth century maps on page 93.

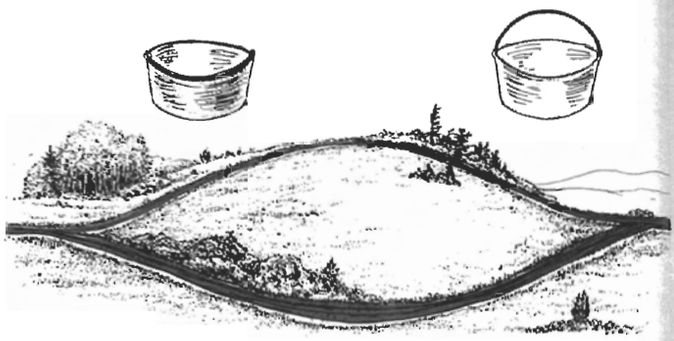
[H] Access may have been provided all the way to Sancoick by this road in 1777, although no westerly extension along the southern riverbank was ever mapped in the nineteenth century and does not exist today.

[I] While it is likely a bridge existed here in 1777 to carry the road over the river, fording here is facilitated by bedrock shelves in the streambed just east of the present bridge.

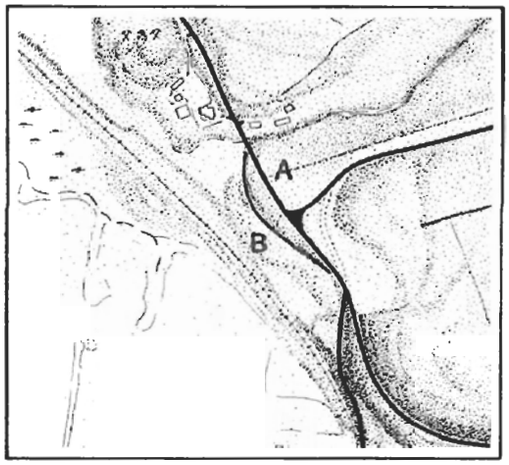
It is frequently held that modern roads which run in a straight line over hills that would have been difficult to climb 200 years ago are more efficient than their predecessors, which wound and curved around every hill and ridge in order to stay on a level course. But a piece of early folk wisdom that later became codified as a criterion for highway design in the late 1800s suggests otherwise:

"It is better to go around a hill than to go over it; the distance may be no greater and a steep ascent can be avoided. **The bale of a kettle is no longer when lying down than when standing upright.**"[8]

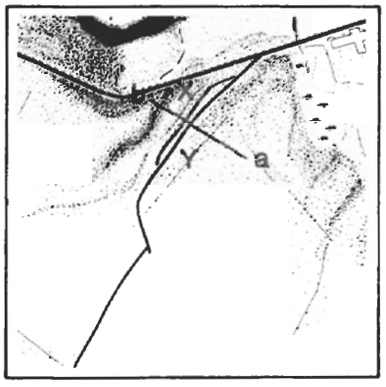
Within the battlefield[E] there are two examples of this earlier philosophy of road design. The first is on the Bennington Road where the nineteenth century, and presumably eighteenth century, alignment skirted the hill on a level course but was replaced by a modern straight-line route over the hill in 1927. The second is on the small lane that skirted the side of the Tory hill in 1777. Durnford clearly shows how this road curved to avoid a bulge in the hillside. This bulge and the old road course can still be seen in the field today. However, "improvements" have run the present farm lane over the bulge, producing a straighter but not necessarily shorter path.[F]



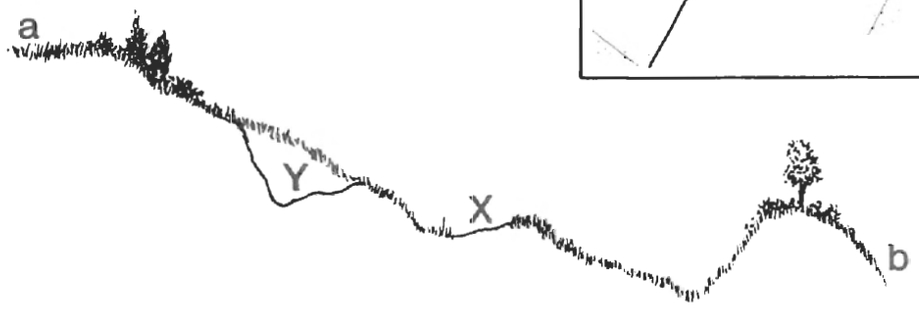
"The bale of a kettle is no longer when lying down than when standing upright."



Right: *The modern highway* (A) *cuts through a hill that the old road* (B) *went around.*



The road shown on Durnford's map avoiding a point of the Tory hill can still be seen today (right) *next to the modern dirt lane. The profile below shows the relationship of the old road* (X), *which avoided the hill, to the new road* (Y), *which is cut into the hill. The natural "angle of repose" for soils of this type is roughly 3-to-1, i.e., three units of horizontal distance for each unit of vertical drop. The slope above the old roadbed lies at approximately this angle, representing the original stable hillside. That above the newer road cut is much steeper and, therefore, unstable and eroding.*



In addition to the main highway bisecting the battlefield in 1777, there are two secondary roads and two lanes indicated by Durnford. The first secondary road can still be driven today and runs along high ground south of the river at least as far west as the present hamlet of Walloomsac. Its alignment after it leaves the Durnford map has remained unchanged for over 130 years[G] and presumably also since 1777. It may have served as a line of march for Stark's flanking force on the morning of August 16th, for once passing behind the Tory hill redoubt, troops on this route could only be seen at great distance from the German hilltop redoubt.[H] The indication of a crossing at Walloomsac itself as early as 1854 suggests that such a crossing existed previously,[I] and it is more than likely Stark's flanking force crossed to the north side of the river at this point and continued their march west into the White Creek drainage along the north shore, using part of the main Bennington Road.

The other minor roadway appears on Durnford's map to be merely a short lane that departs from the road just described and runs a small distance up the slope above the Tory hill, where it stops. A possible function of providing access to the highlands for wood cutting and clearing is suggested here. However, a field inspec-

tion of the terrain reveals that from any of the positions available to Durnford for mapping, the possible continuation of this road southeastward could not have been visible. It could not be observed from the Tory post because it fell behind the crest of the long hill that rose gradually to a height some 45 feet above that of the observers. This slope then falls away, creating a shallow broad valley out of sight to the southwest.

This road also appears to have entered forest at that point, further obscuring observation. It is probable that instead of being merely a field access lane, it was in fact a secondary road that continued eastward to the river in the direction of Stark's Vermont camp during the battle. If so, it is more than likely that access to the southeastern front of Baum's post on the 15th was by means of this road, and it is clear from Durnford's map that this was the avenue of attack on the Tory redoubt on the 16th. This road continues to exist as a farm field access lane even to this day, although its alignment is less constrained by topography and may have shifted over time.

The two 1777 farm lanes can be seen west of the bridge, each being about 600 feet long and providing access to the buildings near which each is terminated. No evidence of these lanes persists today, although some indications of their locations may be reconstructed.

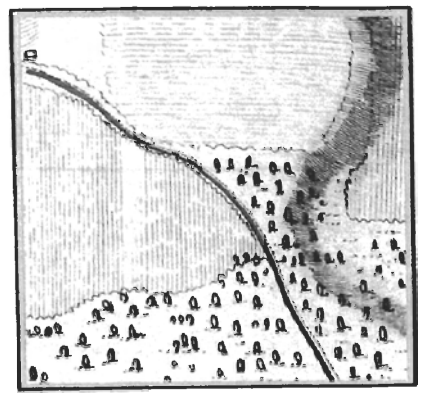
Beyond these, no roads worthy of elevation above the status of path appear to have existed, although certainly minor paths, both transient and well established, must have laced the landscape, providing access to the various areas being exploited or developed by the farmers.

DIMENSIONS

In design one could expect these roads and lanes to conform to such standards of uniformity and function as did exist in the late eighteenth century, and the dimensions of a typical road here in 1777 might be expected to approximate the stereotypical eighteenth century "one-rod road." Such a road had a minimum width of one rod, or 16.5 feet,[9] measured from tree line to tree line or fence to fence.[1] Such a width would appear to permit even the largest wagons to pass each other without difficulty. It is still possible to find remnants of such tiny roads hidden away in overgrown woodlots throughout the Northeast, lined by two stone walls about sixteen feet apart and marked by only a slightly depressed track midway between.

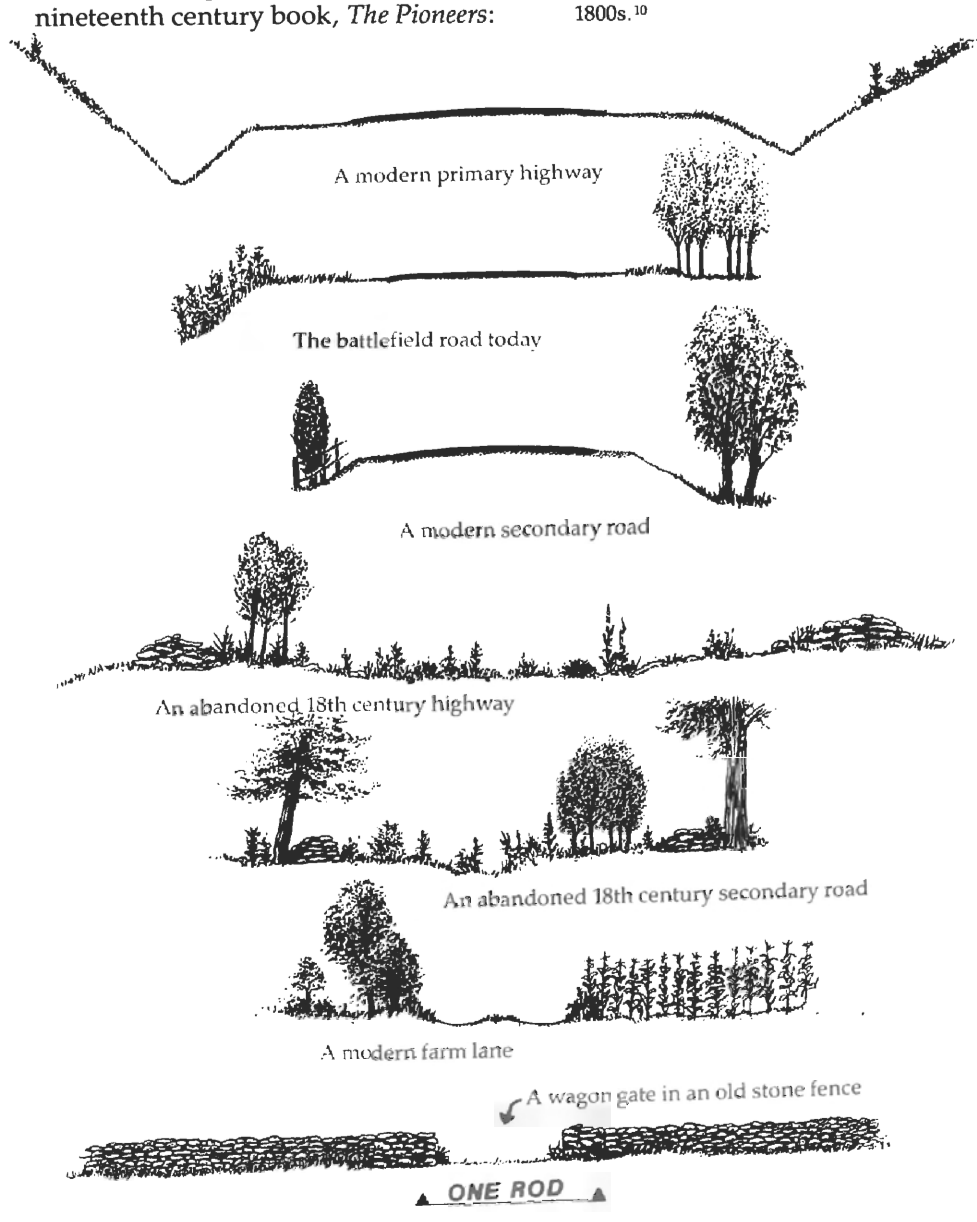
In undeveloped areas, the limits of such roads were little more than the edges of the uncleared forest: "The road through these magnificent forests was only **wide enough for two carriages**. It was no more than a cutting where the tree trunks had been felled at ground level, the mass of the tree falling to right and left to clear a path." *Madame Du Pin, Massachusetts, c.1790*[11]

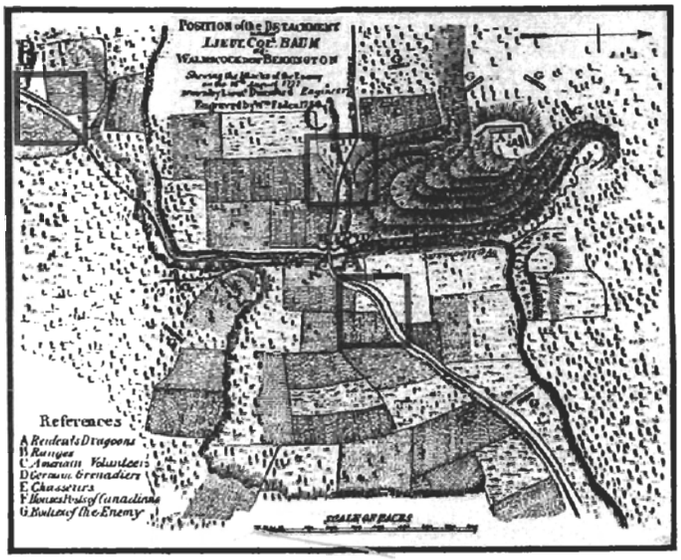
In cleared areas under cultivation, fences were thrown up to define the transportation corridor. This unwelcome sign of civilization is lamented by one of James Fenimore Cooper's characters in his early nineteenth century book, *The Pioneers*:



Note the transition from unfenced to fenced conditions recorded by Durnford as the roadway moves from woodlands to cultivated fields.

[1]Public roads prior to 1772 were a minimum 6 rods wide, changing to 2-4 rods until 1787, and then to 4 rods and later 3 rods during the early 1800s.[10]



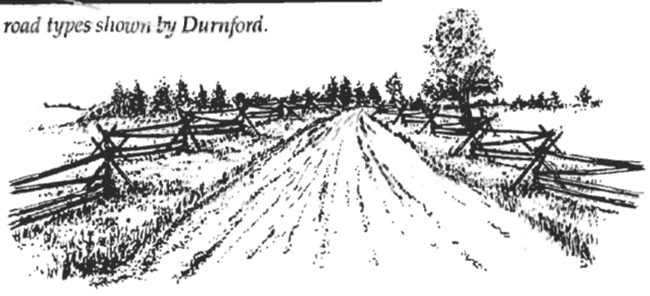


The three major road types shown by Durnford.

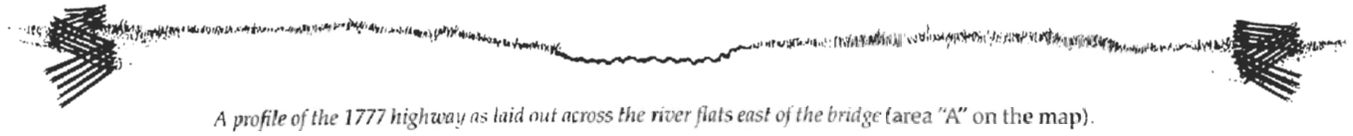
"Why, Doctor, there was nothing but a foot path, or at most a track for packhorses, along the Mohawk, from the German Flats clean up to the forts. Now, they say, they talk of running one of them wide roads with gates on't along the river; first making a road, and then **fencing it up**."[12]

If we examine Durnford's map, we find a considerable range of road corridor situations, as compared to the archetypal design. Durnford does reveal an element of uniformity in indicating a single central path or track within each corridor, suggesting only one lane in use for traffic. This image of a restricted lane may represent nothing more than a standard mapping convention. However, there was some concern for regulation of the vehicle track here, confirmed by the fact that in 1742 the colonial government established "An Act For The Better Clearing, Regulating and Further Laying out Public High

A

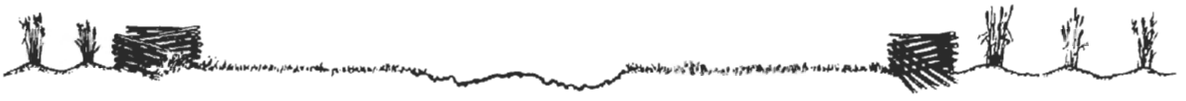


The Bennington Road as it may have looked in 1777.



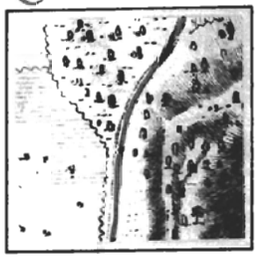
A profile of the 1777 highway as laid out across the river flats east of the bridge (area "A" on the map).

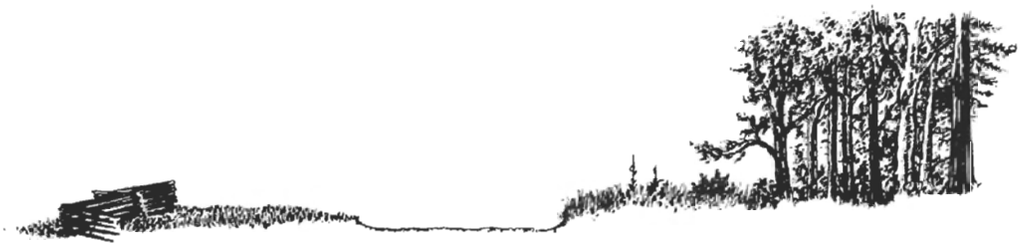
B



A profile of the secondary road along the wooded ridgetops south of the river (area "B" on the map).

C





A profile of the 1777 highway as laid out on the elevated uplands west of the river (area "C" on the map).

Roads in the City and County of Albany."[K] In part this act stated: ". . . that all Waggons, Carts or other Carriage, which shall be used in any of the High Ways in the County of Albany shall be so made That the Square between the Rutt or Tract which They Shall make, Shall be from the Outside of one Wheel to the outside of the other Wheel four foot & ten inches English measure and no more or no Less upon the Penalty of Twenty Shillings current money of this Colony."

In 1772, this act was broadened to cover all roads in the District of Hoosick.[L]

But, beyond this common element, Durnford's roads present a range of variability that seems to deny the application of any standard as simplistic as the "one-rod-road." There seem to be four discernible characteristic situations: a) the highway on upland slopes, b) the highway on the river flats, c) a secondary road, and d) a farm lane. The farm lanes here clearly approximate the one-rod road, and if we see this design stated as a "minimum",[14] this is to be expected, as a farm lane is a minimum effort/minimum demand type of corridor. The narrower parts of the secondary roads seem also to approach this minimum design.

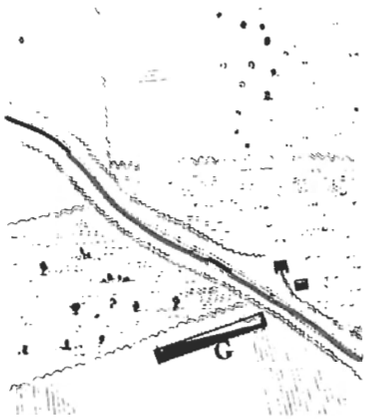
The upland section of the Bennington road seems to require an avenue of up to 3 rods (50'), and in that approaches the corridors enjoyed by most county highways today.[M] Once on the river plain, however, this highway occupies a right-of-way often in excess of 100 feet! A six- rod road here in the 1770s is truly extraordinary and would appear to call Durnford's drafting and observation skills into question. Yet such variance with standard design seems also a common feature of the frontier travel experience:

"No care is taken to limit the width of the roads, which are often twenty or **thirty yards broad**, [90 feet] along which carriages may find their way as best they can. The whole scene has no parallel in old countries." *Basil Hall, 1827*[15]

CONDITIONS

The road that crosses Durnford's map was, as said earlier, the main road from Old Saratoga to Bennington in 1777. It would be difficult to imagine a road in modern experience as bad as this highway, with its various branches, apparently was. Even the rudest modern dirt road has significantly more substance than did the major highways of the eighteenth century, which could rarely be matched as miserable routes for the conveyance of carts, horses or even pedestrians.

