

# What is Become of the Boom?

by Merle Sheffield

General Alexander McDougall added a worried postscript to his letter to West Point's commanding officer on Christmas Eve in 1778, saying "What is become of the boom?".<sup>1</sup> The General's concern for the fate of this Hudson River obstruction stemmed from the early freeze which had endangered both the boom and the great chain itself in their first year of use. No satisfactory reply to the question has been found in the correspondence of General McDougall or his associates. The purpose of this article is to examine the known facts with regard to the boom and to attempt an answer to the query.

The saga of chains and booms in the vicinity of West Point begins in the summer of 1776 when the decision was made to obstruct the river.<sup>2</sup> The work of that year culminated in failure as the November attempt to stretch a huge chain on floats across the river at Fort Montgomery proved unsuccessful. (See Figure 1) During the winter Thomas Machin<sup>3</sup> was given complete authority to revise the complicated system for mooring the 35-ton monster. His efforts paid handsome dividends when April 1777 found the Hudson securely blocked with nearly a thousand iron links weighing almost 70 pounds apiece.<sup>4</sup> Unfortunately these efforts had absorbed the total attention and time of Machin and the iron workers. Only after the chain was in place did anyone give serious thought to secondary obstacles which might take the initial shock of vessels under full sail. Washington himself offered advice on the subject and sent a blue-ribbon inspecting



team to Fort Montgomery to assess the situation.<sup>5</sup> This was apparently the starting point in the story of the boom. It was to be an obstacle of major strength rivalling the chain itself. Putting such a system of logs and smaller chains together would take a dangerously long time, therefore ship's hawsers were spliced and floated in front of the chain for the time being. This was in July 1777. Work on the boom progressed during the summer and early fall but the attack by the British in October found the rope cable still in its temporary location.<sup>7</sup> The fall of Fort Montgomery after a bitter fight doomed the chain and cable which were both promptly cut by the British as a prelude to their three-week excursion up the Hudson.<sup>8</sup> November 1777 saw the Americans planning a new and heavier chain at a new location; West Point. The boom could be assembled and used to protect that chain as readily as the previous one since the length planned for was even less at the new position. The second chain, the "great chain", was manufactured, assembled and put in position in really record time. The new links averaged over 100 pounds each and the 50-ton burden was floated between Constitution Island and West Point at the end of April 1778. Still the boom was not ready. There had been a last minute change of location for the mooring points of the chain (See Figures 2 & 3) and this forced the boom anchorages into new and less favorable locations considerably farther apart than had been intended.<sup>9</sup> The summer wore on and more complications ensued. Thomas Machin, who had remained the guiding genius behind both successful chain operations, was reassigned. In July 1778 the



new commanding officer at West Point, General Glover, showed the poor state of coordination when he reported ". . . the Boom is not yet come down nor do I know when it will or who to apply to about it."<sup>10</sup> After that there are very few words to be found regarding the boom until General McDougall addressed his question at Christmas-time "What is become of the boom?". Fortunately there are enough references to the chain and boom throughout the years of the war to allow us to form a fair idea of what they looked like and, even, what became of the boom.

Three different maps of West Point, drawn at various times during the Revolutionary War from 1778 on through several years of conflict, all show the great chain in position with its floats of three logs each. None of these maps shows any secondary obstacle such as the boom.<sup>11</sup> We are bound to conclude that the boom was in position across the river for a rather brief period, if at all. In further support of this contention is the fact that orderly books and diaries of the period give punctual accounts of the chain's seasonal trips in and out of the water. None of these accounts gives any mention of the boom.<sup>12</sup> Where then do we find this obstacle discussed? First of all there are fairly detailed supply records from the period of its manufacture in the summer of 1777 and, after that, there are periodic mentions of its use as a source of iron salvage from its position on the shore and in the water at West Point. Lasting proof of the boom's existence was dredged from the river in 1855 in the form of logs, links and iron accoutrements shown in Figure 4



So far we have avoided any discussion of the actual appearance of the boom for a rather good reason. There simply are no known contemporary sketches or descriptions of it - published works, notwithstanding. Boynton's hundred-year-old classic History of West Point borrows directly from E.M. Ruttenber's 1860 Hudson River Obstructions and later authors<sup>13</sup> have not seen fit to question the sketch of the boom which appears in both of these works. It is shown in Figure 5. The primary cause to question this appearance is found in the supply records mentioned earlier and shown in Figure 6. Here we find the delivery of 21 swivels mostly in August of 1777 when the Fort Montgomery chain was long-since in position and the West Point chain far in the future. The swivels had to be part of the newly ordered boom, yet the rope-ladder style of construction shown in Figure 5 would not require any swivels! Swivels were certainly used between each float for the main chain<sup>16</sup> and their presence in the bill of materials for the boom implies a construction far different from the rope-ladder configuration of Ruttenber and Boynton. One logical attempt at finding a proper arrangement of boom materials is shown in Figures 8, 9, & 10. This system would span 1800 feet of river with 20 floats of five logs each and requires the 21 swivels to prevent bending and twisting from being transmitted along the line of floats. Now in the language of the supply records of Figure 6, how many "clips, chains and bolts" would this require? Fortunately there is another bill from a different manufacturer which allows us to determine that, in this case, three links made up one "chain".



