The Windmill

of

Sagamore Hill

A
Part of the Basic Data Study
And Historical Base Map

of

Sagamore Hill

Prepared by:

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Cocoran--Wind Mill and Water Supply

The original windmill at Sagamore Hill was erected by A. J. Corcoran, March 19, 1898:

> I have now had your windmill on my place at Oyster Bay for a dozen years. It has given great satisfaction, and I consider it an excellent investment. For my situation I think it is the best pumping plant, and hitherto the yearly repairs have been entirely moderate.[1]

According to Corcoran, however, the windmill had been in operation since 1884 as is seen in his letter to Roosevelt dated "Thurs 19th Jan. 1905":

> You will remember the old wheel has been in operation since 1884 and doubtless many parts of it if not all will have to be renewed within a few years.[2]

It is apparent from the attached letters of A. J. Corcoran that the Sagamore Hill water system was not functioning properly in 1905. Corcoran obviously considered the system antiquated and inadequate for the family needs. In a letter to Roosevelt, January 19, 1905, he strongly recommended putting in a new system with work involving:

1. Removal of present windmill and tower.
2. Erection instead of a tank and supporting tower and windmill connecting it with pump then in operation--providing necessary fittings.
3. Provision and installation of tank to have a capacity of 40,000 gals, Corcoran pattern, "regularly made with

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heodore Roosevelt Papers, Lib. Cong. Letter Book Series II, - April 8, 1898, 4 Part Two, p. 585.

2. Ibid., Series I, Box 86. This would seem the more likely since the house was finished in 1885 and the stable and lodge were built before that.

iron bands, adjustible lugs, draw-rods and friction plates."

4. Supplying and installing "gauge for tank for showing depth of water at all times."

5. Construction of foundation and iron anchorage for support of tower.

6. Construction of tower to sustain tank to be 42' in height from ground line to tank-platform," truss-pattern and iron fastened, timber used to be of Georgia yellow pine, Savannah merchantable grade, dressed and primed with paint (color to be selected) tie-rods and bolts to have cast washers under heads and nuts, ladder to lead from ground-line to platform, thence to top of tank and to bottom inside, roof over top of tank regularly made and fitted, frame-work for support of windmill fitted in tank, all joints with tank made water-tight, no outside covering nor ornamentation but structure to be strong enough in every particular to sustain a tank filled with water (the gross weight being about 200 tons) and resist any pressure brought upon it by wind strains and the working of the windmill."

"All necessary pipe and fittings provided and put in place connecting with the existing system including ball valve in house tank for controlling flow from new tank."

7. Materials and labor--$3,786.00[3]

Corcoran further pointed out that the old wheel should be "thrown aside," to be replaced by his new and improved wheel with a diameter of 22'6". The cost of the new wheel was $840.00 but to make the work complete he would provide a special rebate so that the windmill of the proper size would cost only $462.00 The entire cost would thus be $4,248.00.

In a letter to Seman (Roosevelt Foreman) the next day, Corcoran

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3. Ibid.

furnished further justification for his proposal:

> First and most important is the question of water. The new windmill would run when the old would stand still and /that/ is what you want it to do so that it will take the water as fast as it accumulates in well. The mill is fitted so that you can make it work at a speed to pump just the quantity desired and you will always have a surplus for use in light winds.
>
> Again, the old windmill as you know has been in service for a long time. The main-frame or pivot upon which the mill is mounted is badly worn at the neck where it turns and at any time might during a NW wind cut out there. If this happened that might cause a delay in repairing it for I have not made a mill like yours in nearly twenty years.[4]

Shortly upon the receipt of the letter Roosevelt replied January 25:

> Seaman has sent me your letter. Any work you do is always excellent, and I know the arrangement you propose to be satisfactory, but it represents more money than I care to spend. Could we not arrange to have necessary repairs made to the wind mill and then have a great tank substituted for the small tanks now on the eastern porch outside the laundry? Would not a 20,000 tank do? How many gallons do the present tanks contain? Could you let me know about what the cost would be to repair the wind-mill and put this big tank on the porch in question in place of the present small tanks? then if a calm came we could by hand pump up the necessary water from the reserve tank, while in ordinary times the wind-mill itself would do the pumping. We could put on your new wind-mill, with this tank. I take it the old tower would answer if this was done, would it not.[5]

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4. Ibid.

5. Ibid. Series II, 1904-1905, Dec. 26-Feb. 3, Letterbook 53.

On January 28 Corcoran replied at some length analyzing the limitations of the water system and setting forth two other proposals for its improvement:

Dear Sir:

I have your favor of the 25th inst and in reply beg to say, an explanation of the proposed work requires writing at some length.