In quality, the roads of the eighteenth century in rural areas would be less similar to our unpaved country lanes (intended for auto travel) than to our farm field paths (intended for infrequent use by tractors and farm machinery). Such roads today

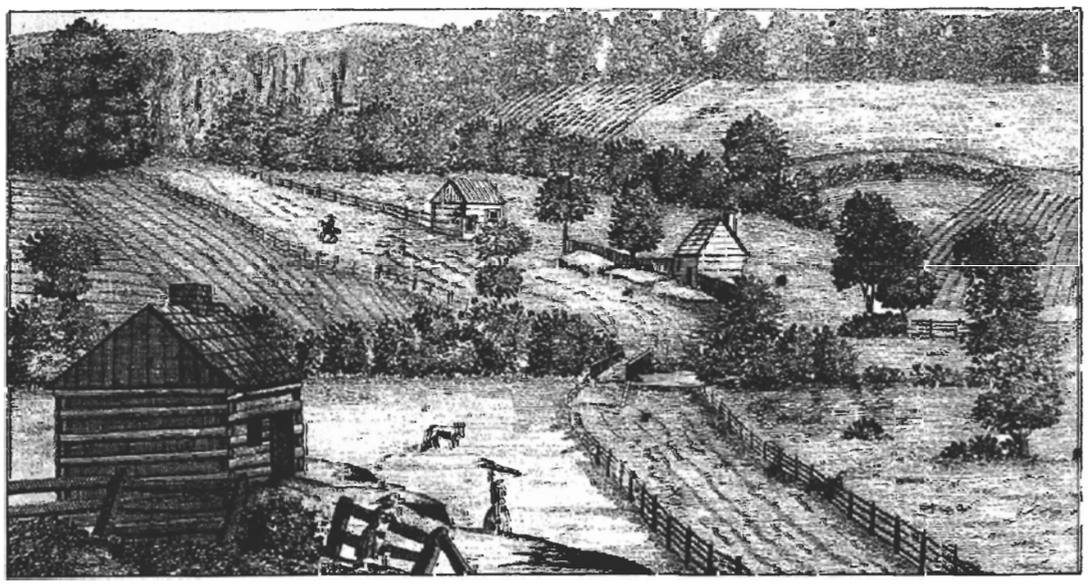


Buildings on the Bennington Road – 1777.

[K] In 1777, the study area was part of Albany County. (See E. B. O'Callaghan, *Documents Relative to the Colonial History of the State Of New York*, Vol. VI.)

[L] Very few confirmed eighteenth century New York carts exist in museums today. In general, the wheel spacing on the earliest of these is closer to 6 feet than the idealised "4 foot 10 inches." One example housed at the Farmer's Museum in Cooperstown is, in fact, only 4 feet 11 inches from rim to rim, approximating the perfection sought in 1772.[13]

[M] "Main roads should be at least three rods [49.5 feet] between the fences . . ." *Highway Manual of the State of New York, 1893.*



Library of Congress

This 18th century drawing portrays a situation similar to the battlefield recorded by Durnford. A wide, unregulated road traverses the floodplain after crossing a small river on a narrow bridge. Cultivated and uncultivated lands abut this road, and modest log cabins adjoin it. Note the similarity of the two buildings in the distance to the two shown by Durnford on the Bennington Road (above) and described previously. (page 106)

are little more than tracks, worn into the native soil, with a few rocks or logs thrown into the ruts and mud holes that use in wet seasons inevitably produces. In this they approximate the normal conditions of the common eighteenth century highway:

> Wherever the earth is thickly covered with vegetable mould (a fact existing universally where the forests have not been frequently burnt), this substance, easily imbibing, and long retaining water, is converted, every wet season, into deep mire; and, where the ground is moist and springy, the effect is not a little increased. On the hills of this country rocks and stones abound, particularly on those which are high. When roads are cut through the forests, the trees, which have grown near the path, shoot their roots into it, and across it, both on the surface, and beneath; in the former case, a horse is in danger of stumbling by striking his feet against the obstruction; in the latter, he is often still more exposed. When he sinks into a spot of deep and stiff mire, he sometimes steps partly on the root hidden by the earth, and is in danger of falling, either by slipping off, or by being disappointed in his expected position. At other times, he steps immediately by the side of the root, and when he attempts to take the next step, is exposed to falling by striking his hoof against it. The roots, also, are branched, often entangle him in their forks, and sometimes between parallel branches, running near to each other. After they have decayed, they break, and then endanger his falling by the suddenness with which he goes down into the mire. To all these hazards, except the last, he is still more exposed by the rocks and stones, which in these miry places often lie beneath the surface. Even on the surface they are an extreme inconvenience to the traveller, and present to him not a small degree of danger, in many parts of a recently settled country. In the roads newly opened the stumps are still worse. Horses, unused to them, scarcely observe them at all, because they are of the same colour with the surface. Wherever a forest borders on the road, trees are frequently blown down, and in many instances lie across it for a considerable time. Here the traveller is forced to make his way round them as well as he can. Whenever the wind blows with violence, he is in no small danger of being crushed by their fall, a fate which has sometimes arrested travellers in roads corresponding with this description. *Timothy Dwight, Connecticut Valley, c.1795*[17]

Travel, except in summer, was universally disagreeable:

"The traveling in the Country in the spring and fall of the year is very unpleasant, as your horse is often from his knees to his body obliged to founder on through mud and mire, owing to the depth and richness of the soil, its uncultivated state, and the want of proper roads." *J.A. Graham, Vermont, 1797*[18]

"We were two days in crossing the Green Mountains . . . the roads across them were almost impassable, and to add to the difficulty, when we had got half over, there came on a very heavy fall of snow. After this, it is impossible to describe the confusion that ensued; carts

"The roads. . . . if we except the principal highways, were, at the early day of our tale, but little better than wood-paths of unusual width. The high trees that were growing on the very verge of the wheel-tracks excluded the sun's rays, unless at meridian, and the slowness of the evaporation, united with the rich mould of vegetable decomposition, that covered the whole country to the depth of several inches, occasioned but an indifferent foundation for the footing of travelers. Added to these, there were inequalities of a natural surface, and the constant recurrence of enormous and slippery roots, that were laid bare by the removal of the light soil, together with stumps of trees, to make a passage not only difficult but dangerous. Yet the riders, amoung these numerous obstructions, which were such as would terrify an unpractised eye, gave no demonstrations of uneasiness, as their horses toiled through the sloughs, or trotted with uncertain paces along their dark route. In many places, the marks on the trees were the only indications of a road..." James Fenimore Cooper, The Pioneers[16]

breaking down, others sticking fast, some oversetting, horses tumbling with their loads of baggage, men cursing, women shrieking, and children squalling!" *Thomas Anburey,*[N] *Vermont, April, 1777*[19]

And yet in the midst of normally miserable spring conditions, one might find the roads to improve dramatically:

"The roads are almost impassable, but I am informed that in the course of a fortnight they will be as dry and dusty as in the midst of summer." *Thomas Anburey, Vermont, April 6, 1777*[20]

Usually serious travel, especially with heavily loaded vehicles, was reserved for the summer months: "In due time **after the roads were settled**, the teams were sent back for the cart, wagons and furniture. . . " *Levi Beardsley, Hoosick, 1789*[21]

But even in mid-summer, a normally passable road could degenerate into a quagmire:

"(Gen Fraser) . . . gave orders to make the best of our way to this encampment, which was through a road where every step we took was **nearly up to the knees**." *Thomas Anburey, Skenesboro, July 4, 1777*[22]

While no observations have survived about the quality of the roads on the battlefield after the 24 hours of rain that fell during the 15th of August, we do know that the disintegration of other sections of the Bennington highway to the west impeded Breymann's relief march severely. His delay in reaching Baum, he was later to relate, was due to the "**bottomless roads**"[23] encountered during the 15th. While "bottomless" may seem an exaggeration, one notes that a typical measure of such conditions stated frequently in late eighteenth and early nineteenth century accounts was ". . . mud up to my horse's belly."[24]

At least one observer places the blame for these conditions on the tendency of the builders to clear only enough road to permit passage, and no more:

> The first great evil, attendant upon the formation of these roads, is, that the trees are not originally cut down to a sufficient extent upon both sides. Whenever they are left near the path, they cover it with a continual shade, and prevent the exhalation of the moisture. In this way the mire is often continued through the summer. The roots, also, being interwoven with each other, render it impossible to obtain earth sufficient for the purpose of covering the stones, or to make drains for drying the sloughs. The earth, which can be obtained in most places, is nothing but vegetable mould; and this is so spungy, imbibes the water so easily, and retains it so long, that, in seasons not absolutely dry, the inconveniences intended to be removed, are only increased. When the trees are cut down **over a breadth of five or six rods**, the road, being open to the sun, becomes in great measure dry. The stumps and roots of most kinds easily decay. Strong ploughs may be used with success, and solid earth may be procured in sufficient quantities.[O] *Timothy Dwight, New Hampshire, c.1795*[25]

That such were the conditions on the Bennington road is suggested by the testimony of a local militiaman who was sent forward on August 14th and "ordered to fell trees to stop the artillery of the enemy."[27] The impression given here is of trees so close to the road that passage of the advancing army could be effectively blocked by merely cutting them down.[P]

There is little evidence in the literature to suggest that there was any maintenance or repair of these roads, once created. Such seasonally miry conditions were apparently expected and tolerated:

"Whenever they attempt to mend these roads, it is always by filling the ruts with saplings or bushes, and covering them over with earth. This, however, is done **only where there are fields on each side of the road**. If the road runs contiguous to a wood, then, instead of mending it where it is bad, they open a new passage through the trees, which they call a road. . . " *Isaac Weld, Maryland, c.1797*[28]

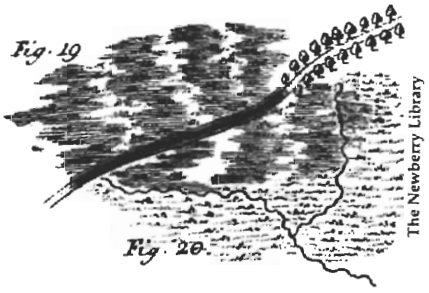
This seems to be the extent of their general maintenance, largely necessitated by restriction to an established right-of-way through cultivated or occupied areas. They did, however, attempt to facilitate passage through extremely and frequently wet areas, produced by springs or seepages. Where so constant an obstacle to

[N] Thomas Anburey was with Burgoyne's army as it moved down through Vermont and northern New York in 1777, so his observations carry a particular relevance here.

[O] It would appear that the residents of Walloomscoick are an early example of taking advantage of this benefit. The Bennington Road was cleared to a six rod right-of-way when laid out across the floodplain, according to Durnford's map. Such width was the standard for public roads built prior to 1772 in New York.[26]

[P] This certainly was true on the road above Fort Edward, where the Rebels had effectively retarded Burgoyne's entire force with the same tactics a few weeks earlier during their retreat from Fort Ticonderoga.

Right: *Locations where drainages suggest the need for "causeys" in 1777.*



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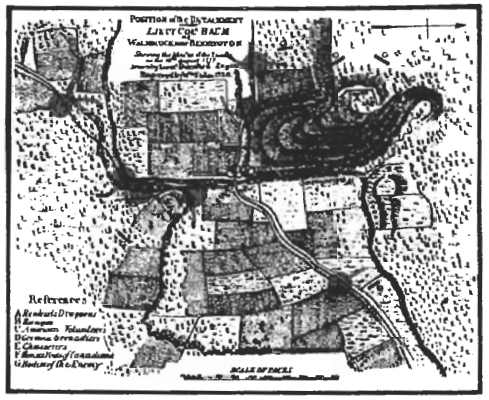
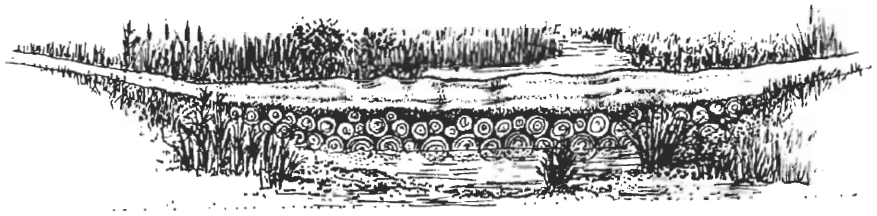


Left: *An 18th century military text shows the method of mapping causeways through wet or swampy areas.*



Above: *"Causeways" were primitive culverts made of logs covered by earth. The gaps between the logs allowed the water to drain beneath the roadway or trail.*

passage was present as to require such extraordinary attention, features colloquially known as "causeys" were constructed. The dimensions of the "causeys" varied with the distance of wetland to be crossed, but the technology remained the same. Poles, saplings or even brush were tied together into bundles and placed cross-wise in the road. With gravity and use, these became forced down into the muck and provided a structure that accomplished two things. First, a solid, if often uneven, surface was established to support foot, hoof or wheel across the semi-fluid soils in which the bundles were buried. Second, the gaps between the poles in each bundle permitted water to seep across the road below, instead of on, the surface. In this, the eighteenth century farmer had created a very primitive, but reasonably effective, culvert. That this technique was not universally applied is suggested by the critical comments of late eighteenth century observers, who seem to identify a continuing need for some treatment of these miserable conditions.

A 1787 "Treatise on Roads" recommended that: ". . . swampy places should be covered to a good depth with well-bound faggots or fascines placed close together, and that upon these a range of saplins should be laid, touching each other, and the whole covered with earth. **The water will subside through the interstices of the wooden materials and leave the road dry**, while the floor of saplins will prevent any depth of ruts or possibility of stalling."[29]

But to imagine that such attempts at engineering made eighteenth century travel in rural areas significantly more pleasant would be an error:

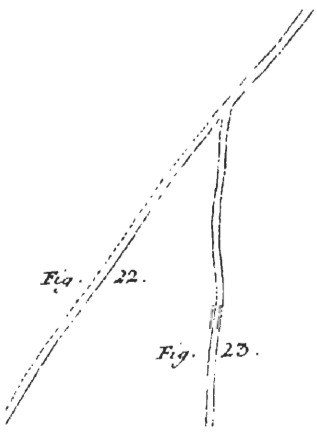
> In addition to all these evils, **the causeys**, which I have heretofore described, abound, of course on every miry surface. These, you will recollect, are made of round, smooth poles, and therefore **furnish, at the best, a very imperfect footing**. Some of them are soon displaced, and others broken. The inhabitants, in the mean-time are so few, so poor, and so much occupied in subduing their farms, and in providing sustenance for their families, that it is often a long time before these bridges are repaired. Such, upon the whole, was the state in which we found them . . . *Timothy Dwight, New Hampshire, c.1795*[30]

A graphic glimpse of one such causeway, apparently a few days before Baum's defeat, and possibly even on the Bennington road near the battlefield, reinforces the above criticism:

> [I was] . . . so young that I remember nothing whatever of this journey except one incident and it is this: on the road somewhere toward Hoosick was a large slough hole or brook, across which poles were laid to keep the horses, etcetera from miring in it. The foot of the horse we rode got caught between these poles so that she fell, pitching mother and me off into the mud. We were not hurt, but badly frightened, and sadly besmeared with muck and mud. *Tryphena Martin Angel, Hoosick, August, 1777*[31]

Causeways of this style can still be found in use today, but reserved primarily for hiking trails and minor farm lanes, where they continue to render an imperfect solution to the problems of muck and mire.

Within the area mapped by Durnford, there are seven locations which, in 1777, would have required a "causey" to permit ease in crossing. These locations are points where very small brooks, springs or swampy seepages cross the alignments shown by Durnford for the eighteenth century roads. Yet he indicates no such features, even though a symbol for causeways was part of standard cartography of that period. One may assume either that they did not exist, were so imbedded in the muck as to not be visible, or were not considered of any military importance and, therefore, were not drawn. It is unlikely that they did not exist, since even today these areas are only passable with the help of modern steel culverts and raised roadbeds. It also seems unlikely that an engineer entrusted with a force accompanied by carts, horses and artillery would not note such a potential obstacle to passage. It is possible they went unnoticed, as each location required only a few yards of material and the muddy conditions of the 15th may have further disguised their existence. We can only speculate.

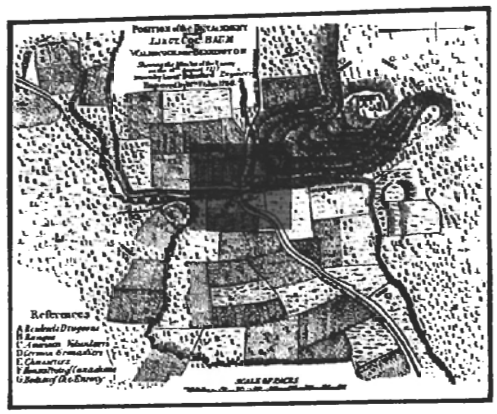


The Newberry Library

Roads as drawn in an 18th century text on mapping.

This modern version of the 18th century "causey" carries a hiking trail across seepage from hillside springs like those found at several places on the battlefield.

At the BRIDGE



The bridge over the Walloomsac River which was the focus of the battle and the central feature of Durnford's map was also the focal point for a small rural settlement in 1777.

Although some historians suggest there was only a ford at this location at the time of the battle,[1] there is no doubt a bridge existed. Durnford's drawing can only be interpreted as that of a bridge, and Wasmus confirms its existence on the 14th of August and again after the battle on the 16th:

"We came to Walloons Creek **before the bridge** of a river. . . " (August 14, 1777)

"The chief of the Mohawk savages, whom they revered as their king, was shot **at the bridge** upon our arrival, where he ventured too far, perhaps to get some loot." (August 14, 1777)

"Here and there several more of our wounded men were lying. They were brought into the houses **at the bridge**." (August 16, 1777)[2]

An American prisoner, who escaped from Breymann's advancing corps just before the battle, also mentions the bridge twice in testimony given on August 23, 1777.[3]

There can be no doubt then that it was a bridge over which Durnford walked those several times, first to assist with the design of the fortifications, then to complete his mapping on both sides of the river, and finally to be led off to Bennington as a prisoner.