This second bill is shown in Figure 7 and the results of our computations show:

For a Boom of 20 floats,  
with five logs to a float  
it requires the following:

Clips	400
Chains	160
Bolts	400

The total numbers of  
each item shown on supply  
records from the two ironworks:

Clips	445
Chains	150
Bolts	381

This comparison indicates that the boom design of Figure 9 may well be close to the mark. It still leaves an intriguing question as to where Machin procured the large amount of connecting chain between the floats which had to withstand twice the tension of the links at each end of the logs. Perhaps the British seizure of the chain site in October of 1777 interrupted this phase of the work. Certainly the summer of 1778 would have allowed the installation of the boom more readily if some portion of the Fort Montgomery chain had been salvaged and put to this use.<sup>17</sup> The links between the logs were of  $1\frac{1}{2}$  inch iron and the Fort Montgomery chain of 2-inch.

With a picture now in our minds as to what the boom looked like we should proceed to review the later references to it in the correspondence of the war years. Colonel Hugh Hughes was the Deputy Quartermaster of the Continental Army for New York State. Many of his letter-books are preserved in the New York Historical Society and present the only known source of the information we seek. His correspondents include Peter Townsend, the guiding force behind the Stirling ironworks at Chester; and Daniel Carthy, Hughes' assistant



quartermaster who was stationed at West Point. We can set the stage by assuming that the ironworks kept producing a few items of replacement parts for the chain and boom throughout the early years of their use but that the boom itself has, by 1781 at least, ceased to be seen as an aid in obstructing the river. The boom may well have remained tangled on the shore of Constitution Island and dangling into the deep water of the West Point channel since its first misadventure in the year 1778. The correspondence reads as follows:

Hughes to Townsend, 28 January 1781

"You will please to give orders on receipt hereof that all and every part of the chain and boom iron is drawn into the most sizable flat bars for public service . . ." 18

Hughes to Carthy, 24 May 1781

"Can't you supply yourself from the boom iron with such sizes as you mention? There were flats and squares among it."

Hughes to Carthy, 28 May 1781

". . . At all events let the boom iron be attended to without delay - apply for a proper vessel to store it in as soon as taken from the logs that I may get it drawn on my return."

Tillinghast (another Hughes assistant) to Hughes, 19 August 1781

". . . Townsend has no anchors. He will draw the chain into bars for less than 1/3 or very little more than 1/4 . . . take the chain from New Windsor to Sterling and return the bar iron. . . Mitchell intends proposing to you the loading those teams with the chain and boom iron for Sterling's. . ."

Hughes to Carthy, 26 October 1781

". . . I shall not send Col Crane <sup>19</sup> the complement of iron he demands for two reasons: Square there is little or none and flat may be got of the old boom, if, I am not mistaken which General Knox recommended as very suitable for much of the work wanting at the Park etc. I will visit these logs on my return to camp and tell you my sentiments concerning the iron on them."



Hughes to Carthy, 8 November 1781

" . . . Have you conversed with Col Crane on the subject of the boom clasps for flat iron for his use? It should at any rate be got out of the water and bro't your side, as in its present position it is liable both to waste and plunder. Had it been sent to the forge it might have afforded us a very considerable supply, but, that it was not is no fault of yours. . . . Taking up the chain is deferred for a few days in which time perhaps you may obtain a party to take the links and clasps from the logs of the old boom on the eastern shore." 20

Carthy to Hughes, 10 November 1781

" . . . Colonel Crane has agreed to take three tons of the old boom iron and have it drawn at the forge suitable to the purposes for which he intends it."

Later In the Knox Papers of the Massachusetts Historical Society we find the following:

Crane to Knox, 18 February 1782

" . . . Six tons of the old chain I shall send to Brewster's forge as soon as the state of the river will admit. This will nett us four tons of iron clear of expense. . . ."

Lastly, the war has been over for more than five years and the military storekeeper at West Point writes to the Secretary of War in a letterbook still preserved in the manuscript collection of the USMA Library:

Storekeeper to Secretary of War, 30 September 1789

" . . . I received your letter of the 18th instant respecting the raising some cannon and old iron in the river. . . . Some of it lays in thirteen and 14 fathoms of water besides being fastened to some very large logs which they must hoist and cut away to get the iron."