When making my estimate of the 19th inst I carefully considered the conditions in connection with your water supply as it exists, and the fact is that you are limited as to the quantity to be obtained, that is, you have a well which yields much below the average, and it has been demonstrated all along the range of hills from Roslyn to Port-Jefferson that if you strain the well by trying to obtain more water than the natural flow you also get running sand and comsequently ruin the well.

In such case a new well must be constructed, the work requiring from three to five months, its depth from 500 to 800 ft in order to tap the proper stratum. I am able to mention a number of such instances which occurred on this chain of hills if necessary.

This being a condition, I proposed a large tank in order to store all the water to be had when it could be pumped. The increase in size of windmill was suggested because the larger windmill will run during the lightest wind, also, with the intention to obtain as nearly as possible a small but continuous stream from well to tank.

Under the circumstances I should not dare to use a pump proportioned to the power of proposed mill preferring present pump worked by a long slow stroke, and with this end in view I advocate the 22'6" diameter wheel. To show my feeling it a necessity I quoted a price for it less than it cost me to make and erect but I wish you to have one of the best outfits in the land for there is nothing too good for you.

I have made two more propositions to meet your suggestions - the No. 2 to furnish a tank containing 20000 gallons and combination tank and windmill tower, similar to my Fig 151 placed over the well and high enough to supply tank in upper part of dwelling, with the old mill - proposition No 3 to be same as No 2 except that the new mill is to be used.

Now - as to repairing old mill - I can do this and will if you so instruct but I dislike doing anything which may prove to be a waste of time and money and which I can not warrant absolutely when completed.

The present skeleton frame-work will not support the proposed new mill. All such frames are made in proportion to the size and power of the windmill they are intended to carry and the new mill would have more than double those of the old.

As to the tanks in your dwelling - the upper has capacity for about 600 gallons - and the two on the porch combined contain about 6000 gallons - the latter having been a cause of annoyance if I may say so since the start because the 6000 gallons should have been available for the family rather than for laundry use, for one can send one's laundry out. I often wonder why the architect should have planned so scanty a supply for the house and I do not know another so small a tank for such service except where it is filled from the city main. Mr. Rich is putting up a small shack on the South Side for his own use and has purchased a tank to contain 3000 gallons placed high enough to supply the wants of the family.

As to putting a tank to contain 20000 gallons on the back porch - such a tank regularly made will be left in height by 16 ft bottom diameter.

Your present tanks are about 8 ft diameter and fill the oblong space. There is not sufficient head-room for the regular 16 x 16' tank and it would be necessary to tear apart some of the building to erect it. Even then it would project outside 7 ft and require a foundation for its support.

If the tank is to contain 20000 fallons and made in height so as not to disarrange the house it will have to be at least 21 ft in diameter, projecting 12 ft outside and requiring a large foundation as well as moving the ice house. If this plan is adapted, unless you make some change in the house to cover it, I am of the opinion it would always be an eye-sore - and further - practically, it would mean a large outlay of money without providing a remedy for the trouble in the house supply. In fact you would be none the better.

Concerning hand pumping - this is hard work - 1000 gallons of water weighing say four and one-half tons-

and to elevate this quantity every day or oftener is a task. As you are aware, times have changed and men are opposed to hard work. If you decide to do this I fear you would have to put an engine in the house later and the tank is so small that the man in charge would occupy more time in starting the engine than filling the tank.

If however you would prefer the 20000 gal. tank at rear of house I will send my engineer to take measurements for the work and report probably cost of tank and foundation under such conditions.

I have written as to these matters without reserve for it is important to commence right, avoiding alterations.

I am now erecting a tank and tower for D Fairfax Bush at Glen Cove to replace an outfit completed two years ago. The work proved thoroughly unsatisfactory and it had to be done again.[6]

Proposition No. 2

Furnish and erect at Oyster Bay LI NY on the Roosevelt property - including -

Tank - to contain 20000 gallons
Gauge for tank
Foundation and anchorage
Tower - 42 ft from ground line to bottom of tank
Pipe and fittings - and the
Old windmill

other material and conditions generally to be as stated in proposition dated 19th of January 1905 (No 1) price to be twenty-five hundred and eighteen 50/100 dollars - $2518.50

or

Proposition No. 3

If you conclude to use the new and larger windmill with the above outfit I am prepared to furnish and erect it as proposed in my estimate of the 19th inst and make same allowance from regular price as quoted therein so that extra cost to you will be four hundred and sixty-two dollars - $462.00 [7]

6. Theodore Roosevelt Papers, Series I, Jan. 26 - Feb. 20, 1905, Box 57.

7. Ibid., Series I, Jan. 26 - Feb. 20, 1905, Box 87.

The size, character, appearance and location of the windmill of Sagamore Hill can be rather effectively determined from the five attached photographs:

1. Looking south by east showing north side of Sagamore Hill with the windmill to the left center of the photograph.

   Note: Though no date appears on the photograph it can be roughly dated as being prior to March 1905 when construction was started on the North Room. It would further appear that this was the original windmill erected according to Roosevelt in 1886 (letter to Corcoran, March 19, 1898) or in 1884 as stated by Corcoran (letter to Roosevelt, January 19, 1905).