But even though this bridge existed in 1777, there can be some doubt as to whether he would have found a bridge at this location even a year earlier. It is highly probable that a pre-Revolutionary ford existed here and that the bridge recorded by Durnford was only an optional improvement:

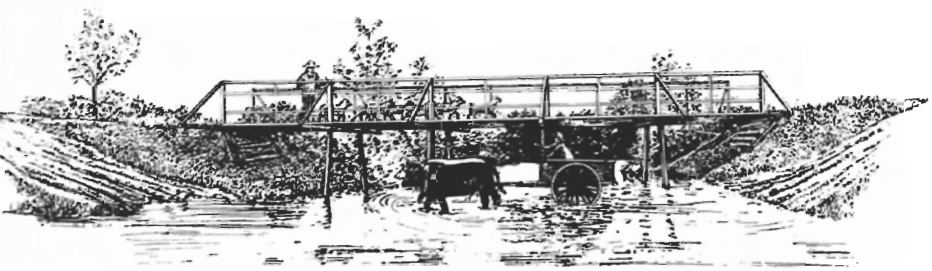
"There was a bridge across the Walloomsac, at the period of the battle, and the road there ran on the same track it now does. This bridge at last rotted down and **for many years the river was forded here** till the present covered bridge was built." *Asa Fitch, Walloomsac, 1850*[4]

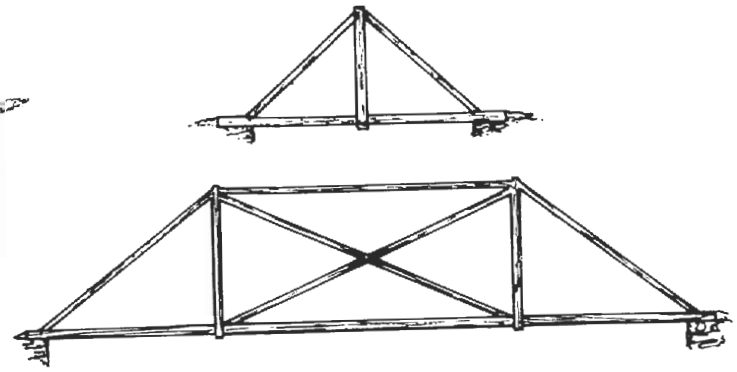
That the main highway from Old Saratoga to Bennington could function from about 1790 to 1840 without a bridge suggests a natural ford had always existed here. The Walloomsac was apparently characterized by fords, as Stark directed several bodies of his troops to cross the river on foot on the morning of the battle.[5] These men had to keep their powder dry without benefit of bridges or boats and only a few hours after a day of constant rain. That the road ran on this track and probably was laid out and in use well before any bridge was thought of further supports the hypothesis of a natural fording place.

Bridging small rivers in the late eighteenth century was by no means a matter of universally applied technology, such as with the uniformally built mid-nineteenth century covered bridges or early twentieth century iron truss designs. Local variability, particularly in rural areas, was extreme. But perhaps we can assume a probable structural design here from comparative contemporaneous data.

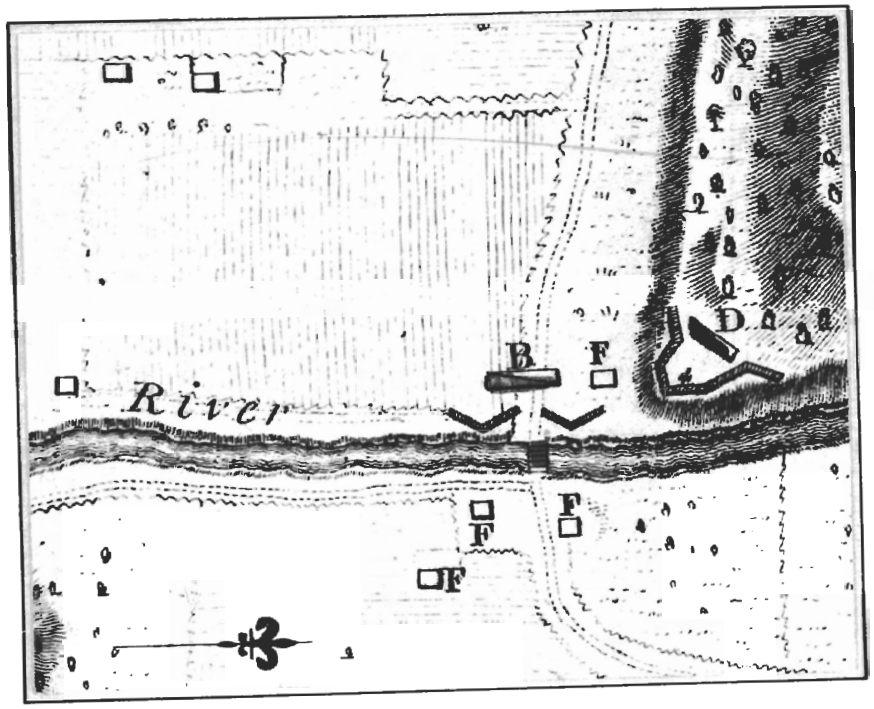
The more primitive attempts to bridge streams are described by one late eighteenth century traveler in less than glowing terms:

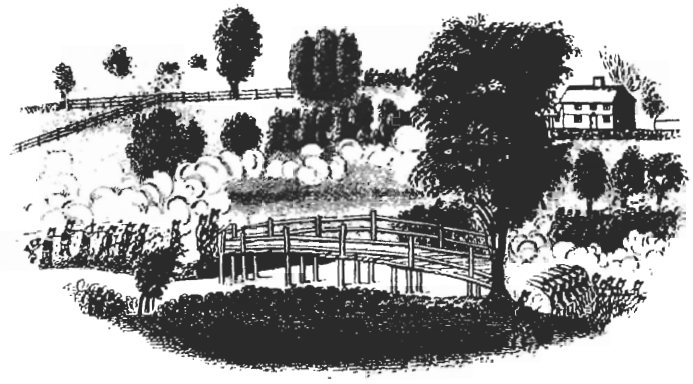
> In this township we began to find the bridges and causeys made of round sticks and logs. These are built in the following manner. Two large logs are laid from one bank to the other; and these are covered by





Above: *An artist's conception of the battlefield bridge, showing the shallow river ford that apparently also existed here. The trestle-on-bents design is more likely than more sophisticated 18th century truss designs* (right).





Above: *The Old North Bridge at Concord is probably very similar in scale and design to the bridge drawn by Durnford in 1777* (left). *While this engraving shows an unbraced structure on four bents, the drawing from which it was prepared clearly shows two sets of diagonal outboard braces, probably necessitated by the insecure footing of the uprights in the stream bed. One could expect a similar precaution necessitated by the rocky bed of the Walloomsac, and lateral bracing would also preserve the structure from ice and water pressures in the spring.*

other small logs, laid in contact, transversely. The surface which they present is slippery, cylindrical, and of course unpleasant. They are also liable to speedy and unperceived decay; and when they appear still to be sound, sometimes yield suddenly to the foot and hazard the lives of both the horse and his rider. When these bridges are once broken, they are frequently left a long time without repair. The inhabitants in the most recent settlements, you will remember, are few, thinly scattered, and poor; and are also engrossed by their domestic difficulties. At the same time they are so used to these and other inconveniences, that they feel them very little. Hence the necessary repairs are often neglected for a long time. *Timothy Dwight, New Hampshire, c.1795*[6]

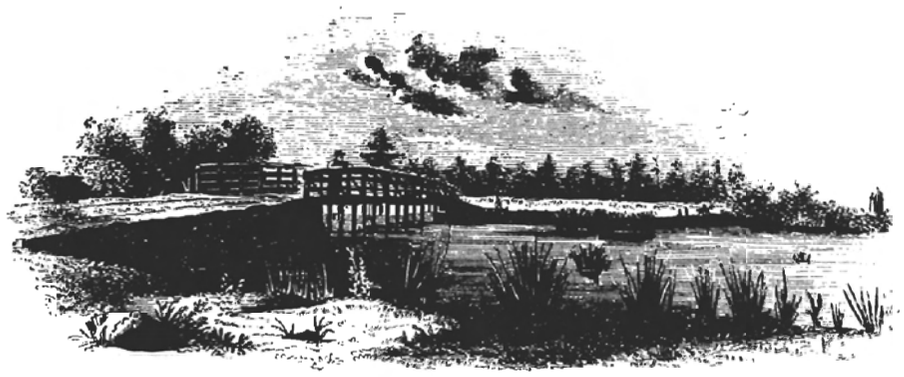
Given that Durnford shows a bridge 50 feet in length crossing a river 60 to 70 feet wide, the width that exists today, it is unlikely that a bridge of unsupported logs of such length could have stood or sustained any substantial loads. It is also improbable that a remote settlement would have erected and maintained a more complex king-post or queen-post truss structure in a location that already provided a natural ford except during the peak spring run-off.[A]

The most likely bridge Durnford saw in August of 1777 was a trestle structure supported on bents, i.e., frame brackets set directly in the streambed, over-laid with a timber deck on which traffic passed.[B]

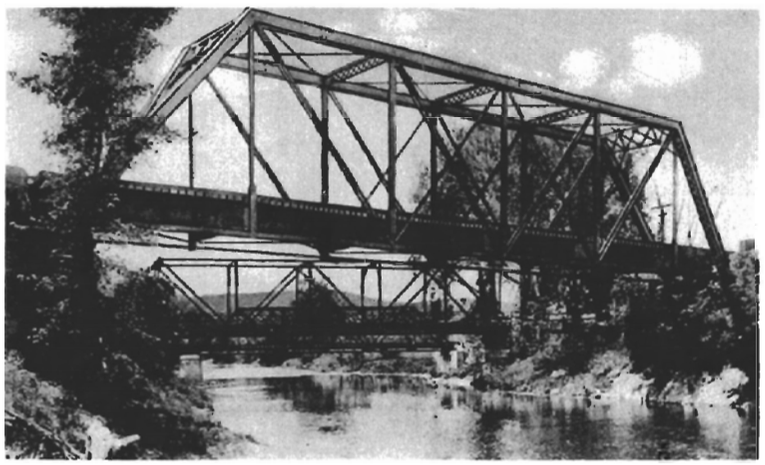
Interestingly, we have a good image of just such a New England bridge and drawn only 28 months before the battle. It is none other than the Old North Bridge at Concord, Massachusetts, where embat-

[A] Since Stark forded the river in several places after a prolonged late summer storm, it is obvious only major spring meltwater run-off could render the Walloomsac unfordable.

[B] Richard Allen, a noted expert on bridges of the Northeast, suggests this form as almost certain here after reviewing the data. Small-scale rural wooden railroad bridges, particularly in the West, still exhibit this "primitive" technology.



Although of simple design, a trestle bridge could be lengthened almost indefinitely on supports set in the river bed



Hoosick Township Historical Society

These iron truss bridges, which carried a roadway, railroad, and trolley line, crossed the Walloomsac River in the early 20th century where Durnford mapped his simple wooden trestle in 1777.

tled militia in 1775 also fought to prevent "Redcoats" from passing.

While it is difficult to compare stream widths at Walloomsac and Concord over 200 years later, it is interesting to note that the modern replica of the Old North Bridge is set on stone abutments 110 feet apart,[7] and according to Asa Fitch, the covered bridge he saw at Walloomsac in 1850 was "110 feet long."[8] This suggests the bridge builders at Walloomsac and Concord encountered comparable early nineteenth century engineering problems and probably arrived at similar structural solutions in the 1770s as well. That this comparison is justified is supported by the account of Jesse Field, who on August 16th was on the Bennington Road a couple of miles west of the battlefield, apparently dismantling just such a bridge.[c]

[c] "Colonel Breymann's [actually Baum's detachment] army, however, was delayed half an hour at St. Croix, by a body of American skirmishers, including William Gilmore, Thomas Mellen and Jesse Field, who were in the act of tearing down the trestles of the bridge over Little White Creek with axes."[9]

There was apparently little limitation to the applicability of the trestle/bent technology, since a New England traveler in 1803 found "a bridge two hundred and seventy feet in length, excluding abutments," that stood on "thirteen piers of wood, each containing four posts, driven into the earth . . . "[10]

These early bridges, with their feet not so firmly planted in the rivers they spanned, were constantly in jeopardy, particularly in forested uplands like those bordering the Walloomsac. The ability of these usually placid streams to generate devastating spring freshets needs to be witnessed to be appreciated:

". . it madly pours its proud torrents over enormous crags, and at the breaking up of the winter, the vast shoals of ice, borne down the mountain floods, fiercely sweep along, and carrying devastation with them, **destroy the bridges**, none of which have yet been constructed of a strength sufficiently able to resist such rude assailants." *J.A. Graham, Arlington, Vermont, 1797*[11]

One would expect that trestle/bent designs would have been rapidly given up for a more secure technology, but in the world view and economic situation of eighteenth century rural America, no such pressure to progress was perceived:

"The bridges thrown across this river, opposite the town, have repeatedly been carried away; it is thought not, therefore, to go to the expense of a better one than what exists at present. **The strongest stone bridge could hardly resist the bodies of ice** that are hurried down the Falls by the floods on the breaking up of a severe winter." *Isaac Weld, Virginia, c.1797*[12]

It certainly was easier to repair a trestle bridge after a flood, than a more complicated structure that still could not have survived these seasonal impacts. One must also remember that a natural ford was available here at Walloomscoick, and so loss of the bridge would not have halted highway traffic, isolated populations or stock, nor had a significant impact on the livelihood or economy of this frontier settlement.

HOUSES

Seven of the 11 buildings shown by Durnford cluster in proximity to the bridge. Intersections of roads and river crossings were significant locations in the eighteenth century. Since here we have both, it is not unexpected that habitation would focus in this vicinity from an early date.

Durnford identifies four of the seven structures with the label: "F. Houses, Posts of Canadians," suggesting that four residential buildings stood at the bridge in 1777. This would be a fairly substantial concentration of inhabited buildings in an agricultural settlement of this period, where barns and outbuildings would have been a significant element of construction. A ratio of four outbuildings to one house during this period would be a more reasonable expectation.[13] One must assume Durnford is using the term "Houses" in a generic sense (to denote unspecified buildings), which is known to have its parallel in military accounts at Saratoga a few weeks later.[14]

Eyewitness accounts of the battle at Walloomsac use the term "house" to apply to several structures in the vicinity. The most specific reference is that of Wasmus, who made the following observation at noon on the 14th, as Baum's force first laid eyes on the bridgehead that was to be their undoing: "On the other side of the river stood **two houses** in which the savages, the Tories and the Canadians had made a post. On the left we had a very high hill which extended quite far."[15] Why Wasmus mentions only two houses instead of the three shown by Durnford is unclear, but since he identifies these as part of the "Posts of the Canadians" shown by Durnford, we know these are within the trio immediately east of the bridge.[D]

Beyond this, what can we yet expect to discover? We are looking at a cluster of buildings mapped over 200 years ago by an engineer who had never heard of, much less seen, Walloomscoick before and would never see it again. We are also looking at an area peripheral to the mainstream of American culture in 1777; we are looking at a place of little importance that was not likely to be subject to detailed recording. We are also looking at buildings quite possibly made of logs and most probably without either foundations or interior cellars.[E] Therefore, no other detailed mapping, no contemporary accounts, and precious little by way of archeological remains, can be anticipated. One could reasonably expect our search for clarification of the true nature of these "houses" to end here with major questions unanswered and major issues unresolved.[F]

Yet because for 48 hours in late summer, over 200 years ago, a military confrontation swept over this frontier settlement, the insignificant became noteworthy and the commonplace memorable. For a brief moment local history became national history. Recollections passed on primarily for their relevance to national events and national pride reveal fragmentary glimpses of the cultural fabric that existed before the battle and underlay the event. That event had little impact on the landscape but left an enduring impression on the minds of its participants. The recounting of military details acted like a medium, carrying forward in time cultural details that otherwise would have perished with the people themselves.

Incredibly, we can not only confirm the building west of the river at the bridge as a true house (residence) but we can place a family in that house at the very instant Durnford drew his map. We can even give that family a name, Beardsley:

> A considerable part of the contest was **on my grandfather's farm, and in sight of his house;** in fact **the enemy commenced their breast work at his house**, which being **of logs** was intended to be filled with men as a strong point of defense. Those who commenced building this breast work, were finally called away to man the works on the hill, and thus **the house was left to the family**.[G]
>
> My grandfather, then about fifty years old, was a non-combatant; he always regarded the life of a soldier with disrelish, full of hardship and danger, and during the French war declined entering into military service. . .
>
> My father was about fourteen years of age, and with a younger brother, was made prisoner by some lurking Indians, sent in advance of

[D] It is important to remember that to match Durnford's map, north is to the right in all cartography, unless otherwise indicated.

[E] We are speaking here of basements, not "cellars" in the sense of the detached root storage excavations common to 18th and 19th century American farms.

[F] The persistent image of Walloomsac, first expressed in nineteenth century histories, was of a cluster of "several log huts."[16]

[G] The relationship between the freedom to stay in the house and the proximity of the British work party constructing the breastworks clearly indicates the building west of the bridge adjacent to the barricades at the road. No other building shown by Durnford would have been so influenced by the removal of the work party to "man the works on the hill."

"The boys, when surprised and taken, were going to the pasture after cows."

the Hessians, and were part of the force sent on that expedition.

The boys, when surprised and taken, were **going to the pasture after cows**; the Indians would not permit them to escape, though they treated them with kindness and whenever they attempted to turn out of the path, the Indians would press them in, by putting their guns by their side, telling them "not to strive." They were finally released by the interference of the Hessian officers, a short time before the battle, and with the rest of the family were shut up in the house. *Levi Beardsley*[17] [H]

Obadiah Beardsley's[I] house was a log cabin, occupied on the morning of August 14th by himself (aged 50) his wife,[J] his son Obadiah (aged 14), and another younger son perhaps 11 or 12 years old. This family may have been part of the group seen by Wasmus when he first arrived at the bridge that morning:

". . . at noon we came to Walloons Creek before the bridge of a river. We made our campsite in the gardens of two houses which stood here. The inhabitants had two wagons loaded with furniture, each with six oxen harnessed to them, about to be carted away and take flight in the wilderness. But now they had to unload them again, and our commander put a guard in front of both houses so that nothing could be taken from them. **They could remain there safely**."[18]

It is uncertain from a reading of Wasmus,[K] where the "houses" stood from which the "inhabitants" were salvaging their possessions. By stating that "the enemy commenced their breast work at his house" Beardsley suggests the location immediately west of the bridge for his grandfather's cabin. Both the roadside breastworks and the hillside artillery redoubt adjacent to this house, plus the lack of any buildings near any other fortifications, support this hypothesis.

Some facts lend additional support to this hypothesis. The pasture from which the cattle were to be gathered must have been west of the bridge since the Indians encountered the boys well before the farmers saw the Indians. The farmers were still at the houses when the Germans arrived, and the Indians were an advance party for the Germans. If the boys had been closer to the houses, the farmers might have intervened to rescue them; if the farmers were encountered by the Indians before the Germans arrived, they might have fled or been taken captive by the Indians. As they were still at the houses when the Germans arrived (Wasmus), this suggests they were unaware of the Indian scouting party, and that the capture of the boys took place out of their sight in an area to the west of the settlement. It is also unlikely that the two-building unit out on the flats west of the bridge could be the Beardsley cabin. From that position Beardsley would have observed the Indian scouts and even the main German force and alarmed the farmers at the bridge. Had this occurred, Wasmus would have observed only empty houses at the bridge when he arrived.

In addition, Beardsley's cabin ". . . was intended to be filled with men as a strong point of defense." That the buildings on the flats served no defensive purpose is obvious from Durnford's map. They are neither strategically located nor labeled as occupied by troops.

Having established the identity of the lone building at the bridge west of the river, any other residences identified here would have to be within the complex of three situated immediately east of the crossing.

Fortuitously, we can identify such a residence, and can again assign the resident a name, although we lack any memoirs such as those Beardsley's grandson has preserved for us.

[H] Levi lived in this cabin after the battle, and begins his narrative: "I was born Nov. 13th, 1785 in the Town of Hoosic . . . on or near the Bennington battle ground . . . Let me refer to a few incidents that my father and grandfather used to relate."[17]

[I] This would be Obadiah, Sr., as Levi's father was Obadiah as well.