What have we learned from all of this correspondence? Certainly it shows that iron was a scarce commodity in those times and that a good supply officer was doing his best to see that useless articles such as the boom were put to better use. It also shows that the boom was never dealt with in its entirety but in bits and pieces,

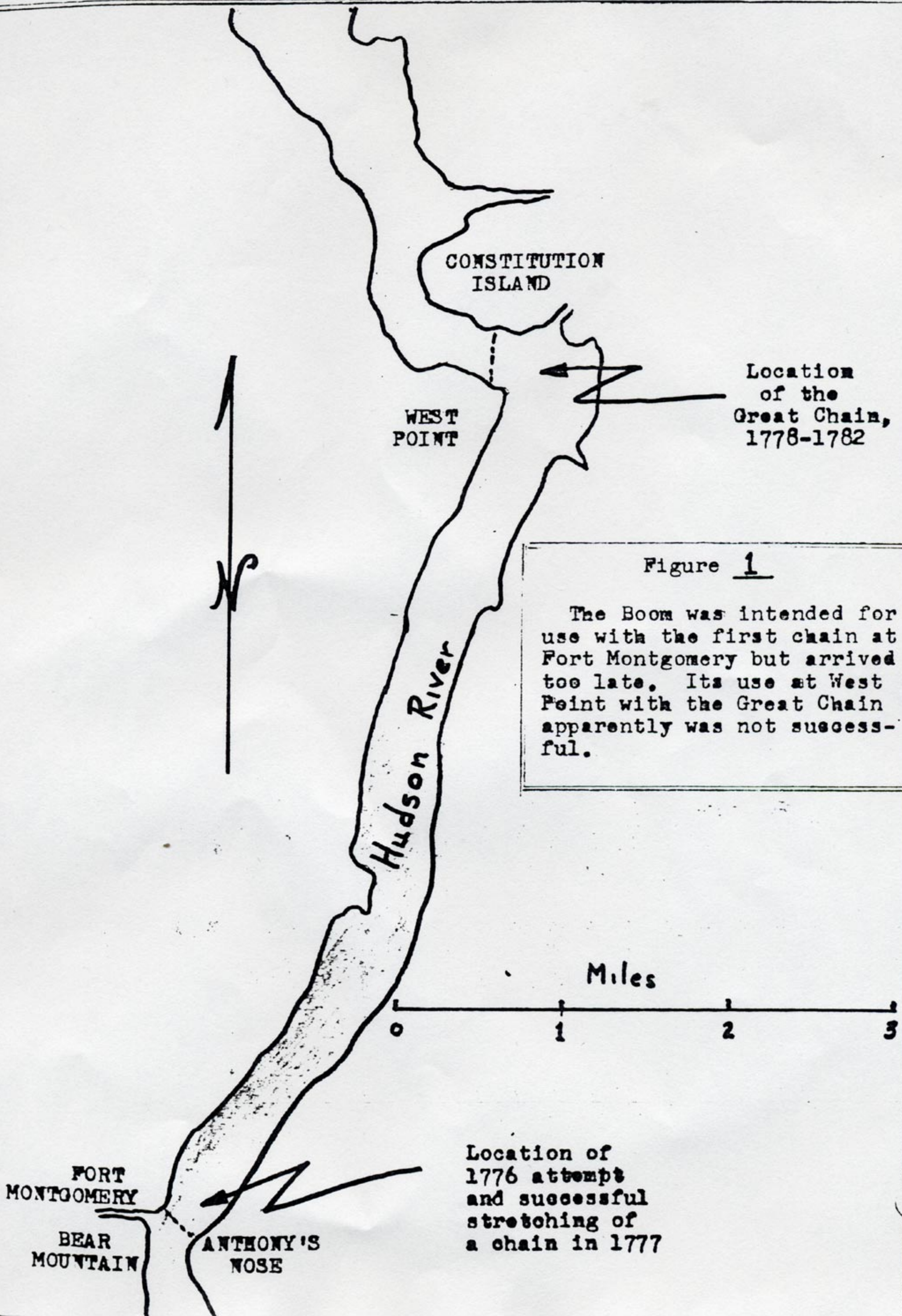


as though part were easily accessible and part gone to deep water. This is further supported by the 1855 retrieval by the dredge of our only hard evidence - the logs and accessories on display in the Museum of Washington's Headquarters, Newburgh, N.Y.<sup>21</sup>

There is still a considerable gap in the boom story as we have jumped from Christmas of 1778 to January 1781 with no report on it at all. Certainly the negative information says a lot - constant discussions of the chain being readied for the water with new logs to make it float better before it was put in position in April 1779 - without a single word about preparing the boom. Why was this? It may well be that the boom never served the intended purpose and that part of it was lost into the depths of the river in the attempted stretching in the summer of 1778. Each five-log float should have been able to support a payload of 3 tons if the logs were dry and properly treated with pitch.<sup>22</sup> The chains on either side of the float and the hardware holding the float together ~~totalled~~ ~~amounted to~~ <sup>23</sup> ~~totalled~~ 2½ tons. A few water-soaked logs ~~could~~ could have spelled disaster before the floats were connected and mutually supporting.

What is become of the boom? Some of the hardware was forged into other equipment for the Continental Army. Bits of iron were hacked from its logs for years after the Revolutionary War as salvage teams combed the areas of previous action. Several pieces of the boom are exhibited in Newburgh, N.Y. and many undoubtedly still lie in the deep water of the Hudson off West Point.