2. Looking south showing what appears to be the same windmill and tower as that shown in No. 5 with the exception of the damage to the wheel.

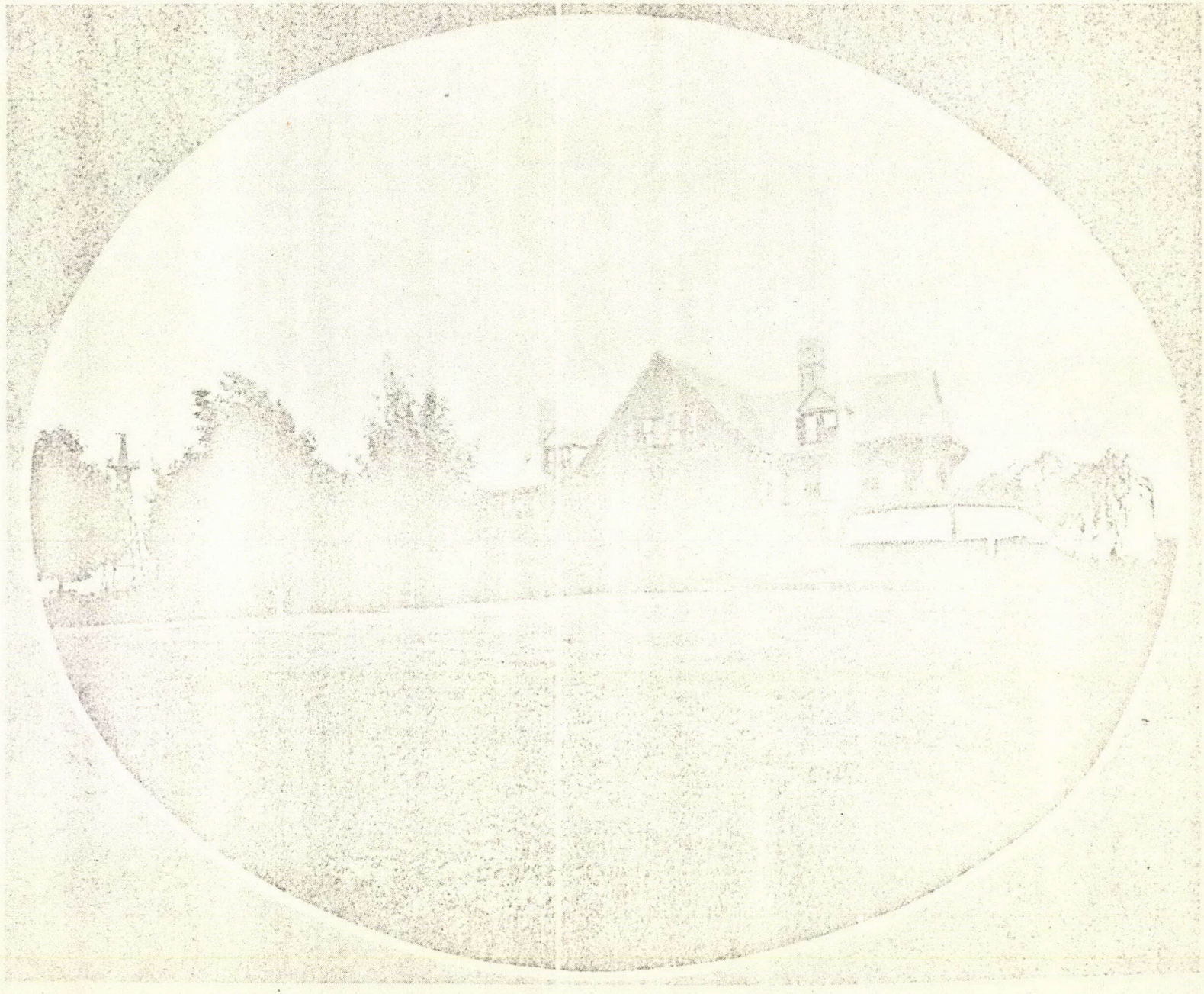
3. Photograph showing close up of foundation section of tower. "Archie" Roosevelt is shown standing on part of the superstructure. Corner post appears to be 6" x 6" and bracing 2" x 10".