[J] We know his wife was there as she is buried in Richfield Springs, to which the entire family relocated in 1789, and was thus living in 1777.

[K] Note the correspondence between Wasmus' statement that "they could remain there safely" and Beardsley's statement that "the house was left to the family."

Buried in the obscurity of a mis-indexed fragment of testimony by one of the unacknowledged heroes of the Revolution, the identity and the politics of the shadowed figure emerges:

> [I] went back and went to work at shoes, but within a day or two was again notified and a horse sent to [me] requiring [me] to go to Bennington in Vermont and from thence **westerly to a place called Maloonscack**, and there to call on one **Hazard Wilcox**, a Tory of much notoriety, and ascertain if anything was going on there injurious to the American cause. [I] followed [my] instructions, found Wilcox, but could not learn that any secret measure was then projected against the interest of the country at that place, but learned from Wilcox a list of persons friendly to the British cause who could be safely trusted. *Enoch Crosby, referring to events of the winter of 1776/77*[19]

Crosby was a noteworthy American spy in the Revolution, famous for secretly infiltrating the Tory recruiting system. In fact, James Fenimore Cooper based his novel *The Spy* on Crosby's career. Crosby's testimony is included in a priceless volume of eyewitness accounts of the Revolution compiled by John C. Dann,[20] but it is mis-indexed as "Maloonscack, Vt." Yet the "**place called Maloonscack**" that Crosby was dispatched to "westerly" from Bennington was none other than Walloomscoick in New York. This tantalizing error was unearthed accidentally while skimming the index of the book, and by the fortunate fact that even in all its bizarre spellings,[L] there is no other place name on all the earth like "Walloomscoick."[M]

But, having placed the Tory Wilcox in "Maloonscack" a few short months before the battle, can we assign his residence to the battlefield?[N]

As with so much documentation relating to this event, we are indebted here to the testimony of prisoners. The battlefield map was drawn by an English engineer captured in the battle, possibly drawn in captivity. Some of Wasmus' most interesting journal entries were written during the prisoner march through Massachusetts, and Hazard Wilcox is planted firmly on the east end of Durnford's bridge by the testimony of escaped American prisoners given a few days after the battle:

> ". . . that on Saturday the 16th instant, **at Wilcox's bridge over the Walumscaack** . . . the Hessian troops had a breastwork of logs, etc. **at Wilcox's bridge**. . . " *Jehu Brown, August 23, 1777*[21]

Before the advent of state and county route numbers, bridges were usually identified by the closest resident. We already have the Beardsley family established as occupying the only structure at the west end of the bridge. We know they had occupied that cabin at the same time Crosby was on his secret mission to the house of Wilcox, because we have a reference to Beardsley shooting a moose on the hill there in 1776.[22] Thus, one of the trio of "houses" immediately east of the bridge had to be the Wilcox dwelling.

Interestingly, these neighbors situated at opposite ends of the bridge also stood opposed in the political conflict which was about to engulf them. Obadiah Beardsley, Sr. was the eighteenth century equivalent of a pacifist, who "during the French War declined entering into military service,"[23] while Hazard Wilcox was not only "a Tory of much notoriety" but apparently a Loyalist organizer, worthy of the special attention of America's greatest spy, and able to provide "a list of persons friendly to the British Cause who could be safely trusted."

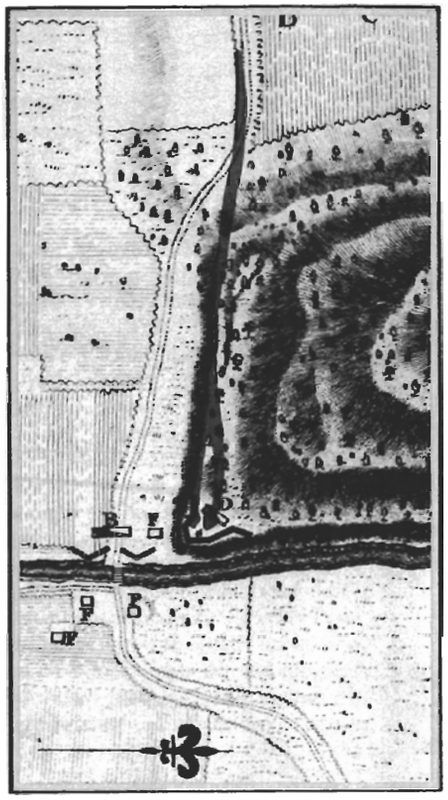
The open question of whether any of the remaining buildings at the bridge were definitely dwellings, as opposed to outbuildings, can be pursued a small distance further.

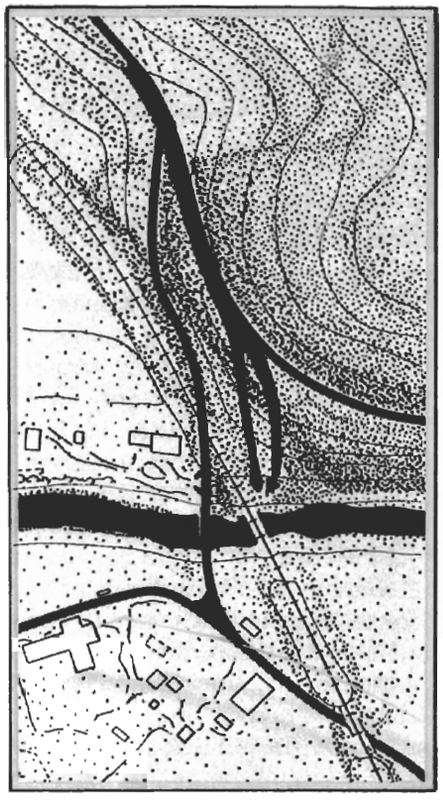
One twentieth century historian claims "the German women who had marched with the troops were collected in **a log cabin between the Tory redoubt and the bridge** – why so far forward one cannot imagine,"[24] while another claims "A camp follower was shot as she ran from **one of the log huts**."[25] These references seem to derive from an 1844 publication in which it is stated that on the battlefield "stood **a log cabin** well stowed with women attached to the Hessian Army, one of which, on the approach of the Americans, in attempting **to flee across the bridge to the Hessian hill**, was killed by a musket ball."[26] This

[L] Walloomsac, Walloomsack, Walumscaack, Wallumscoick, Walloomscoick, Wallumscoik, Wallomschaick, Walloonschoik, Wallamscoock, Walmscock, Walmscott, Walloomback, Walloms Kork, Wallorm-kork, Lormscork, Loomschork and Walloon-creek.

[M] This tendency to mis-identify documents, attributing this location to Vermont, is repeated at the highest levels. The British Museum's *Catalog of Maps* indexes Durnford's map as "Walmscock, Vermont." In the nineteenth century the common attribution of the "Battle of Bennington" to Vermont became even more fixed by the erection of a giant stone memorial to the event on the outskirts of that city in 1877. Even during the Bicentennial celebration of that battle in 1977, hundreds of people observed the event in Bennington, Vermont, while a smaller group witnessed a reenactment at the Walloomsac battlefield. This writer was "lucky" enough to be among the ranks of the combatants on that day, standing in a light drizzle, musket in hand, and could little realize then that a decade later he would be so thoroughly engrossed in that original event and the landscape across which it was played out.

[N] The community formally known today as Walloomsac is over a mile west of the bridge. Eighteenth century locations such as "Hoosic" and "Cambridge" often denoted regions or districts, not particular clusters of settlement. Even though Durnford labels his map as "At Walmscock," we cannot definitely trust his attribution of the name to this place in exclusion of all others, nor be assured his sense of identification was shared by Crosby.





Although the gun emplacement is virtually impossible to reach from the road below, near the bridge, an almost level path exists along the hillside from the west.

[o] Although recorded at a time when eyewitness recollections should still have been common knowledge, this account is questioned by one researcher who has spent considerable effort in collecting an archive of primary source documentation for the German forces at "Bennington." While the possibility of American women, either prisoners or local farmers under "house arrest," persists, there appears to be no basis for the concept of "German camp followers" at Walloomscoick, although there were a number with the main army at Stillwater.[28] An eyewitness reference from that later battlefield indicates that several of these women "followed the route of the artillery and the baggage, and when the action began . . . entered a small uninhabited hut."[29] On the outside chance that this account is at best a garbled reference to civilians at the site, and for other purposes which will become clear later, we will retain the reference, with the above serious qualifications.

[p] State Historic Sites archeologists believe evidence of the minor earthworks erected to protect this post still exist at this site, although no artifacts remain to confirm the identification.[31]

position east of the bridge and the designation of the building as a "cabin" cannot be traced to an eyewitness observation.[o] If correct, it certainly would not have been Beardsley's cabin. Obadiah ejected the only member of the German force who entered his home "and fastened the door against him"[27] and presumably all others. The cabin was already occupied by at least four people unsympathetic to the British cause.

Of the buildings available to house any women attached to the British camp, directly or indirectly, the cabin of the Tory Wilcox just east of the bridge would certainly have suggested itself, even though somewhat in the front. It certainly would have been more secure than any of the detached structures to the west, for even though these were located to the British rear, they were sufficiently outside the defensive perimeter to make them more at risk. Since the reference is highly suspect, it does not merit further analysis.

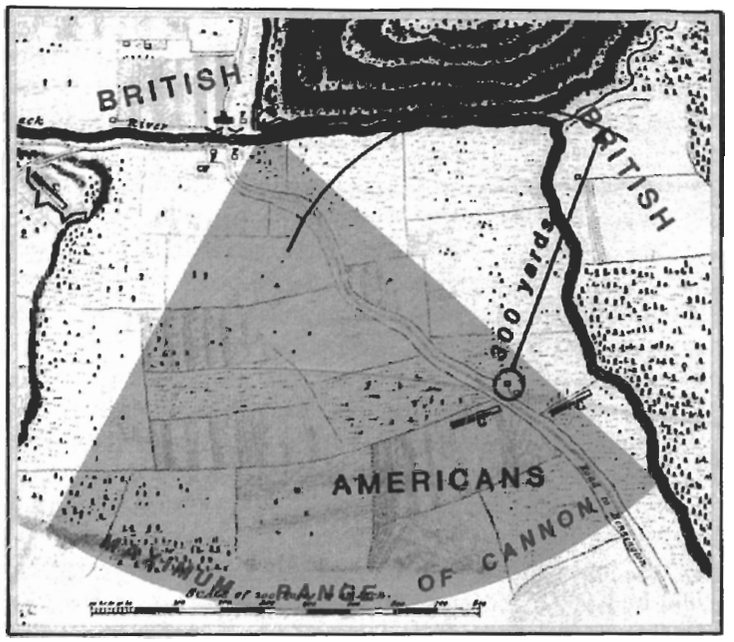
But Wasmus, being an eyewitness, may provide a more reliable link to additional residential evidence near the bridge. During the first confrontation of German and American forces on the afternoon of the 14th: "The enemy crept behind **a house** that was standing on the **opposite side of the river**. Behind it they loaded their muskets and shot at our left flank. A cannon was aimed at this house and fired. On the 2nd shot, which went through the house, the enemy came out at a gallop and ran away."[30]

In order to locate this house, we need to understand the field situation that existed at that instant and some of the military factors that applied. Baum had established an artillery position, apparently with both 3-pounders, on a small, elevated bench of land, overlooking the bridge at the base of the hill. This position exists today as a small flat area which duplicates that mapped by Durnford.[p] Access to this spot from the road below would be extremely difficult, necessitating dragging gun and carriage up a steep, shaley slope almost impossible to climb. However, gentler access routes from above and from the west can still be found today, even in spite of land modifications associated with a realigment of State Route 67 in 1927.

Wasmus suggests this position was established immediately on arrival and was almost as immediately coming under fire:

"We, the Dragoons, quickly occupied the hill to the left and our 2 cannons were brought on the hill. The enemy formed their attack on our right and left flanks in front of us at the foot of the hill, yet still behind the trees."[32]

We can apply eighteenth century ballistics data to this situation to help clarify the observation made regarding this "house." The Rebels were probably armed with muskets which had definite limitations of range and accuracy. The purpose of general eighteenth century tactics was to lay down a field of fire in ranks, not necessarily to hit an individual target. The effective range of the musket need not be synonymous, therefore, with its particular range of accuracy. However, in this instance, Baum's force was being sniped at, not met in open-field combat. Accuracy was essential to the effectiveness of the attack if it were to be more than mere harassment. For this reason we can hypothesize a range



From the buildings on the Bennington Road, within range of the cannon, militia could have fired on the German flank, although not on the bridge itself.

of under 100 yards[Q] from the bridge for this structure.[R] Availability of rifles to the skirmishers would extend that range considerably:

"I have many times asked the American backwoodsman what was the most their best marksmen could do; they have constantly told me that an expert rifleman, provided he can draw a good and true sight . . . can hit the head of a man at 200 yards. I am certain that provided an American rifleman was to get a perfect aim at 300 yards at me standing still, he most undoubtedly would hit me, unless it was a very windy day. . ."[35]

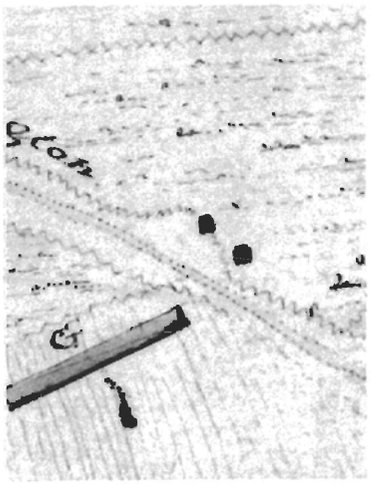
The detached buildings east of the bridge are over 600 yards from the bridgehead by Durnford's scale, seemingly placing the British beyond both musket and rifle range and suggesting the house the Rebels hid behind was one of the cluster at the bridge itself. Based on our analysis, which has allowed us to rectify the Durnford map to true scale, the range here is actually only about 500 yards, but still not within either musket or rifle range. Is it possible the third house of those immediately east of the bridge was the hiding place for the rebel snipers?

It is really unlikely the Rebels would occupy any part of that bridgeside complex. First, the other two cabins were immediately occupied by British troops on arrival (see Wasmus) and this proximity to the enemy would discourage such close-range sniping. It is also unlikely cannon would have been required to help the British troops rout the attackers. Second, the British Rangers shown holding this position on the 16th were probably in the advance party that captured the bridgehead on the 14th, and these troops may have been equipped with rifles accurate at long range.[S] As such they would have imposed a zone of jeopardy around the bridgehead that would have excluded Stark's snipers. Skilled marksmen would not have required artillery support to repulse militia skirmishers at such close range. We have to assume that the Rebels were firing from one of the two detached buildings well east of the bridge.

[R] It has been suggested that 100 yards is the maximum effective range of the military musket in practical use.[34]

[S] Research suggests the Jaegers, armed with rifles, were posted at the bridge.[36] Capt. Fraser's unit, which accompanied Baum, was a company of marksmen raised in 1776.[37]

[Q] "A soldier's musket, if not exceedingly ill-bored (as many of them are), will strike the figure of a man at eighty yards; it may even at 100; but a soldier must be unfortunate indeed who shall be wounded by a common musket at 150 yards, provided his antagonist aims at him; and as to firing at a man at 200 yards with a common musket, you may just as well fire at the moon and have the same hopes of hitting your object. I do maintain and will prove, whenever called on, that no man was ever killed at 200 yards by a common soldier's musket, by the person who aimed at him." *Col. George Hanger, a participant in Burgoyne's campaign.*[33]



The homestead of the "Widow Whipple," as drawn by Durnford in 1777.

But one may ask what were the Rebels firing at if they were 500 yards from the bridgehead? Wasmus claims they fired at "our left flank." Although the bridgehead would be out of range at 500 yards, positions along the lower flanks of the big hill north of the bridge would be only a bit over 300 yards from the suspected Rebel "house," within possible rifle range. These could compose a "left flank" position for the bridgehead, particularly as the next day German troops were shown posted at the extreme north end of this hill near the small creek. The distance to this position could be sufficient to render the British rifle fire ineffective, having to hit targets constantly ducking behind the cover of a building. Yet such a house would have been within cannon range, (900 to 1,000 yards with solid shot,[38] which the reference suggests they were using) and one can imagine the frustrated Rangers calling for artillery support to flush the Rebels out of their protective cover.[T]

Wasmus claims "the house opposite our left flank **where the enemy was hidden**, was burned," presumably to prevent the Rebels from occupying it again.[39] Jehu Brown, one of the prisoners released prior to the second engagement, testified that "at Wilcox's bridge . . . the widow Whipple's house, about one fourth of a mile from the bridge, **was burned** by order of Governor Skeene."[40] We know Skene was with Baum on the 14th.[41] But on the 16th he was west of the battlefield when a similar incident occurred, as described below by Col. Breymann, commander of the relief column:

"The cannon were posted on a road where there was a **log house**. This was **fired upon**, as it was occupied by the rebels."[42] One historian's description of this event west of the battlefield parallels Wasmus' own account for the house east of the bridge, stating that Breymann fired grape shot "paying particular attention to a log cabin, which sheltered a few Americans, and which they **readily evacuated**."[43] But the house fired on by Breymann was not the house fired on by Baum, and an eyewitness further distinguishes this seemingly parallel event:

"I have often heard my grandfather, Ebenezer Arnold, who said he lived at the time of the Battle of Bennington west of the Baum encampment, on the north side of the road leading to St. Coik or North Hoosick, in a log house. He often told of a cannon ball going through the roof, and that the firing took off the roof." *Ebenezer Arnold, as told by Benjamin Arnold, 1894*[44]

Apparently this house west of the battlefield was not burned, which suggests that the burned home of "Widow Whipple" was east of the bridge, when Skene was with Baum, and therefore one of the buildings on Durnford's map. Unless we assume a confusion in Brown's mind between the two houses fired on and the one burned, we must assume that a building on Durnford's map, other than Beardsley's cabin and other than Wilcox's house, was in fact the generic "house" burned by Skene and the residence of "Widow Whipple." The only building which fits the ballistics criteria and the prisoner's description[U] would be one of the two detached structures along the Bennington Road east of the bridge.

We have thus established the existence of three true houses, two being at the bridge. American colonial stereotypes and regional historical tradition suggest all were of log construction, being variously described as "log cabins,"[45] "log houses,"[46] "a hut,"[47] "log huts,"[48] "a log cabin,"[49] "several log buildings,"[50] "several other cabins,"[51] "several log huts,"[52] and "half a dozen log cabins."[53][V]

Two historians even suggest these log structures were demolished to provide raw materials for Baum's defensive works:

". . . several redoubts were thrown up. In fact, the enemy **tore down all the houses** of hewn timber in the vicinity, and used the materials thus obtained for that purpose."[55]

"Lieutenant-Colonel Baum, who had been advised of the approach of Breymann, proceeded, in the most deliberate manner, to entrench his position with timber which he procured from the ground on which he stood and from **the log-houses** in the vicinity, some of which **he tore down** for the purpose."[56]

Yet even though one is by General Stark's grandson, these secondary accounts are to be doubted. No eyewitness mention of such demolition exists. Was-

[T] Additionally, advance British patrols moving eastward along the Bennington Road could have been within a couple hundred yards of these houses during this phase of the engagement.

[U] 500 yards = 1,500 feet = about 1/4 mile; the distance to the "burned" house and comfortably within the range of a 3-pounder cannon.