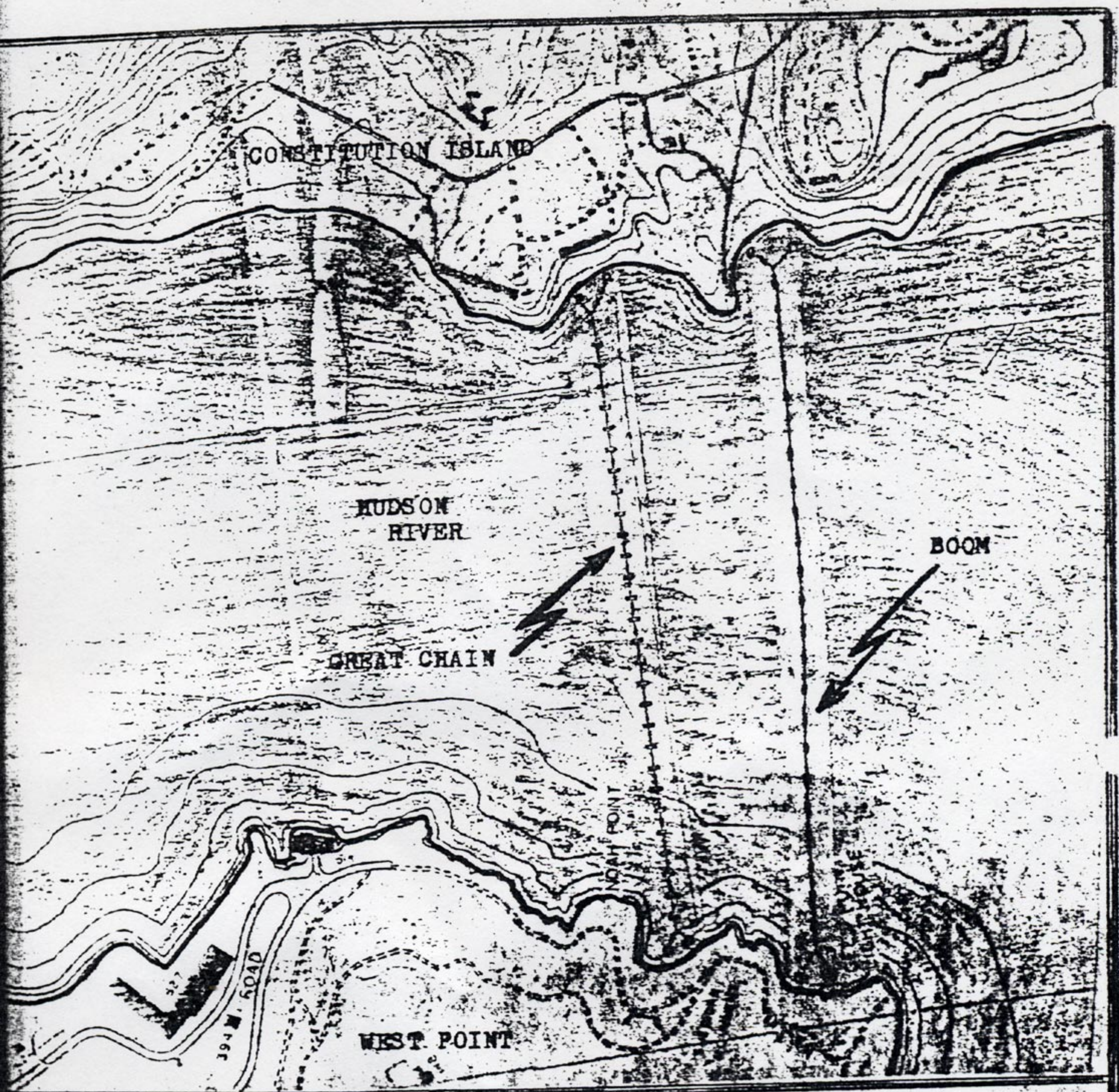


Figure 2

This illustration shows modern-day maps of West Point and Constitution Island with locations for the chain and boom. The great chain is shown on many maps of the Revolutionary War period and is therefore placed as shown with considerable confidence. The boom, on the other hand, never appears on maps of the period and probably was abandoned soon after the first attempt was made to put it in position. The location of the boom as shown on this map is simply an educated guess on the part of the author.



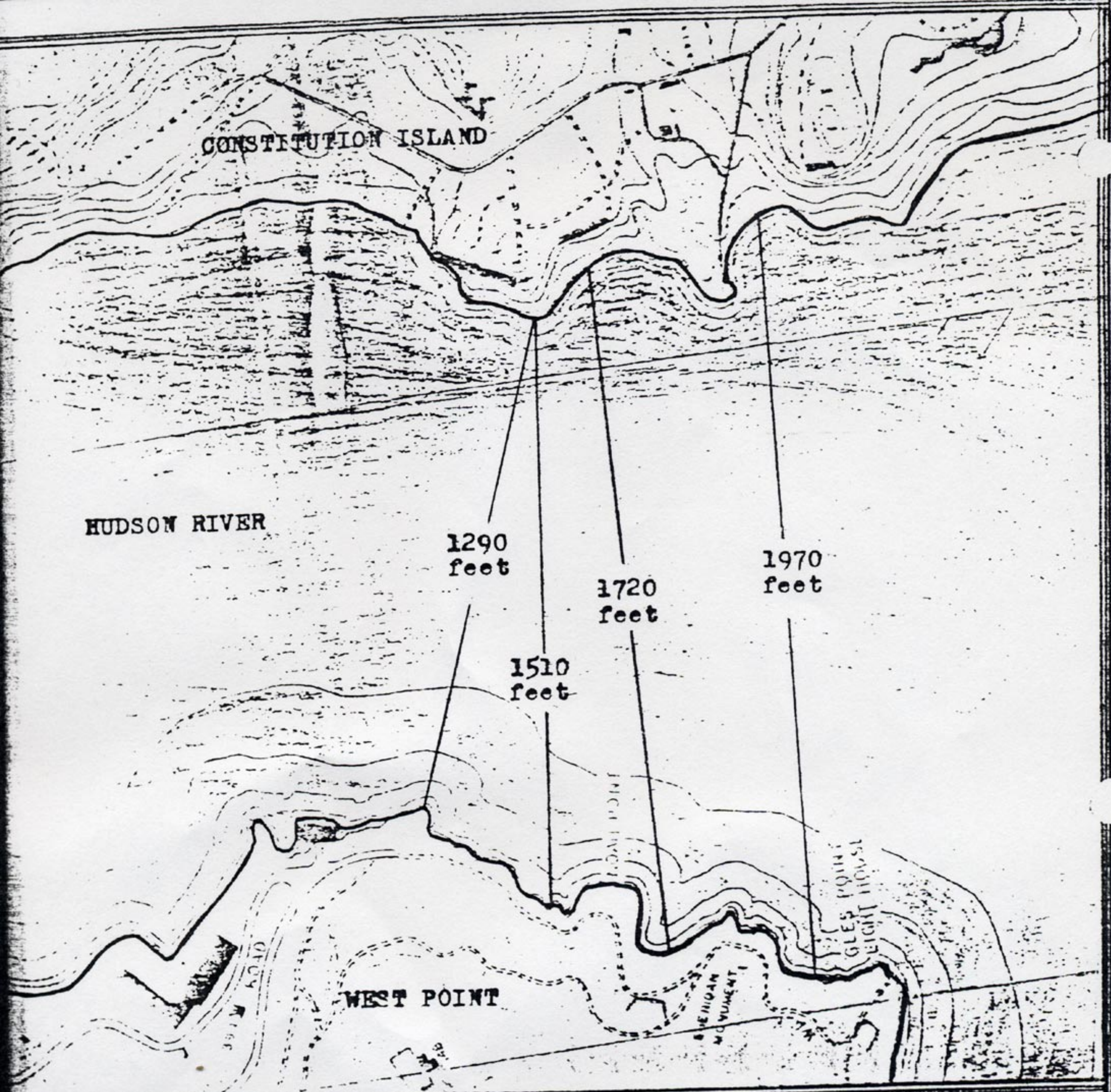


Figure 3

The original contract for the West Point chain called for only 1500 feet but was extended to 1700 when it was determined that there was not enough protection for the chain in the first location. This may have been a contributing factor in the later difficulties with the boom since this forced a new and much wider location for the secondary obstacle. The boom had been intended for use in the Fort Montgomery location as added protection for that chain but was not finished before the British forced their way past. The boom survived to be used in this new area.