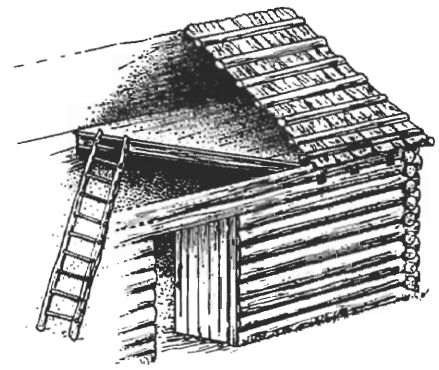
[V] Although this last reference is to "Bennington," it is assumed to refer to the battlefield hamlet. The population of Bennington, Vermont in 1777 would have been over 1,600 people,[54] requiring more than "half a dozen log cabins." Some other nineteenth century accounts also use the term "Bennington" to refer to the battle area.

mus, who records many details throughout the period, fails to mention it, and in fact refers to occupied houses right up to his departure after the battle. Beardsley was locked up in a house the whole time and mentioned no demolitions, even though he was situated immediately adjacent to several breastworks that supposedly depended on these recycled building materials. And the prisoners from the first engagement were "taken to the houses at the bridge"[57] after the battle.

That log cabins existed in this area at the time of the battle cannot be disputed. Beardsley clearly identifies his house as "being of logs."[58] Stark reputedly used a log house[59] east of the battlefield as a headquarters. And as we have just seen, Ebenezer Arnold occupied such a house just west of the battlefield on the 16th of August, its roof removed by Breymann's artillery.[w]

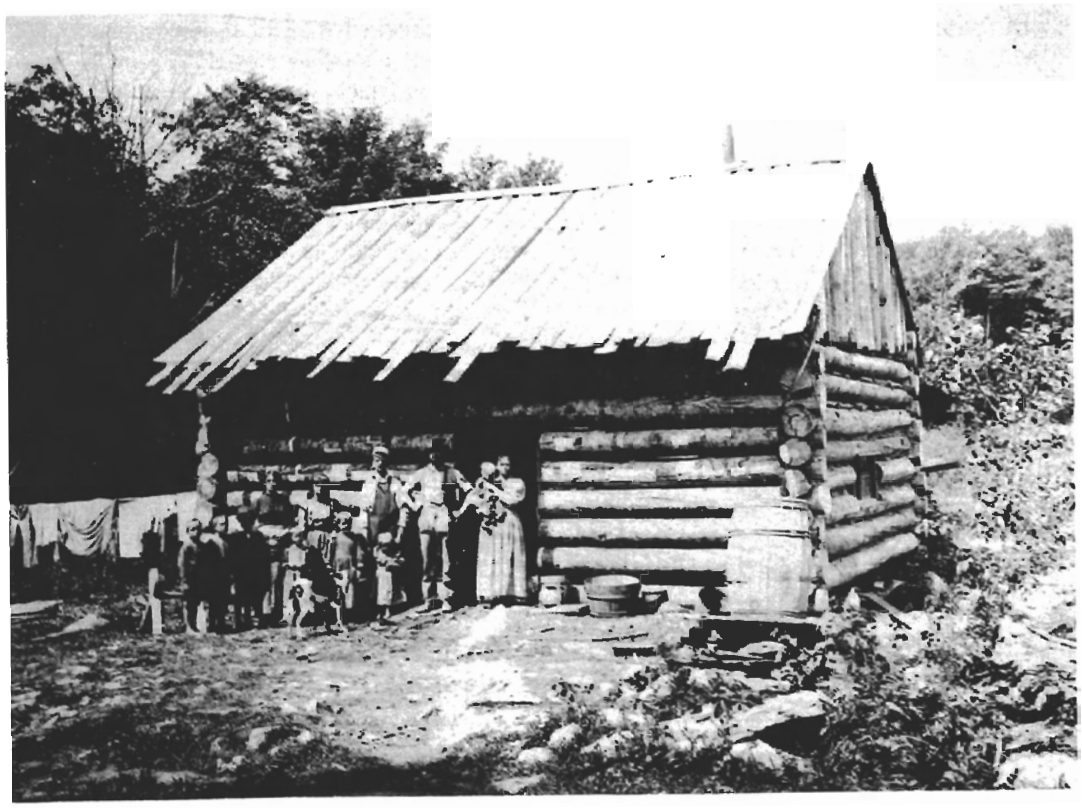
No more relevant description of the construction of such a house can be had than from Levi Beardsley's own pen:

> [We] . . . cut away the brush and small trees, and enough of the large ones to afford room for building two log houses, one on my father's farm the other on my uncle's, the houses being twenty or twenty-five rods [330-413 feet] apart.
>
> These were put up and partly completed in the course of the summer, that they might move to them in August or September, after securing the small crops. They were placed in the woods, and not an eighth of an acre cleared around either, or even both of them, and were anything but habitable. The one that we moved in, for my father moved to his one or two days before my uncle, was a small log cabin, the body laid up, and part, though not the whole of the roof was covered with black ash and elm bark, which had been peeled from the trees at the season when bark is taken off easily. When spread out and put on the roof and pressed down with poles or small timbers, the rough side, exposed to the weather, it makes a good roof that will last several years, and shed the rain quite well. Our house was partially covered, and when it rained we had to put our effects and get ourselves under that part which was



The "chamber" was a usually a half-loft, often used for sleeping, and reached by a ladder. Its floor was made of boards laid on logs that crossed the cabin just below the eaves. The entryway to a full loft would have been a small target for Beardsley, during his scuffle with the enemy soldier, whereas the open area left by a partial loft provided an easy means of quickly putting the musket well out of reach.

[w] See the chapter titled *Thresholds of Settlement* for a discussion of the possibility of frame houses being present at the time of the battle.



The Huntington Memorial Library

This photograph of a log cabin is from Otsego County and reputed to resemble the cabin Beardsley built there after leaving Walloomscoick.[65] *It probably appears much as his cabin on the battlefield did in August of 1777. Note the ends of the chamber floor joists visible in the upper wall.*

sheltered. The floor was made of bass wood logs, split and hewed partially on one side, and then spotted down, making a good substantial floor, but only about half of ours was laid. We had no fire place or chimney, and till this was built, the cooking must all be done out of doors. A place for the door was cut out, so that we could go in, but no door had been made, nor had we any way of fastening the doorway except by barricading. There was of course no chamber floor, though this was supplied by loose boards, subsequently obtained. A mud and stick chimney and fire place were afterwards added, as the weather became cool; and to get earth or clay to make mortar to daub the house and make the chimney, a hole was dug under the floor, which was our only cellar, in which in winter we put a few bushels of potatoes and turnips, and took up one of the flattened logs from the floor whenever we wanted any thing from below. I have said there was no door when we moved in. My father on reaching the house with my mother and family, remained there the first night, hanging a blanket at the door way to keep out part of the night air.[60] [x]

[x] According to early accounts, such a structure could be built by three men in six days.

Although built in Otsego County over ten years after the battle, we might reasonably expect the Beardsleys used designs and technologies on their new frontier home similar to those they used, or at least experienced, at Walloomscoick. The degree to which the comparison is justified is revealed by Obadiah's account of August 14th, 1777, related via his grandson:

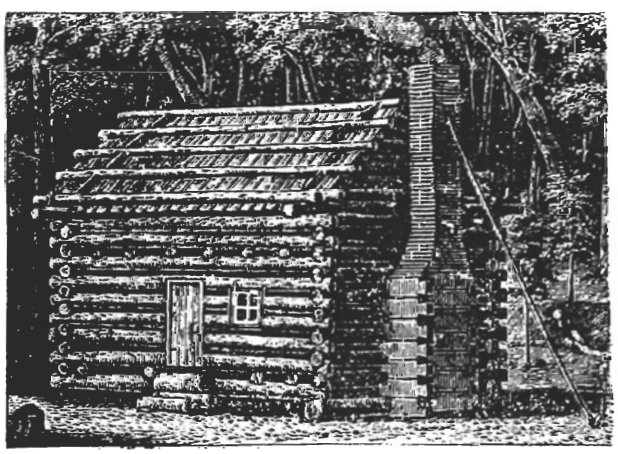
"After the main force had been called away from the house, to man the works on the hill, a soldier came in and commenced pulling out the ***'chinking'*** **between the logs**, to enable him to fire out. My grandfather remonstrated, and on the soldier persisting the old man seized his musket, and being a strong man wrenched it out of his hands and tossed it **up into the chamber**; then seizing him by the shoulders put him out by main force and **fastened the door** against him."[61]

Two salient details are revealed here. First, the cabin was of chinked log construction, with sufficient gaps between to accept the barrel of a "musket" (3 inches minimum). Such construction was common. Viewing late eighteenth century cabins in 1803, a New England traveler categorized them as ". . . a temporary structure built of round, unhewn logs, caulked with moss, straw or mud, having no windows, and a hole in the roof in lieu of a chimney."[62] Some 1797 Vermont accounts cite a mortar of clay and wild grass[63] while another mentions that "the interstices between the logs are stopped with clay."[64]

The second detail is revealed by reference to the soldier's musket being tossed "up into the chamber." This identifies Beardsley's cabin as being a one-room dwelling with a half loft, or "chamber." Such interior features were common in early log dwellings. A loft provided added storage and living space, and in cold winter months, it provided a more comfortable sleeping quarter than the earthen or wood floor.

In describing his log house on their new Otsego County farm, Beardsley suggests a design similar to their cabin on the Walloomsac. "[Visitors] . . . generally slept on the floor before the fire on straw beds; for we had scarcely a spare one of other description at that time. After a chamber floor was put in, some **slept in the chamber**, to which they ascended **by a ladder** that always stood in the house."[66] In constructing such a house in the late 1700s, the Beardsleys followed a pattern well established in the Northeast:

"Typically they [log houses] were small,



"The widow Campbell house in Fort Edward was a small house of round logs some fourteen or sixteen feet broad and somewhat greater in length. It had an old fashioned fireplace in one end. The fireplace was without jambs. There was a loft overhead and a ladder or ladder-like stairs leading to this loft, the stair being on one side of the fireplace. The door opened on the east side of the house which was the only entrance."[73]

low rectangular structures. Sixteen by twenty-four feet was the average size. Most commonly the lower storey was **one room** with a big stone fireplace which served as a central heating plant. This ground floor apartment was livingroom, dining room, nursery and master bedroom as well. Above was a **loft reached by a ladder** set against the wall. And here the older children slept. On occasions it served as a guest **chamber** as well."[67]

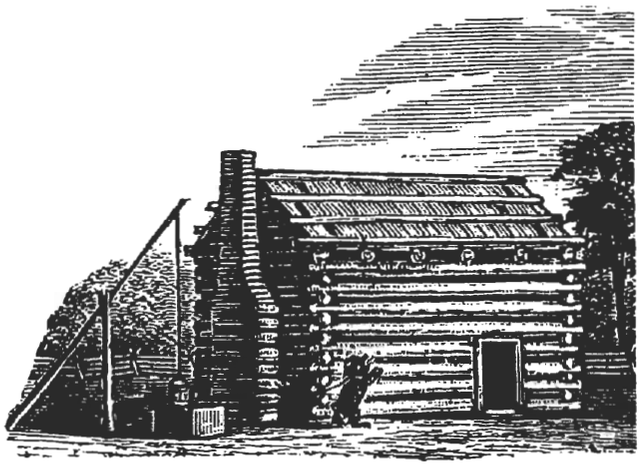
". . . scarce anything can be imagined more comfortable and warm than this large apartment, round the walls and in the corners of which are the beds, and sometimes those of the young men or women are elevated on **lofts** made of rafters, laid across from side to side, with a flooring of bark over them."[68]

While Beardsley gives no other details about his grandfather's Walloomsac cabin, we can safely generalize beyond his basic description. Cabins of this period and type of construction often had earthen floors. The most primitive type of interior finishing is suggested by the recollections of two eighteenth century Washington County farmers:

"Monro's house [in 1764] stood near the outlet of the marsh on the west side of the brook some four or six rods from the brook and sixty or eighty rods north of the marsh. It was a log house covered with bark and had but a single room, some sixteen feet by twenty; no bedroom or pantry, I think it had **no floor**, the **earth** trod down firm and hard and could be swept clean." *Donald McDonald*[69]

"My father [in 1767] . . . put up a little cabin, although it was full of cracks and **without** a chimney or **floor**, and only a flat stone leaning against one side of the enclosure – against which stone a fire could be built – on entering the cabin mother with her babe in her arms danced around and around it, so overjoyed was she to set foot in a house she could call her own." *Susan Lyttel Vance*[70]

While such "floors" may seem totally inadequate by modern standards, they required no building materials or labor, they could be hardened with water and clay into a primitive form of pavement, and they did not permit drafts from underneath, as did wooden floors elevated on timbers above the ground. The existence of such floor treatment is confirmed by Wasmus, only a mile and a half east of the battlefield on the Bennington Road. There stood a house to which the mortally wounded Col. Baum had been brought after the first engagement. Wasmus says: "We helped him from the cart, brought him into the house, where we had to lay him **on the bare ground**."[71 Y]



*A very simple early cabin, built of **round logs, with a "stick chimney," no windows, and apparently no chamber.** The roof is made of bark slabs **held down** on log **rafters by** horizontal poles.*

Cabins might also have had wood floors after a fashion, as did Beardsley's 1789 Otsego County log house:

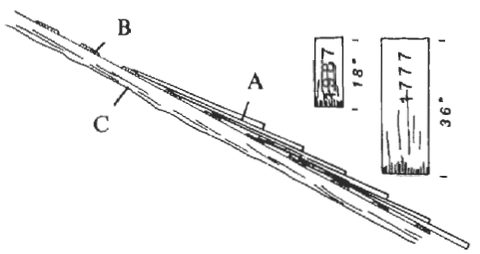
"The floor was made of **bass wood logs**, split and hewed partially on one side, and then spotted down, making a good substantial floor. . . "[73]

So also did others of that time period. An account of a 1765 cabin on the Little Hoosick revealed that ". . . for a floor, the ground was covered with dried brakes." This was immediately replaced with a "log house" for which the "**floor slabs** were split out of the trees."[74]

One architectural historian suggests more precisely how such a floor of "slabs" might have been created:

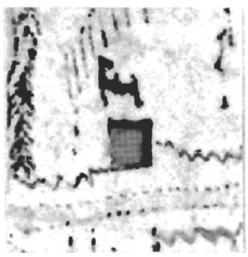
"Many of the log cabins had only dirt floors. Some of the pioneers, however, laid wooden floors. These puncheon floors were made of riven slabs of wood laid as nearly level as possible. The boards were then smoothed down with an adze. There were certain free-splitting trees – best of all the big old white pines – which could be riven into plank-like slabs that needed only a little smoothing."[75]

Many early detailed accounts of log

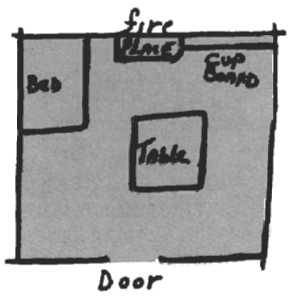


One form of early roof construction called for hand-split shingles (A) *nailed on narrow slats* (B) *fastened to log rafters* (C). *Compare the size of these 18th century shingles with their modern, machine-sawn counterparts.* (See **page 108 for** a picture of this type of roof.)

Y Both translators were queried about the translation of this phrase and both confirmed that it was meant to imply a dirt floor.



The simple cabin depicted here (above, right) *may not be far from what Durnford saw during the battle. His tiny drawings* (above, left) *could record no more detail about those structures that it has.*



THE ALLEN HOUSE

This floor plan, sketched in the 1840s, is of an 18th century log cabin not far from the battlefield

houses fail to mention the floor at all. But while floors may have escaped notice, roofs rarely did. Perhaps the relationship between roofing technology and visitor comfort made them more memorable:

". . . and the **roof was so leaky**, that we were sprinkled with the rain even as we sat at the fireside." *Isaac Weld, Skenesborough, c.1797*[76]

The most primitive roof, but not necessarily the worst, required little more than poles and bark, as described previously by Beardsley. A log house built in 1769 south of Hoosick also had such a "bark" roof.[77] While most late eighteenth and early nineteenth century accounts simply describe the roof as "bark," structural support was actually provided by poles (narrow logs or saplings):

"The roof supported by **pole rafters** was in the beginning sheets of bark. Probably the best bark for making roofs came from basswood, elm and ash. Since most trees slip their bark very easily during the summer, it was not difficult to obtain a sufficient amount of bark for the roof. The bark sheets could be laid into a roof that would remain tight for several years."[78]

"The rafters are then made for the roof, which is covered with the bark taken off trees and placed lengthways from the ridge with a jut sufficient to carry off the rain."[79]

One early account suggests a thatching technique was used initially for the first huts, "covering the whole with the bark, leaves, and twigs of trees."[80] However, shingles split from local woods were not unknown to frontier cabins, and one late eighteenth century account from the vicinity describes them as:

". . . **shingles of pine** three foot long and 3/4 of an inch thick at the butt . . . got out and nailed with wrought nails to slats split out of oak and fastened to the rafters a foot apart. The shingles were laid one foot to the weather and stayed on till eighteen hundred and twenty two. The part exposed to the weather was then mostly worn away, but the remaining part was perfectly sound." *William McNeil, Argyle (Washington County), 1770*[81]

Other roofs were covered with boards[82] particularly after saw mills were built. An example of such roofing can be clearly seen in the photograph of the "Beardsley" cabin on page 41.

Log cabins apparently ranged in size from some that might be called tiny huts to others that could almost be viewed as huge barracks. Some regional late eighteenth century examples recorded included two that were about 16 by 20 feet (Washington County[83] and Fort Edward[84]), one that was 15 feet square (Rensselaer County[85]), and one that was 20 by 24 feet (Argyle[86]). Historians claim an average dimension of 16 by 24 feet[87] (perhaps limited by the average functional lengths of logs to be gotten out of virgin forest).

Durnford's houses, if one can assume he intended them true to scale rather than just as symbolic mapping conventions, measure 15 by 10 paces, or about 37 by 25 feet. We have no reason to believe these buildings are drawn to scale, particularly when one realises that these are about the smallest rectangles that can be comfortably drawn with eighteenth century equipment. But it is interesting to note the general configuration of Durnford's houses – small, mostly rectangular, and lacking of elaboration, such as wings and attachments.[z] While no indication of orientation is given, tradition favored a southern front, to take advantage of daylight and the limited heat of the winter sun:[AA]

[z] Again, this may be merely symbolism, not representational drawing.

[AA] Since cabins were usually deficient in windows, the entryway functioned to permit light into the house, at least in warm weather.