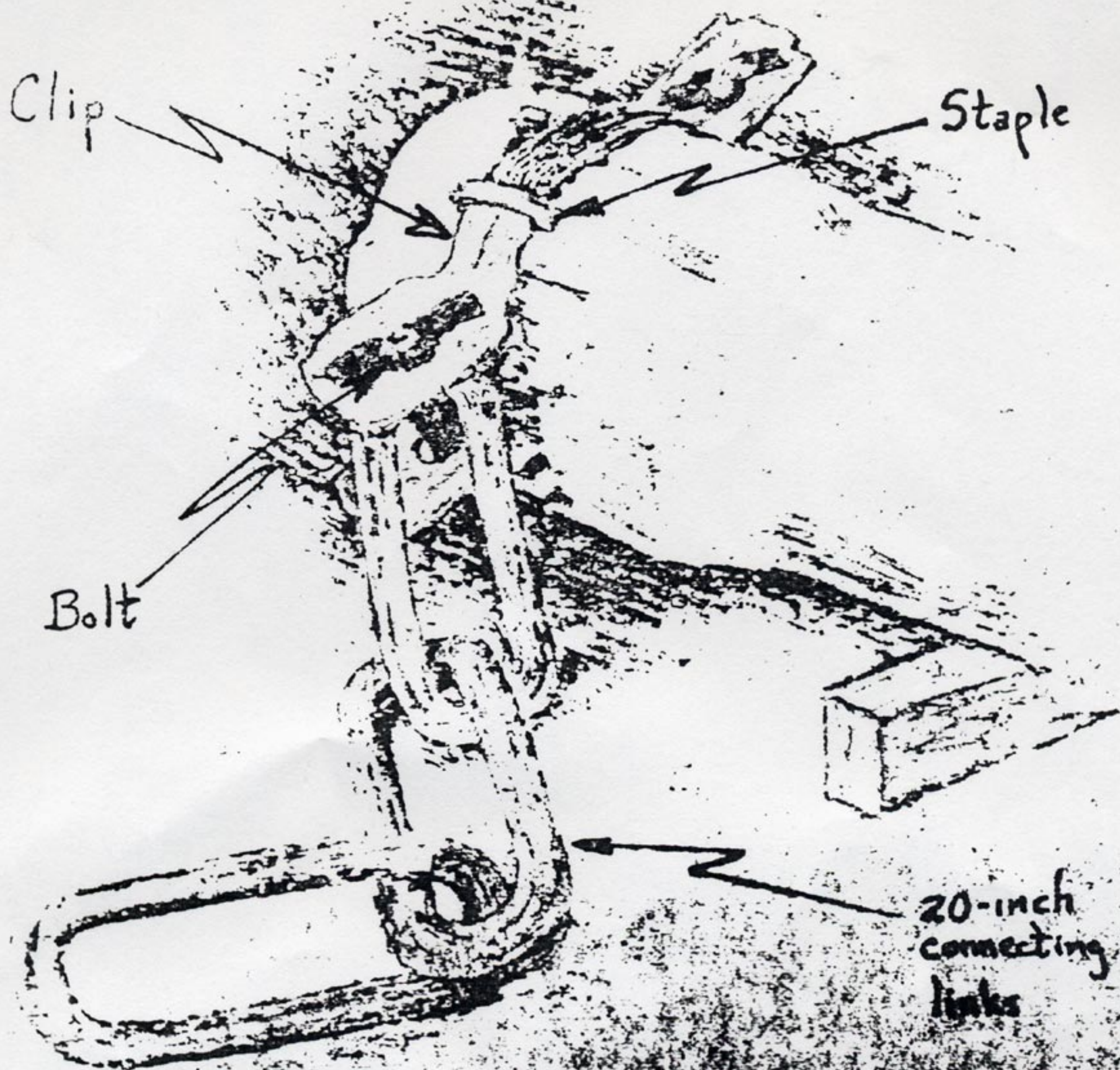


Figure 4

Two logs with iron attachments still intact are on display by the State of New York in Washington's Headquarters Museum, Newburgh, N.Y. They were dredged from the river near West Point in 1855. It is believed that they formed a portion of the secondary obstacle, the "boom" which was intended to protect the great chain by taking the first shock of any ship trying to break through. The probable structure of the boom is shown in Figures 2, 3, 4 on page \_\_\_\_.



1777	No. Clips	No. Chains	No. Swivels	No. Clevises	No. Bolts	No. Bands
Aug 6	24	...	6	...	24	...
Aug 21	24	...	6	...	24	...
Aug 21	20	...	5	...	20	...
Aug 23	...	...	3	6	6	6
Sept 2	16	8	...	...	16	...
Sept 6	12	6	...	...	12	...
Sept 17	12	8	...	...	12	...
Sept 25	12	9	...	...	12	2
Oct 2	...	9	...	...	...	...
Nov 13	22	...	1	1	22	...
Still at the works ..		18	...	...	36	...

112 58 21 7 184 8

One load was sent by the Clove that I have not got the number, clips, etc.

#### Figure 6 14

Boom-iron sent and billed to Thomas Machin from the ironworks of Noble and Townsend known as the "Sterling works" near Chester, N.Y.

1777	No. Clips	No. of Links	No. of Bolts	Weight
Aug 21	27	18	...	1- 0-1- 0
Sept 8	...	11	...	4-0-21
	9	18	...	16-1-21
Oct 2	18	27	18	19-2- 0
	4	14	14	15-0- 7
	6	16	16	15-2-14
	6	18	18	1- 1-1- 0
	6	42	...	15-0-21
	6	24	24	15-0- 7
	6	16	16	18-2- 7
	6	14	14	15-3-14
	7	28	28	1- 0-3- 0
	7	30	...	15-1- 0
	7	28	27	15-3- 7
Nov 1	51	37	22 (At Ringwood)	2- 1-1- 0
	303	276	197	Tons 13-10-0- 7

46 Setts of Clips, Bolts & Chains Compleat  
29 3/4 Setts Clips & 3 1/4 Setts Bolts

#### Figure 7 15

Boom-iron made for Thomas Machin from the ironworks of Robert Erskine known as the "Ringwood works" located a few miles from Sterling and on the New Jersey side of the New York-New Jersey boundary.



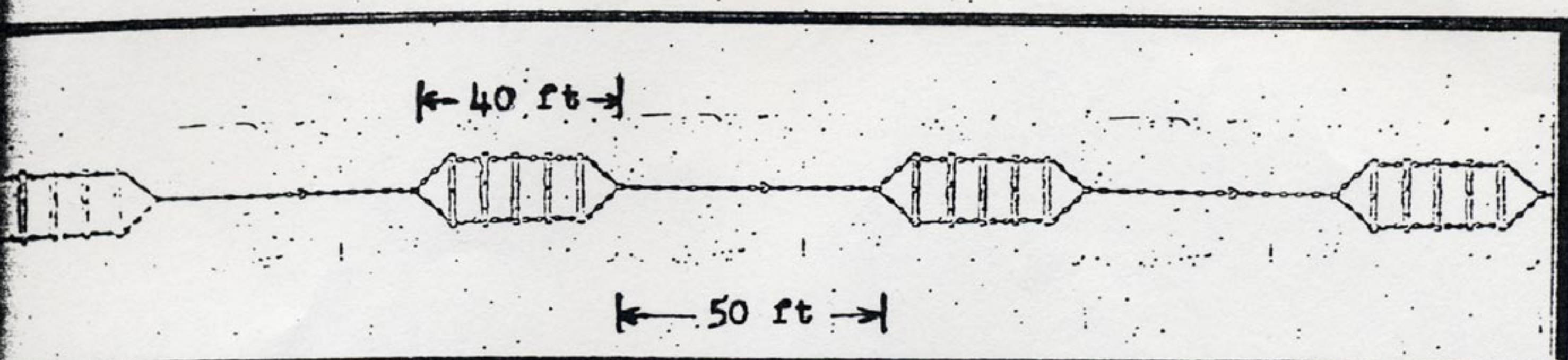


Figure 9

With about 90 feet spanning the distance between centers of the floats for the boom it would have required approximately 20 of the floats at Fort Montgomery but more at the final West Point site.

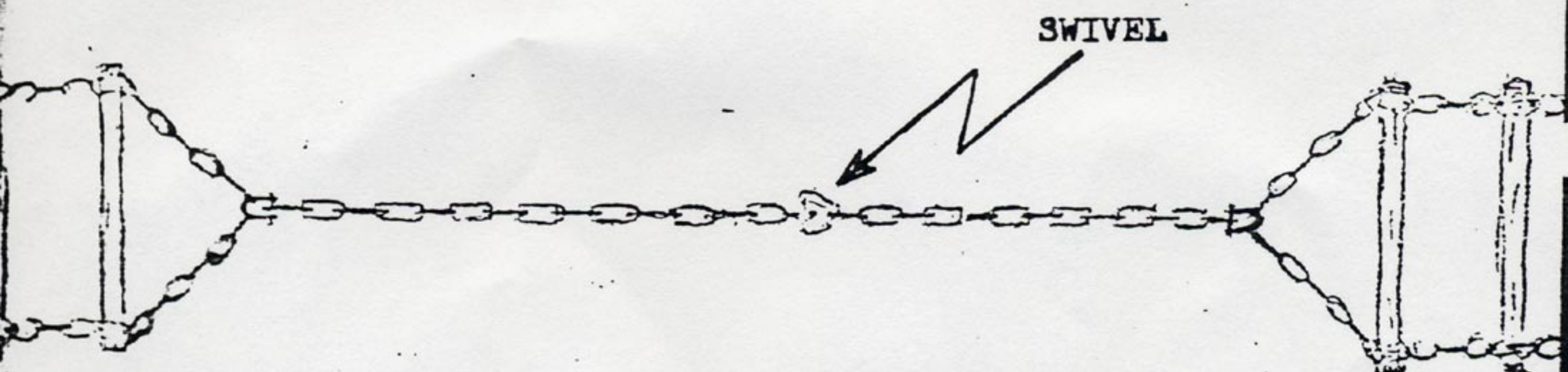


Figure 10

The requirement for swivels in the construction of the floating chains and booms is evident in this figure. The small links between the logs of the floats were about the same length as those between the floats but much lighter due to the difference in cross-section.



### Annotation

1. General McDougall commanded the region of the Hudson Highlands during the winter of 1778-79 with Headquarters at Peekskill, N.Y. Alexander McDougall Papers, New York Historical Society, New York, N.Y.
2. The construction of this first of the Hudson River chains is discussed in detail in Minutes of the Secret Committee, Manuscript Collection, Washington's Headquarters Museum, Newburgh, N.Y.
3. The best account of this fascinating individual's career is found in the writings of Jephtha R. Simms' History of Schoharie County (Albany, 1845) and Frontiersmen of New York (Albany, 1882). Machin's father was a professor of astronomy in London who, at the age of 26, had calculated the value of pi to 100 decimal places. Petr Beckman, A History of Pi (Boulder, 1971).
4. No links of this chain are known to exist as unquestioned originals. Two links are on display at Bear Mountain State Park, Fort Montgomery, N.Y. which may well be authentic. These links bear a strong resemblance to another in Washington's Headquarters Museum, Newburgh, N.Y. which is listed as such in E.M. Ruttenber, Catalogue of Washington's Headquarters (Newburgh, 1874).
5. Ford, Worthington C. (ed.) Writings of Washington, (Washington, 1931-1944) VIII, p. 116 and Sparks, Jared (ed.) Correspondence of the American Revolution, (Cambridge, 1853) I, p. 377.