"The house was of logs and was eighteen or twenty feet square with **a door on its south side** and the chimney on the north." *James Bain, Argyle, 1776*[88]

"I must explain what is meant by a log house . . . the walls are put up, built with large planks of wood still covered in bark and cut to fit very closely together. On top of these walls is set the roof, with a hole for the chimney. **A door** is then cut into the **south wall**." *Madame Du Pin, Rensselaer County, c.1790*[89]

Beardsley's Walloomsac cabin almost certainly had a southern entry. This side faced the road, while his north wall was closely set against the steep rock face of Hessian Hill. A south entry is also suggested for the building opposite Beardsley, directly across the river. Again it faces the road, and fencing attached to it appears to limit entry from either east or west. Wilcox's house may have faced either road (west or north) or had an east entry.[BB]

Such houses were usually one room[90] and had a variety of cooking facilities. It would be difficult to suggest such primitive arrangements had anything more than a secondary heating function. A great proportion of the heat generated escaped through such "chimney" as did exist and was just as rapidly replaced by outside air seeping in at every crevice. Heat seems to have been a minor concern in many of these homes:

". . . one [log house] at which we stopped for the night, in the course of our journey, had not even a chimney or window to it; a large hole at the end of the roof supplied the deficiency of both; the door was of such a nature, also, as to make up in some measure for the want of a window, as it admitted light on all sides. A heavy fall of snow happened to take place whilst we were at this house, and as we lay stretched on our skins beside the fire, at night, the **snow was blown**, in no small quantities, **through** the crevices of **the door**, under our very ears." *Isaac Weld, Western New York, c.1797*[91]

In recounting the recollections of settlers along the Little Hoosick in the late 1770s, one writer seems to echo this occurrence:

"They suffered much from the cold; it was not uncommon to rise in the morning with their **beds covered with snow** to the depth of several inches. Their houses open, their furniture consisted of a few articles of the simplest kind."[92]

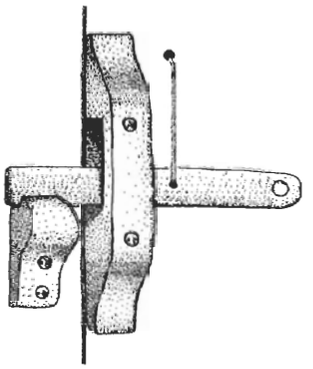
The earliest cabin designs had no interior hearth, and cooking was relegated to an area in front of the house. The reason for this was simply the need to create a chimney to allow the smoke to escape from an interior hearth, a task often left for a later phase of construction.[CC] The next stage of progress consisted of a primitive hearth, and simply a hole in the roof for smoke to escape, letting heat out and rain or snow in. In this, these differed little from the Indian cabins of the eighteenth century or earlier bark longhouses of the prehistoric Iroquois.[DD] Later, simple stick and mud chimneys were built on crude stone fireplaces at one end of the room, and in the most advanced situations, stone or brick chimneys were constructed.

Windows of glass may have been a luxury in marginal frontier areas even late in the century, and greased paper or cloth windows could be expected in the cabins at Walloomscoick, although the existence of windows at all might be in doubt. Writing of an area only a few miles from the battlefield, one historian states:

"Window glass was not in use at this time, and for some years later, in this part of the country. As a substitute the early settlers used **linen** and some times **paper**, saturated with some oily substance."[95]

While doors were an essential component of any house, sophistication ran the gamut from a rough blanket nailed over the hole to something approximating modern experience. Of all the features associated with a house made from native products with eighteenth century frontier technology, the hardest to produce was the door. Walls required only logs and an axe. Chimneys could be formed of uncut field stone and mud for mortar; roofs required only saplings and bark; and adequate floors could be made of dirt or fashioned only from logs chopped flat on one face and pegged down. Even a fragment of greased cloth nailed to a window hole filled the need for light.

But a door of logs would be heavy, cumbersome and drafty. Sawn boards, produced by water-powered sawmills or a pit



An early cabin door latch. The string by which the interior bar was raised hung outside the door through a small hole. Leaving the latch string out was a sign of hospitality.

[BB] See the description of the Widow Campbell house in Fort Edward, previously given, for reference to an east entry. Since the main road there runs north-south, an east entry may also have faced the road. But an entry facing the rising early morning sun has precedent that goes back to prehistoric Indian traditions in New York, where inhabited caves and rockshelters and lodge doors usually were oriented in an easterly direction.

[CC] "When the outside is thus completed, one of the corners is chosen within where some flat broad stones are fixed, for the fire-place, with a small opening directly over it for the smoke to ascend through, and which also serves to give light to the inhabitants. And here large fires of wood are constantly kept burning (in Winter both day and night) . . ."[93]

[DD] "A log-house is built in the same manner as the weekwams, which have been constructed in later times by the Indians . . . The logs intended for this purpose are chosen of one size, and hewn on two opposite sides. They are then cut down to half the thickness at each end, on one of the hewn sides. After this they are laid upon each other at right angles, and fastened together with wooden pins, so as to form the external walls of the building. In this manner they are carried up to a sufficient height, and covered with a roof, usually of shingles. The crevices are then stopped with mortar, and the interior is finished according to the fancy and circumstances of the proprietor; always, however, in a plain, and usually a coarse and indifferent manner."[94]

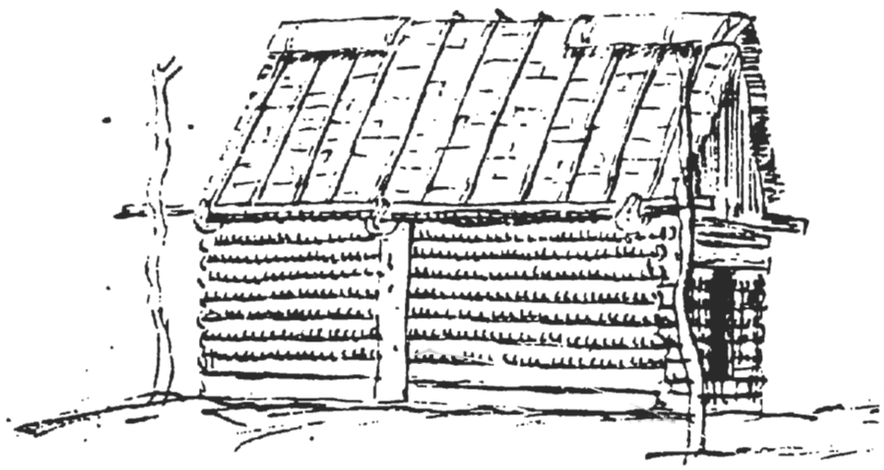
saw, were almost indispensable when fashioning doors. Levi Beardsley recounts what must have been a typical experience:

"My father . . . [later] brought with him some **pieces of boards to make a door**, which he soon completed, with wooden hinges and wooden catch and latch, raised by a string; and the door was fastened by a pin inside, when we wanted to secure it. 'The latch string, however, of that cabin was always out,' except when the family were from home..."[56]

Lacking lumber, more primitive techniques were applied. Recalling events of 1764, William McCollister describes a process used in Washington County:

"The door was made of soft, and perhaps green, basswood which he had **split into rude boards**, pegged or nailed together, the substitute to which they then resorted for want of sawed boards."[57]

Of such varied and seemingly rustic ingredients as these, the buildings at Walloomscoick, recorded by Durnford in 1777, had undoubtedly been created.



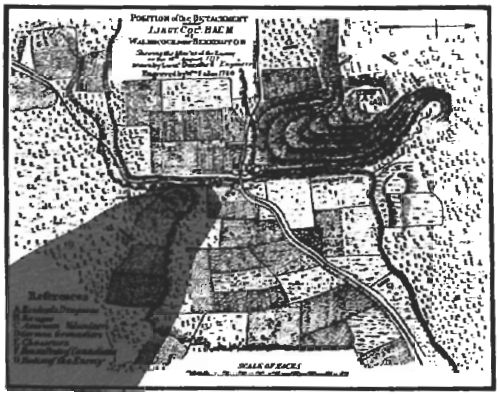
The Historical Society of Pennsylvania

Drawn only two years after the battle, this Seneca log cabin is typical of the "weekwams" described on the preceding page. The roof is covered in bark, held on with saplings, and a smoke hole at the peak serves as a chimney.

The Library Company of Pennsylvania

Onondaga County Parks/Office of Museums

Above: *This early Indian log cabin* (right) *is virtually identical to the type of cabins built and lived in by settlers on the New York frontier throughout the 18th century, and has its roots in Native Contact Period architecture like the hewn Seneca cabin recorded in western New York in 1779* (left).



The TORY "FORT"

The Durnford map, historically speaking, is like an artist's charcoal sketch – a rough outline of reality. The recorded observations of the participants as they marched, or ran, across the canvas are like the strokes of the artist's brush, loaded with vivid pigment; some bold and undefined, some delicate and finely detailed, some only tentative and ambiguous, but each producing a bit of color and each contributing to an image reflecting the richness of the reality observed.

The process of using these eyewitness accounts with any accuracy, however, is not a simple one.

First, we have to determine the precise location of each informant at the time of the observation, which often requires a comprehensive understanding of the military action and often a fairly detailed analysis of discrete military events, regimental affiliations, sequence of actions, etc.

Second, we have to determine the precise location being described by the informant, i.e., where he was looking when he saw what he later described.

Third, we have to determine the line of sight available to the observer at the time of the observation in order to: a) confirm the hypothetical location assigned to the informant, and b) evaluate the reliability of the observer and the quality of the observation.

Fourth, we have to interpret the language of the observer (actual translation into English or translation from eighteenth century idiom to modern usage) to accurately reconstruct the reality being observed. This may require linguistic analysis, particularly where German accounts not immediately translated in the eighteenth century are involved.[A]

Verifying all the cultural features shown on the Durnford map, including the military positions and constructions created during the event, may also require a detailed understanding of the military tactics and technologies employed on the battlefield. Since almost all of our retroactive informants were military men, only thus can we accurately position them at the time of their observations. We cannot depend on standard histories for this level of precision, but must rely as much on our informants for military facts as for agricultural facts, since an agricultural observation mis-placed by a misunderstanding of military position would be useless.

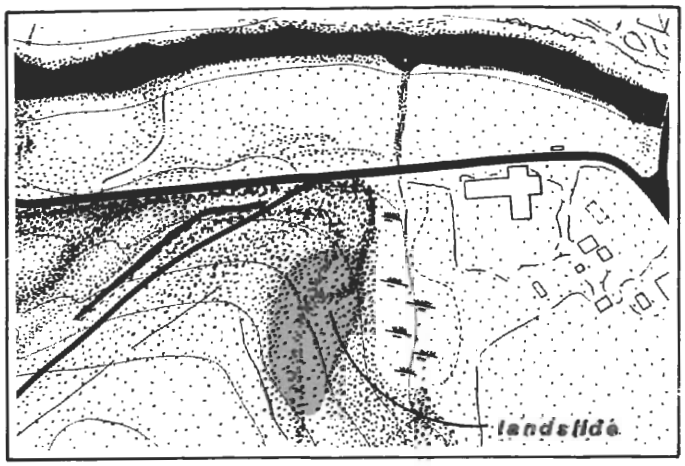
Nowhere is this process more fully or concisely demonstrated than on the hill on which Baum's Loyalist forces raised their small redoubt, later to be referred to as the "Tory Fort."

By the morning of August 16th, this fortification was completed and filled, apparently, with over 200 men. On comparison, Durnford's rendering of the hill it crowned and the surviving modern terrain appear very similar. The hill consisted of three elevations, or terraces, and in outline resembles a natural bastion.[B] The engineering of the redoubt took advantage of the terrain, maximizing the defensive nature of the existing steep slopes.

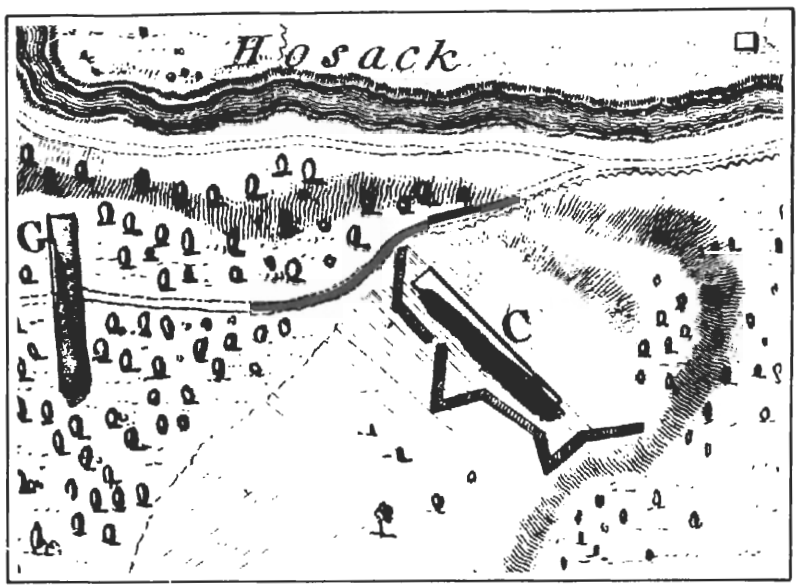
The apparent lack of conformation of the topography at the northeastern corner of the redoubt to Durnford's image has been produced by a landslide that at some point in the last century detached a massive section of the relatively unstable glacial till of which the hill is composed.[1] This slide can be seen as a low, lens-shaped terrace along the base of the north face of the hill. If we estimate the volume of that formation and hypothetically restore it to its original position, an outline more similar to the 1777 drawing appears.

[A] Here we are indebted to the tireless efforts of Dr. Helga Doblin of Saratoga, New York and Mr. Lion Miles of Stockbridge, Massachusetts, researchers who have produced translations of the Wasmus account and freely shared their materials and interpretations with this project.

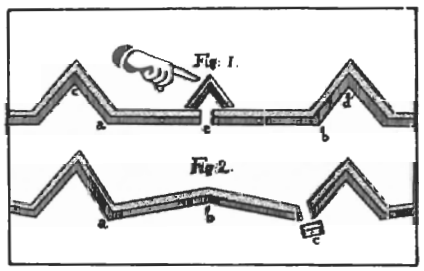
[B] Note how the Southwest corner of the redoubt rests on a protrusion of the hill, skirted by the road.



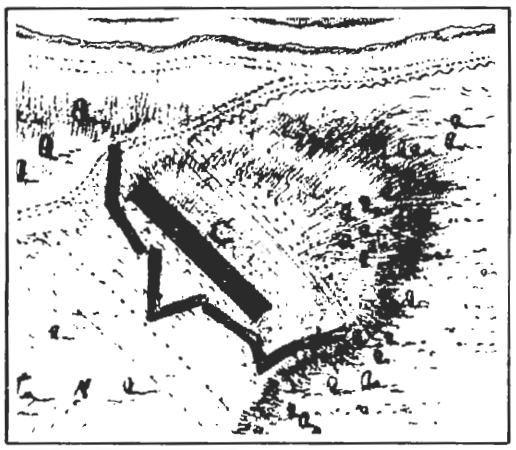
When we restore the landscape to its pre-20th century configuration (above), we see a pattern that more closely resembles Durnford's drawing (right).



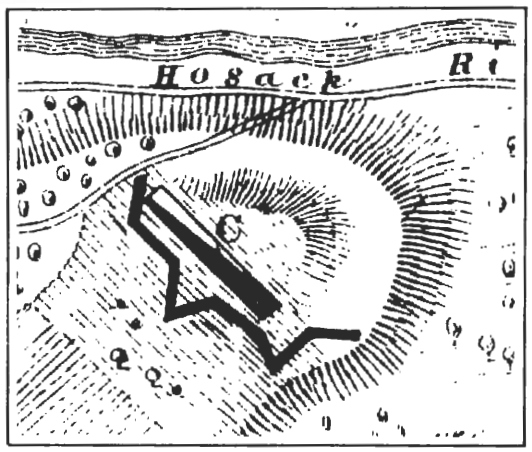
Faden's 1780 engraving.



Typical redoubt designs from an 18th century military text.



Durnford's 1777 manuscript



Sylvester's 1880 engraving.

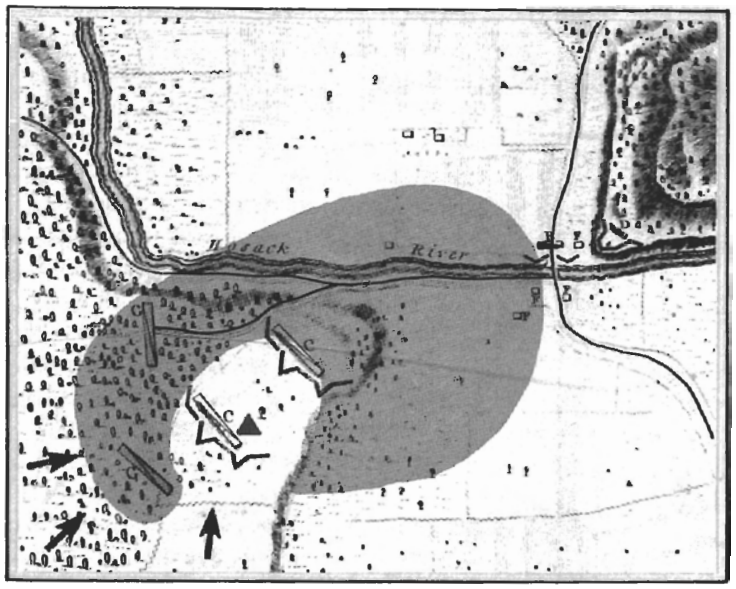
The construction of the Tory redoubt actually followed closely an 18th century textbook design (above, left). This fact is only evident on Durnford's manuscript drawing.

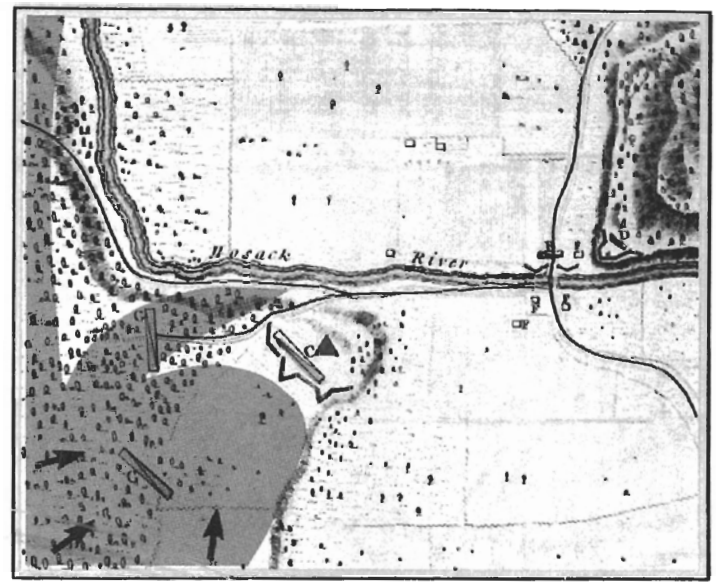
[C]The classic design of this redoubt is revealed only by Durnford's manuscript drawing, and becomes increasingly obscured with duplication, beginning even with Faden himself.

[D]This evidence suggests that most of Durnford's mapping may have been done from this position, perhaps while overseeing the construction of the redoubt.

The purpose for selecting this location for defense has little to do with its elevation overlooking Baum's bridgehead. It is suggested by the orientation of the redoubt's front, being to the southeast, away from the bridge.[C]

The need for a southeastern defensive front on this hill is obvious on field inspection, for although an unrivaled view to all other points on the battlefield is available from the brow of this hill,[D] the maximum range of visibility to the southeast toward the hill's crest, is severely limited. An attacking force from this direction would be slightly above (30 feet) the redoubt and would not be seen until within 100 yards of that position. Line of sight data gathered by our survey indicates the field of view available to the defenders could have been extended indefinitely southeastward by merely moving the redoubt to the crest of the hill, only 100 yards away. Yet the



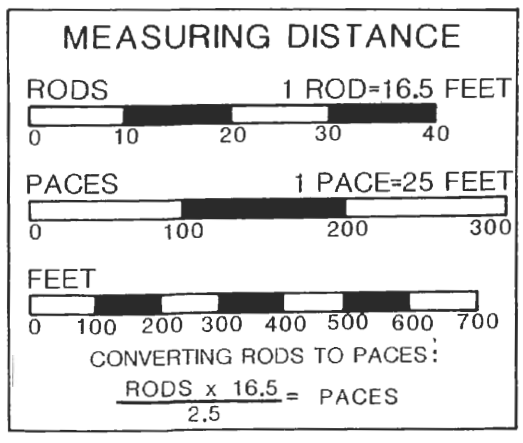


Although a post higher on the ridge would have given the Tories a better view toward their vulnerable side, it would have prevented them from seeing the roads they were guarding.

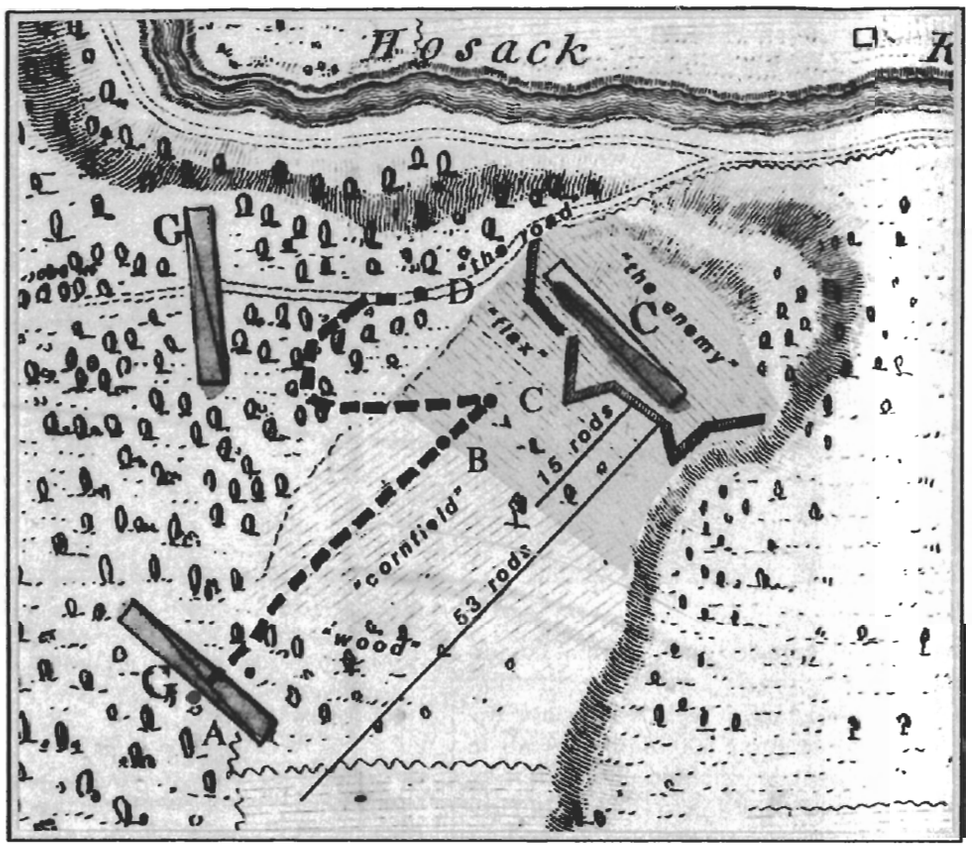
zone of invisibility produced by such a position includes almost all of the two roads entering the battlefield from the southern sector. It is obvious that the Tory redoubt required a clear view of troop movements along these roads, and that its function was to control these corridors of attack. A position at the northern brow of the hill was, therefore, essential. The vulnerability to attack from the southeast that resulted from this position required the protection of a redoubt and necessitated its construction.[E]

There were two avenues of attack directed at this redoubt (see Durnford's map) and after a brief defense (reputed by most historians to have consisted of little more than one volley) the Loyalists were driven from their post. By extreme good fortune, we have preserved eyewitness accounts from each of these three divisions of the encounter. These accounts provide the data needed to verify the field conditions, rectify the map, confirm the position of the informants, and reveal the cultural landscape of 1777. This confluence of factors is unequaled on any other sector of the battlefield.

Field inspection reveals the possible origin of the first line of attack. The peak of a hill some 400 yards due east of the redoubt, and just off the edge of Durnford's drawing, would have provided an excellent view to Stark's scouts of Hessian Hill and possibly the redoubt built there, and could have revealed the potential advantage given by the flanking valleys to either side. Cobble Hill, which rises above the Hessian post some 600 yards beyond to the northwest, is visible from this location and the saddle leading to the rear of Hessian Hill is apparent. This observation post would have been accessible to Stark on the 14th and 15th from his camp in Vermont, and the ridge leading directly down to the Tory redoubt would lay before him as he reconnoitered from this hill. Even though the Tory redoubt was not visible from this hilltop, its location would have been known from other observation points available to Stark. An attacking force on the morning of the 16th could have formed here unobserved and moved directly down the ridge to within a few hundred feet of the Tory works.



[E]Baum, schooled in traditional eighteenth century warfare, with troops fighting in the open and moving in force along established roads, would have felt secure with a redoubt positioned to control these roads, even though still vulnerable to attack through the woods and fields. Reflecting on the experiences of the American Revolution, British military historian John William Fortescue underscores the attitudes of European commanders of that period when he states: "Such methods of warfare, though not unusual among half-disciplined men who have lost touch with civilization during long life in a wild country, never fail to rouse bitter indignation among regular troops."[2]



The movements of John Orr, the distances he cites, and the features he observes are plotted to scale on Durnford's map.

"...one or our sergeants came and offered to take me off the ground..."

Lieut. John Orr was in that attacking force. His narrative matches Durnford's mapped scale precisely:

> I was in a detachment of 200, to attack the minor breastwork, as soon as we should hear Nichols' guns.[F] We marched from the main body, about half a mile, and then [A] arranged ourselves in front of the breastwork about **fifty or sixty rods distant, with trees and corn intervening**, which prevented our seeing each other. About 4 o'clock, P.M., Nichols began, and the cracking of muskets was such, that imagination could see men falling by dozens. We arose and with shouts marched rapidly to the attack. . . Resolving that no one should have cause to impeach me with cowardice, I marched on with the appearance of a brave soldier. When we [B] had **passed through the wood and cornfield, we came in sight of the enemy at about fifteen rods distance**. They commenced firing with muskets, at an alarming rate, so that it seemed wonderful that any of the attacking party should escape. At that time an expression of the Prince of Orange came to my mind, "every bullet has its billet," and I soon found one commissioned to lay me low. After having lain fifteen or twenty minutes, one of our sergeants came and offered to take me off the ground. I told him I was unable for I could not help myself. He said he would not leave me there, for the enemy might come and kill me. He therefore called a soldier to his assistance. They took hold of me by my arms, and attempted to carry me off; but the balls flew directly at us, so that I charged them to lay me down instantly, each take a hand, and [C] **stoop so low, that the flax would conceal them, and drag me on my back, into the cornfield**, where I should be out of sight of the enemy. This order they obeyed, and [D] took me **to the road**, where many of the wounded were collected. I was then carried to the General's quarters, where I lodged that night without rest.[3]

The positions of the features shown on Durnford's map, relative to the Tory redoubt, are confirmed by Orr. That Durnford could be expected to be so precise, even about something as apparently insignificant as the division between a field of flax and a field of corn, seems extraordinary, and can only be explained by his hypothesized assignment to the redoubt construction as an engineer and the likely duration spent there.

Archeological survey to further "prove" both Durnford's and Orr's observations focused on two points. We could expect no vestige of the field division to remain, particularly as it apparently was not a fence, but merely a change in crops. So first we attempted to explain why the patch of woods shown by Durnford and mentioned by Orr should intrude into an otherwise cultivated plateau. By direct measurement, the location occupied by this copse would be in the vicinity of a jog in the farm lane that presently runs eastward on the ridge along which Orr might have approached, perhaps even on an eighteenth century version of this same road.

[F] Nichols was to attack in the rear of the main redoubt on Hessian Hill, three-quarters of a mile away. His attack there was to be a signal for the general attack to begin on all fronts.

Surrounding this jog one finds a small depression some 50 yards broad, actually the lesser of two small upland watersheds (see map below). The greater of these feeds a small ravine leading toward the river road, and which became the route of the second attacking body. (See Stafford's account, page 52.) The smaller depression is the upper reach of a wider but shallower gully in which remnants of the old eighteenth century road can still be seen.

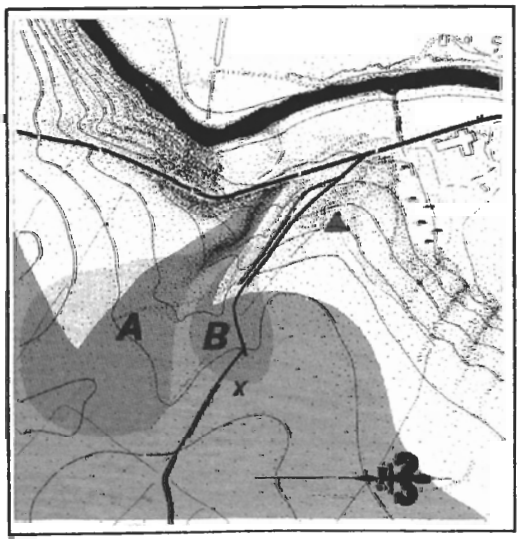
Even today, the dog-leg of this smaller watershed provides enough slope to discourage cultivation, and most likely would have been left to brush and trees in the eighteenth century. From this position, the first mentioned by Orr, a low intervening crest prevents a direct line of sight to the redoubt.[G] As one moves toward the redoubt on Orr's course, it would have become visible almost immediately. However, the angle of sight is so low that any intervening obstacle of even a few feet height would completely hide the redoubt. Therefore we can be sure that Orr could not see the Tories, nor they him, until he emerged from the corn, as he himself suggested.

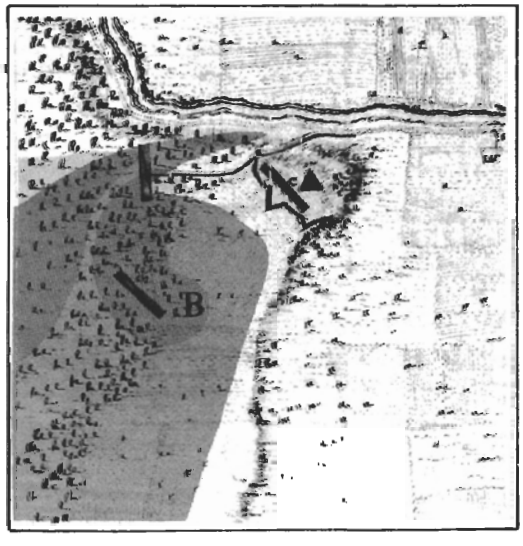
Thus we have validated Durnford's map in this location, both as to scale and detail. Having placed the informant precisely on this map, we are able to designate the three agricultural features of "woods," "corn," and "flax" with great accuracy.

It is of some interest to note that Durnford's map indicates that the road which ran beside the Tory hill continued on south, instead of turning southeasterly as it does today. While it is possible this represents an eighteenth century alignment, it does not fit the terrain, placing it squarely in the larger, boggy watershed for the ravine noted above. This would seem to call into question Durnford's mapping accuracy. Yet our line of sight survey in the vicinity of the Tory Fort reveals an interesting fact. The field of view from the interior of the redoubt does not include the old road alignment beyond the shallow gully immediately beside the hill, and certainly not as far as the point where today it abruptly begins its turn eastward. In fact, were one to draw a map of that road today, restricted to the site of the redoubt, as Durnford probably was by enemy fire, it would look strikingly similar to Durnford's own drawing. In addition, Durnford shows this road entering woodlands at the point at which his rendering of it in ink becomes indistinct and continues only

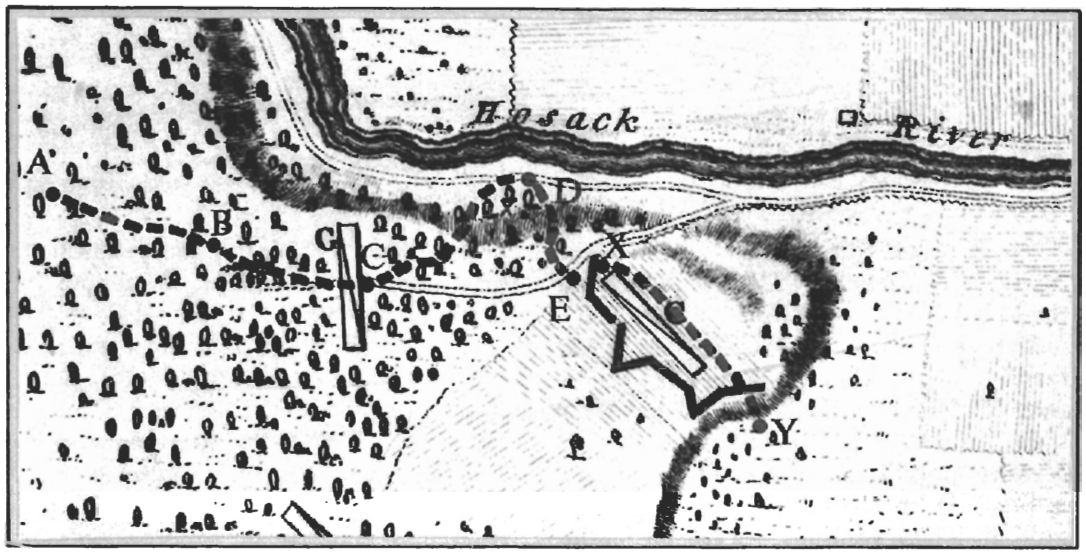
When Orr emerged from the woods, his line of sight was such that he should have seen the Tory Fort. The curvature of the earth between those two points, however, would have caused anything other than bare ground to block his view.

[G]To confirm sightings in this area, a one-foot square orange target was set up 8 feet above the ground at the southwest corner of the redoubt, so that at low angles of sighting, one could accurately assess one's ability to have seen the breastworks in 1777.





Depressions associated with two small watersheds (A & B) limit the field of vision from the Tory post in ways that explain Durnford's lack of detail in this area. The eventual eastward turn evident today in the road beside the Tory Fort (X) would not have been within the field of view from that position. The lesser of the depressions, the watersheds of small ravines, coincides with the uncultivated and wooded portions of the plateau (B) above the Tory post.



The route of Stafford's attack is estimated on Durnford's map from his own account and our modern field data. The ravine through which Stafford marched, however, is not shown directly on this map. An indentation in the hillside (X) drawn by Durnford, may reveal its location.

in watercolor.[H] Such woodlands would further limit his view of the road and obscure its true alignment, even if viewed from other locations.

The other wing of the attack on the "Tory Fort" appears on Durnford's map as coming from a more southerly direction, directed against the southwest corner of the redoubt. In the field today, an elevated hill exists in this location, cut off from Orr's ridge of attack by the boggy watershed of the small ravine.[I]

Again, Stark's scouts on the 14th and 15th would have had access to this hill. From this hill, views of the works on Hessian Hill and the positions at the bridgehead could be obtained, making it an excellent post for reconnoitering and probably suggesting itself then as a route of attack for the following day.

The account of militiaman Capt. Joab Stafford provides some very fine detail on the route of attack from this quarter. In order to verify his observations and confirm the informant's position during his narrative, a field experiment was designed. The hypothetical attack route would be followed and a continuous tape of field observations recorded, with a time frame added later. This archeological data is presented below beside Stafford's own account as related by his son in 1828.

[H] Durnford's shading might be more conjectural than observed, and Faden's failure to pick up that detail underscores the tentative nature of the feature.

[I] This depression would afford a poor avenue of attack. The redoubt would have been clearly visible throughout, so the attackers would also have been seen at some distance by the Tory defenders. The route of the attack would have placed the Americans well below the level of the redoubt on their final approach.

When they reached the ground, they found the Hessians posted in a line; and **on a spot of high ground**, a small redoubt was seen and formed of earth just thrown up, where they understood a body of loyalists or provincial troops, that is, Tories, was stationed. He was soon assigned a place in the line, and [A] **the tory fort** was pointed out as his particular object of attack.

He had observed [B] **some irregularity in the ground** before them, which he had thought might favor his approach; and he soon discovered that a **small ravine**, which they soon entered, would cover his determined little band from the shot of the enemy, and even from their observation, at least for some distance.

0

We are starting on the slope just below the peak of the low hill to the south of the redoubt. Presumably this would match the point at which the force was directed to attack the redoubt. The target at the redoubt is visible.

+:20

Marching down directly toward the Tory Fort, a slight depression with brush and small trees in it is evident directly ahead to the left.

+:30

The ground is sloping down but not at all a difficult approach.

+1:05

The target is still visible, but the depression straight ahead is quite pronounced. At this point this irregularity would have been very visible and the difficulty of marching straight across it on a direct approach to the redoubt would have been becoming apparent.

+1:35

Boggy conditions are encountered as one enters the bottom of the watershed depression for the small ravine.

He pursued [C] its course; but was so far disappointed in his expectations, that, instead of terminating at a distance from the enemy's line, on emerging from it, [D] and looking about to see where he was, he found the fresh embankment of **the tory fort just above him**, and the heads of the tories peeping over, with their guns leveled at him.[4]

"Baum...extended his front too much (occupying about 1/2 mile) and thus weaken'd the whole; he had an English Engineer with him Lieut. Durnford [editor's note: Andrew Durnford] who very judiciously threw up his works on the side of the hill and the enemy coming in his rear of course soon made an attack in front certain of success." James Hadden, with Burgoyne, 1777[4]

+1:45

The Tory Fort would be still visible but the obvious difficulty of moving straight across the upper end of the ravine would be fully evident, while moving to the right (away from the ravine) at this close range would place the attacking party in apparent jeopardy.

+2:00

The target is still visible, and we begin to enter the upper end of the ravine.

+2:10

The target is no longer visible as we enter the ravine.

+2:35

The ravine becomes quite narrow, with steep sides.

+2:50

At this point it is possible to walk along a trail partway up the southern flank of the ravine without being seen from the Tory Fort.

+3:00

The extent of the ravine and the fact that it curves, deviating from the original line of march, is not at all obvious at this point.

+3:15

The ravine deepens, and there is absolutely no visibility out of it to suggest the position of the attacking party relative to the redoubt.

+3:50

The ravine is quite steep at this point, and attack up out of it would be impossible, even if one perceived that they were being led away from the target of their approach.

+4:30

The ravine is less deep here, and stepping up on the south flanking wall reveals the redoubt position. (That they were surprised to come out directly under it suggests they stayed down in the very bottom, which is essentially dry.)

+4:50

The river flats become visible ahead as the end of the ravine is approached, but there is still no indication of where the redoubt is. Movement is very much restricted by the ravine itself.

+5:15

Even though at this point a view of the redoubt could be had at an eye level only 8 feet above the floor of the ravine, attention is focused ahead to the river flats. A step up the steep ravine wall would be required to gain a view of the Tory Fort.

+5:40

The height of the left wall of the ravine (away from the Tory Fort) lessens and one is drawn forward out of the ravine onto the road, now clearly visible.

+6:00

The righthand wall of the ravine remains steep and abrupt and prevents the redoubt from being seen, even though one has essentially exited the ravine at this point.

+6:25

Moving out onto the road, and looking up toward the right, the intervening wall of the ravine abruptly ends, due to an eroding small drainage cutting down the backside of that wall.

+6:40

One is looking directly up at the redoubt.

Thus in as little as 7 minutes, Stafford's company, misled by the curvature of the ravine and the inability to see their objective, found themselves emerging directly below the redoubt at a much lower elevation than intended and immediately under fire. This circumstance is corroborated by the *"Story Told by One Who Was in the Tory Fort,"* recorded by Stafford's son, and presented with the following introduction:

"It so happened that many years after the close of the War, and when I had heard my Father tell his story many times, I became acquainted with an old townsman of his, who was a Loyalist, and took an active part as a soldier in the service of King George: and he told me a story of the Battle of Bennington which I think you would like to hear."