6. Hastings, Hugh (ed.) Public Papers of George Clinton, (New York, 1899-1914) II, p. 103.
7. A Plan of Fort Montgomery & Fort Clinton, taken by his Majesty's Forces under the Command of Maj. Genl. Sir Henry Clinton, K.B. Survey'd by Major Holland, Survr. Genl. &c. (London, 1779).
8. Roosevelt, Franklin D. Extracts from the log of Dependence Galley, (Dutchess County Historical Society, 1935).
9. The West Point chain was intended to be stretched at a fairly narrow point when the initial planning was done. It was not until the 10th of April, 1778 that a council of war at West Point changed the location to a wider portion of the river. McDougall Papers, op. cit.
10. Brigadier General John Glover to Major General Gates, Fort Arnold, 2 July 1778. Gates Papers, New York Historical Society, New York, N.Y.
11. Map of West Point by Samuel Richards, Connecticut Historical Society, Hartford, Conn. Map of West Point by Thaddeus Koskuszko, New York Historical Society, New York, N.Y. Map of West Point, noted as having belonged to Moses Greenleaf, Massachusetts Historical Society, Boston, Mass.
12. It was an event of some note when the chain was put down or taken up and diarists in the vicinity were quick to note its movement. For instance: "November 30, 1779 This day the chane that crossed the River was removed by hoisting the same whole between boats and was taken to the shore to be laid up for the winter." Journal of William McKendry in Proceedings of the Massachusetts Historical Society, (Boston, 1886) II, p. 477.



13. Published works include:

(a) Simms, Jephtha R. Frontiersmen of New York, (Albany, 1882).

(b) Horner, William N. Obstructions of the Hudson River during the Revolution, (New Jersey, 1927).

(c) Harte, Rufus C. The River Obstructions of the Revolutionary War published in The Connecticut Civil Engineer, (Hartford, 1946).

(d) Palmer, Dave Richard The River and the Rock, (New York, 1969)

(e) Tholl, Claire K. Robert Erskine and the Hudson River Obstructions published in The North Jersey Highlander, (Newfoundland, N.J. 1969). This article does, in fact, question the rope-ladder arrangement for the boom but comes to no conclusion. -

14. Boynton, op. cit. and Simms, op. cit. Boynton cites no source for these supply records but Simms intimates that they were part of a group of papers which he terms "Machin Papers". Many of the papers published by Simms under this general heading have found their way into the manuscript collection of the USMA Library at West Point in a scrapbook entitled The Great Chain.

15. Manuscript collection, Washington's Headquarters Museum, Newburgh, N.Y.

16. The contract for the great chain called for a swivel every 100 feet. Hastings, op. cit., II, 708 & 709.

17. Machin made a map of the Hudson in January 1778 on which he shows remnants of the Fort Montgomery chain in their original location. Sparks Collection, Cornell University, (M546)



18. Obviously this reference to reworking of "the chain and boom iron" does not include the main chain which continued to be used throughout the war and was retained intact until sold by the government in 1830. This seems to be further evidence that the obstacle called the "boom" included substantial amounts of chain.
19. Colonel John Crane commanded the artillery units in the vicinity of West Point at the time of the correspondence and the "Park" was the general term for the location of reserve artillery and the workmen who put the cannon and equipment in order.
20. Due to the severe bend in the Hudson around West Point the term "eastern shore" often included Constitution Island which lies due north of the "point". In other words, we cannot pinpoint the location of the boom at this time simply from the fact that it lay on the "eastern shore".
21. The circumstances of the dredging are discussed in Simms' Frontiersmen of New York, op. cit., pp. 643 & 644 as follows: "In June 1855, the following notice appeared in the Albany Argus: 'Efforts are being made at West Point to raise, by means of Bishop's Floating Derrick, the massive chain which was stretched across the Hudson river at that point during the Revolution, to intercept the passage of the British vessels above that place. Its weight was 500 tons, and it was broken at each end a few years after it was put up, and has remained ever since at the depth of 125 feet.' Under the date of June 29th, following this notice



21. (Continued) thinking some one might make a fruitless waste of time in the search -- knowing that the weight of the chain proper could not have been more than about 40 tons, and knowing also that it was never left in the river over winter on account of frost, and that iron was too valuable in the impoverished condition of the country to allow the chain at the close of the war to be lost -- I stated through the Argus about what the chain must have weighed, and that probably no part of it would be found in the river; that, on the contrary, a portion of it was formerly at the Brooklyn Navy Yard, while much of it had been worked up by blacksmiths, and not a few of its links had gone into antiquarian cabinets. The derrick was taken there, however, and as a reward for the effort, two spars chained together, were raised from the river's bottom close in shore, in 160 feet of water, which serve to show how the boom was made."

22. A log 18 feet long and 18 inches in diameter would displace a ton of water when completely submerged while some 40 - 50% of this was spent in supporting the weight of the log itself. Variations in the type of wood used could change this factor and the logs could not be absolutely uniform in diameter.

23. Each five-log float required the following hardware:

20 Clips @ 50 lbs each = 1,000 pounds

24 Links @ 37 lbs each = 888 "

20 Bolts @ 7 lbs each = 140 "

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Total 2,028 pounds

40 links of larger chain, 20 on either side, would allow the overall width to reach 90 feet. At 68 pounds per link this is 2,720 pounds for a grand total of 4,748 lbs. of iron.