> I lived not far from the western borders of Massachusetts when the war began, and knew your father very well. Believing that I owed duty to my King, I became known as a loyalist, or, as they called me, a tory; and soon found my situation rather unpleasant. I therefore left home, and soon got among the British troops who were coming down with Burgoyne, to restore the country to peace, as I thought. When the Hessians were sent to take the military stores at Bennington, I went with them; and took my station with some of the other loyalists in a redoubt or small fort in the line. We were all ready when we saw the rebels coming to attack us; and were **on such a hill and behind such a high bank,**[1] that we felt perfectly safe, and thought we could kill any body of troops they would send against us, before they could reach the place we stood upon. We had not expected, however, that **they would approach us under cover**; but supposed we should see them on the way. We did not know that a little gully which lay below us, was long and deep enough to conceal them; but they knew the ground, and the first we saw of the party coming to attack us, **they made their appearance right under our guns**. Your father was at the head of them. I was standing at the wall at the time, with my gun loaded in my hand; and several of us leveled our pieces at once. I took as fair aim at them as I ever did at a bird in my life, and thought I was sure of them; though we had to point so much downwards, that it made a man but a small mark. **We fired together,** [X] **and he fell**. I thought he was dead to a certainty; but to our surprise **he was on his feet again in an instant** . . ."[5]

To attack the redoubt from such a disadvantageous position, as Stafford then did, seems extraordinary, even for professional soldiers, and more so for militia. Yet the decision was instantaneous. Our field experiment shed some light on the context for that decision.

During the last few steps out of the ravine, the left wall (away from the redoubt) has already fallen away and a clear view out onto the road and the river flats is afforded. But the right wall remains high and steep. Although blocking a line of sight to the "fort" by only a few inches of height, it affords no suggestion of the position of the men relative to the redoubt. Immediately on exiting the ravine, however, the illusion of an insurmountable hill is replaced by the illusion of a gentle and accessible slope to the summit. This perception is based on the effect of a small, spring-fed rivulet and associated eroded gully immediately next to the right wall of the ravine. This erosion has reduced the intervening land between the road and the summit into a slope of very modest pitch. In the heat and shock of the moment, this abrupt contrast would cause the viewer to underestimate the obstacles to an attack

[1] He is probably referring to the steep natural bank of the hill facing the road, not any earthwork they created here. Today one still gets this sense of invulnerablity on the same spot, even when not surrounded by a fortification.

"...he sprang up, and clambering to the top of the fort.."

up so great a height.

Continuing the narrative of Stafford's son:

Turning to call on his men, he was surprised to find himself flat on the ground without knowing why; for **the enemy had fired**, and a ball had gone through his foot into the ground, cutting some of the sinews just as he was stepping on it, **so as to bring him down**. At the same time, the shock had deafened him to the report of the muskets. The foremost of his soldiers ran up and stooped to take him in their arms, believing him to be dead or mortally wounded; but he was too quick for them, and **sprang on his feet**, glad to find he was not seriously hurt, and was able to stand.

He feared that his fall might check his followers; and, as he caught a glimpse of a man in a red coat running across a distant field, he cried out, "Come on, my boys! They run! They run!" So saying, he sprang up, and clambering to the top of the fort, [E] while the enemy were **hurrying their powder into the pans and the muzzles of their pieces**, his men rushed on shouting and firing and jumping over the breastwork, and pushing upon the defenders so closely, that they **threw themselves over the opposite wall**, and ran down the hill as fast as their legs would carry them.[6]

+6:45-7:00

(Estimated time for Stafford to look back, receive the volley, fall and jump back up.)

+7:05

We are beginning to run up what is now a relatively accessible slope because of the flattening effect of that tiny drainage.

+7:20

The first segment of the slope is not difficult, even at a dead run.

+7:25

The attack course crosses the old roadbed.

+7:30

The slope becomes quite steep and pronounced.

+7:35

The hill is rising abruptly, and is difficult to run up.

+7:40

We are only a few yards from the redoubt.

+7:45

We are very close to the "wall."

+7:50

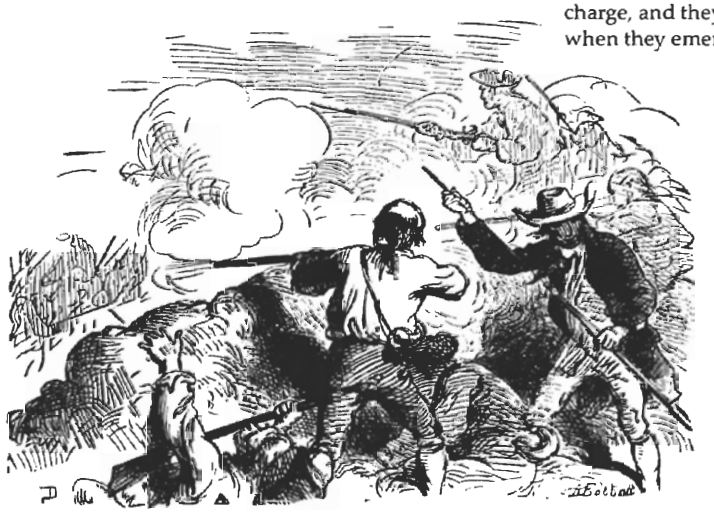
We are at the redoubt "wall."

That this description is not a victor's exaggeration is confirmed by the testimony of the vanquished:

". . . and they all sprang right up the bank so that they **did not give us time to load**, and came jumping into the midst of us, with such a noise, that we thought of nothing but getting out of the way of their muskets as fast as possible. I saw all my companions were **going over the wall on the other side**, and [Y] I went too."[7]

Although this experiment was designed to confirm Durnford's map and the position of informants, it sheds some light on the strictly military content of this microbattle. The final charge probably took only one minute after the Tory volley was fired.[K] A professional soldier posted in the redoubt and armed with a musket and cartridges, should have been able to reload

"...they did not give us time to load..."



[K] Stafford's reference to his men "shouting and firing" on the way up the hill does not indicate reloading on the way, as none had fired before the charge, and they were all fully loaded when they emerged from the ravine.

[L] "No recruit to be dismissed from the drill till he is so expert with his firelock as to load and fire fifteen times in three minutes and three quarters." *Frederich Wilhelm Ludolf Gerhard Augustin, Baron von Steuben, REGULATIONS FOR THE ORDER AND DISCIPLINE OF THE TROOPS OF THE UNITED STATES, 1779*[8]

One source even suggests a more rapid, short-cut method could be employed in the heat of battle: "In this action I found all manual exercise is but an ornament, and the only subject of importance it can boast of was that of loading, firing, and charging with bayonets: as to the former, the soldiers should be instructed in the best and most expeditious method. Here I cannot help observing to you, whether it proceeded from an idea of self preservation, or natural instinct, but the soldiers greatly improved the mode they were taught in, as to expedition, for as soon as they had primmed their pieces, and put the cartridge into the barrel, instead of ramming it down with their rods, they struck the butt end of their piece upon the ground, and bringing it to the *present*, fired it off. The confusion of a man's ideas during the time of action, brave as he may be, is undoubtedly great; several of the men, upon examining their muskets, after all was over, found five or six cartridges, which they were positive to the having discharged."[9]

and fire no less than four more volleys, by standard practice. Stafford's men, forced to run up a steep embankment, would have had no opportunity to reload and return the fire after their first shot.[L]

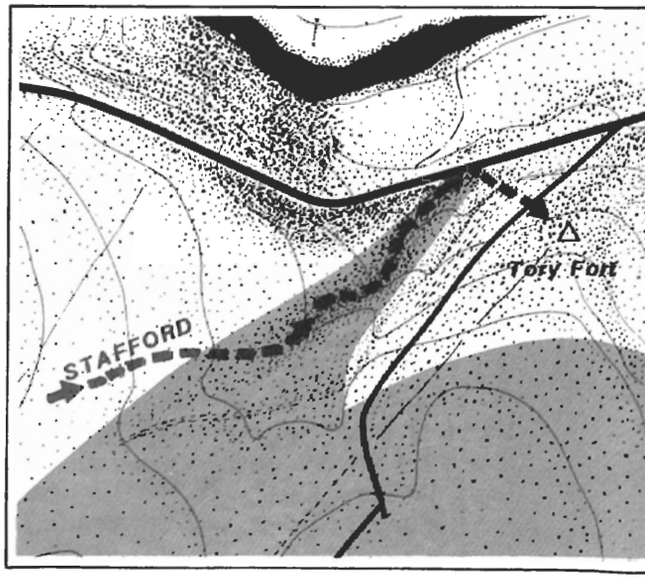
The fact that the Tories did not fire, and in fact were still "hurrying their powder into their pans and the muzzles of their pieces" a minute later, suggests they may have had rifles, which take significantly longer to load, or had muskets and fowling pieces, but no cartridges.[M] Forced to use powder horns to charge their weapons and to obtain their balls from a pouch would slow the process, particularly when coupled with the limited battle experience and inadequate drill common to volunteers.

As originally stated, the purpose of the experiment was to verify, and rectify, Durnford's map. Yet this ravine, so central to the eyewitness accounts, is nowhere to be seen in his cartography. If Durnford was an engineer trained to observe and record features of military significance and potential tactical importance, why is it not shown?

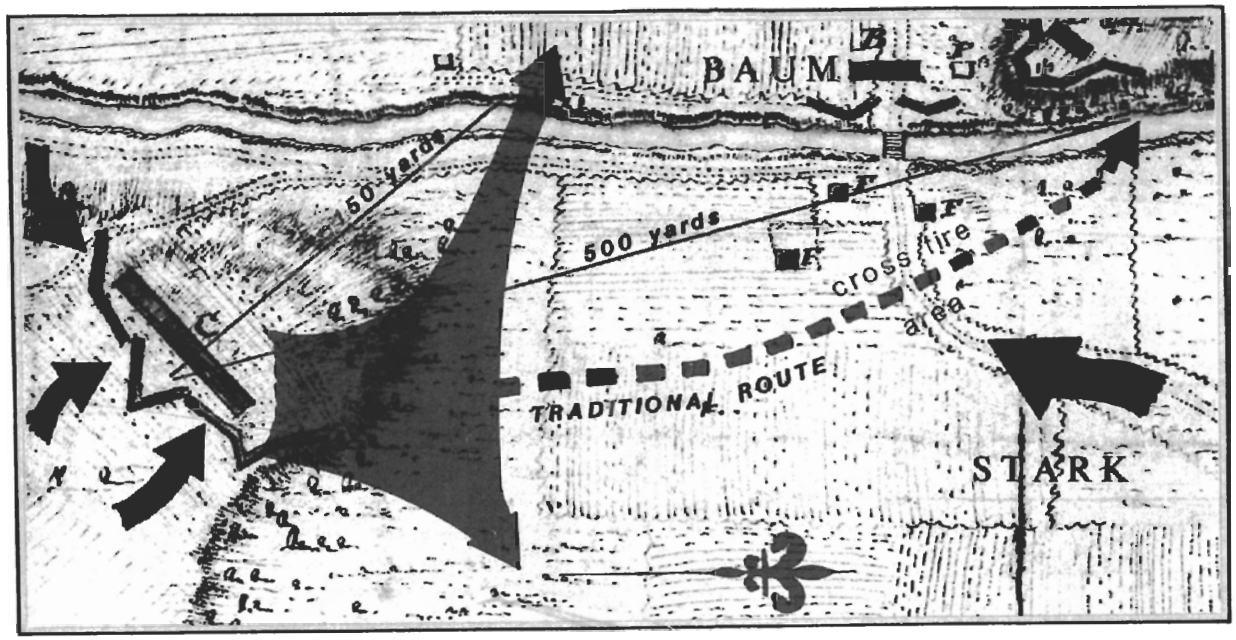
A clue is afforded by the anonymous Tory, who expected to see his attackers as they approached: "We **did not know** that **a little gully** which lay below us, was long and deep enough to conceal them." Apparently Durnford did not realize the size and extent of this gully either. It does not reveal itself even today to an observer on the Tory hill, and if wooded, as it apparently was in 1777, its nature would be even more obscured. Yet the zone of invisibility afforded by this ravine could easily conceal a force of several hundred men.

Often a circuitous route through seemingly extraneous material is needed to isolate, confirm and position the tiniest fragment of relevant data. In the forthcoming case, the sought after data are essentially geological and relate to the depositional/erosional characteristics of a section of the Walloomsac that might support or negate the hypothesis that the river's course has changed since 1777. In our map rectification it is critical that we correctly match Durnford's image of where the river was in 1777 with where the river might actually have been in 1777, and not with where the Walloomsac happens to be today.

[M] Although many carry the image of the Revolutionary soldier loading his weapon from a powder horn, most troops, including the Americans, were given ready-made paper cartridges, in which the lead ball and powder charge were contained, ready for loading.



Right: *In the vicinity of the Tory Fort, the areas outside the defenders' field of view included all of the ravine through which Stafford's company approached to attack.*



Had the fleeing Tories run to Hessian Hill, they would have entered the cross-fire between Baum and Stark. Instead, they fled directly east and west, crossing the river right in front of their former post.

Our eighteenth century narratives left off with the Tories fleeing the redoubt as the Rebels reached the walls. Forced on their southwestern and southeastern fronts, they undoubtedly ran down the back slope of the hill and in all directions to the northeast and northwest.[N] Apparently many of the Tories struck out for the Walloomsac River and forded it in an attempt to escape. Secondary accounts vary, but the impression given is of the Tories struggling up the steep and slippery slope on the opposite bank of the river, being shot, often by marksmen who laughed out loud at their success, and then rolling back down the muddy bank into the river.[10]

At least one historian suggests the Tories were attempting to climb out of the river "up the wet and slippery slopes of Baum's hill."[11] Yet this location, in addition to being virtually impossible to scale, is over 500 yards away and oblique to the Tory hill, a nearly impossible shot even for an expert rifleman. That the shooters were firing from the Tory redoubt is suggested by Stafford's comment that "those raw soldiers, as most of them were, were ready to laugh at themselves, their new position, **masters of a little fort** which their enemy had been hard at work to construct, they knew not how long; but out of which they had so easily been set a scampering, merely because they had shown some resolution and haste in assaulting it."[12]

Any Tories reaching the Hessian Hill location would immediately have been afforded cover in the trees growing on the hill right down to water's edge, no longer targets for the Tory Fort marksmen. In addition, while the precise timing is open to question, Stark's reserve, poised on the Bennington Road just east of Baum's bridgehead, could have been opening its attack across the flats between the Tory hill and Hessian Hill at this same time. Fleeing Tories taking this route would have been running directly into their cross-fire.[O]

So we can hypothesize the route of escape to have been directly across the Walloomsac to the west, right below the Tory hill, and can support that hypothesis by a chain of admittedly circumstantial evidence. But since science rarely deals in absolutes, a moderate degree of probability is sufficient to our purpose.

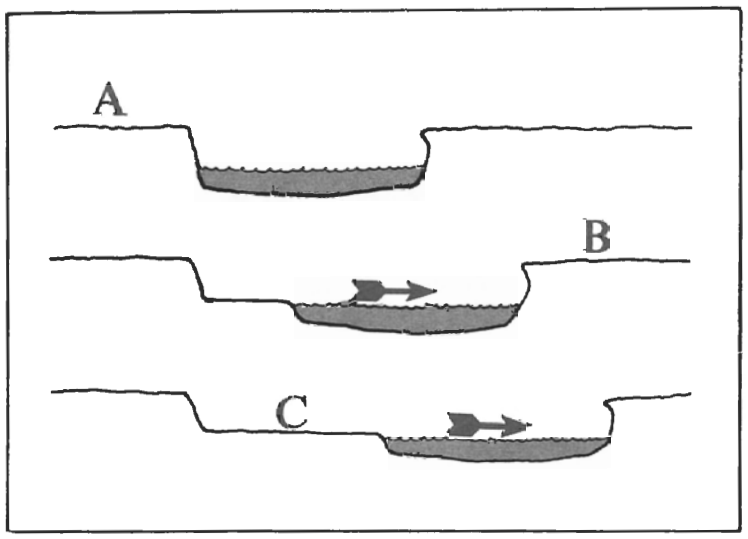
First, the distance to this portion of the Walloomsac from the Tory Fort is only 150 yards, a possible musket shot and an easy shot for anyone proficient with a rifle. Second, the river runs at right angles across the shooter's field of view, thus providing more targets of opportunity than an oblique line of fire could afford.

But is there any primary source data to confirm this route of escape? A letter from John Peters, Lieut. Colonel of the Queens Loyal Rangers, could be the missing link:

August 16th, 1777, I commanded

[N] For a continuation of the Tory's account after he left the redoubt, see the chapter entitled *The Bottomlands*, page 81.

[O] The hypothesis that Stark had already moved out of his post east of the area in question by this time is supported by the testimony of the fleeing Tory informant, and is discussed in *The Bottomlands* chapter.



Above: *Migrating rivers, which start between banks of equal height (A), undercut the land in front of them (B), leaving behind, over time, a low plain (C). A modern cross-section of the valley floor adjacent to the Tory hill reveals this characteristic profile.*

the Loyalists at Bennington, where I had 291 Men of my Regiment with me, and I lost above half of them in that Engagement. The action commenced about Nine o Clock in the Morning, and continued till **near Four o Clock Afternoon**, when we **retired** in much confusion. A little before the Royalists gave way, the Rebels pushed with a Strong party on the Front of the Loyalists where I commanded. As they were coming up, I observed A Man fire at me, and I returned, he loaded again as he came up & discharged again at me, and crying out Peters you Damned Tory I have at you, he rushed on me with his Bayonet, which entered just below my left Breast, but was turned by the Bone. By this time I was loaded, and I saw that it was a Rebel Captain, an Old School fellow & Playmate, and a Couzin of my wife's: Tho his Bayonet was in my Body, I felt regret at being obliged to destroy him. We retreated from Bennington to the reinforcement [Breymann] that was coming up, which was soon attacked and obliged to retreat. . . "[13]

This suggests Peters was with the main Loyalist force at the Tory Fort.[P] He commanded that force and the action he experienced ended just before 4 PM, which Orr suggests was the point at which his unit attacked the Tory post. In fact, Peter's description of the attacking body fits Orr's length of approach (time for two volleys) very closely.

A bayonet charge appears uncharacteristic for a militia action, however, many lacking bayonets and using civilian guns unsuited for such equipment. Yet at least one grisly account suggests bayonets were in use in the attack here.

William Clement had an unfortunate, but memorable encounter as part of his attack on the Tory redoubt with Stickney's regiment:

"As he rushed up to the works, a Tory thrust his bayonet at him; he struck it aside and drove his own through his opponent's eye and head with such force, that the bayonet came off, and remained in the Tory's head. When they buried the slain, the soldiers told Clement to take his bayonet out of the man's head, but he swore he would never touch it again, and the body was buried in that condition."[14]

At least one nineteenth century historian attributes the use of "bayonets and clubbed muskets"[15] to Hobart's attack on the Tory post, and sporadic references to "bayonets" are found in several nineteenth and twentieth century accounts, although one cannot determine if they derive from any primary source or are merely a supposition.

If, then, we can locate Peters and his Loyalists on the Tory hill, and if they "retreated from Bennington to the reinforcement that was coming up," they must have circumvented the bridgehead, which by then was under attack from Stark's reserve. To do this, they would have had to have moved directly west, crossing the river between the redoubt and the bridge, not beyond the bridge at Hessian Hill. Encountering difficulty in getting out of the river here, they became easy targets for the Rebels on the hill.

[P] This assignment is suggested also by various histories of the battle.