4. Looking south showing in greater detail foundation structure of the windmill "Archie" and Quentin, two of the Roosevelt children are seen on the structure. Note in lower left corner embedded timber to which superstructure is bolted. Also note concrete well cap and windlass.

5. Looking southeast showing in practically full detail the appearance of the windmill and tower. For greater structure and foundation detail see photographs Nos. 3 and 4.

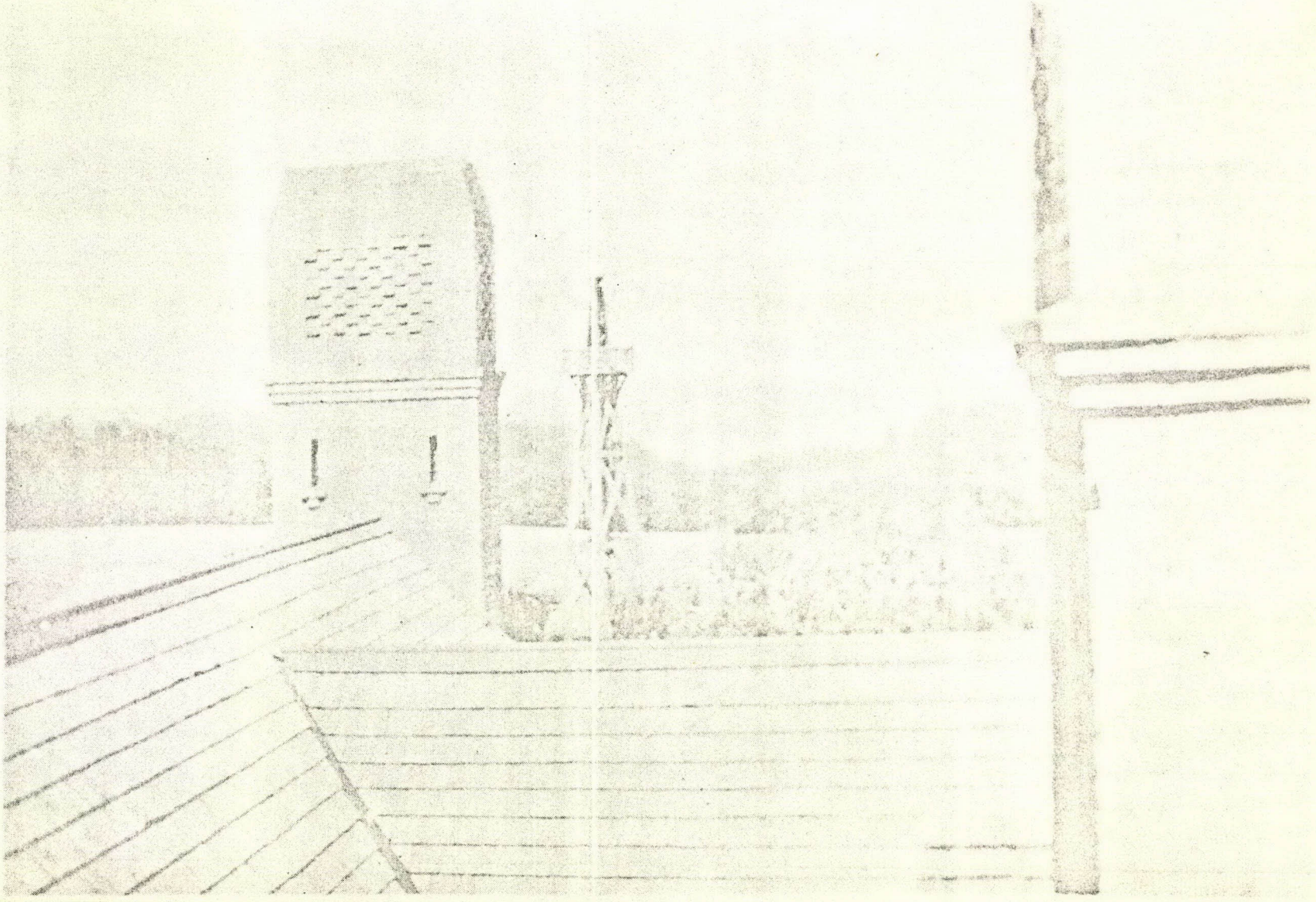
Photograph No. 1

Looking south by east showing windmill to the left center of the photograph. The photograph shows the north side of Sagamore Hill prior to the erection of the North Room in 1905.



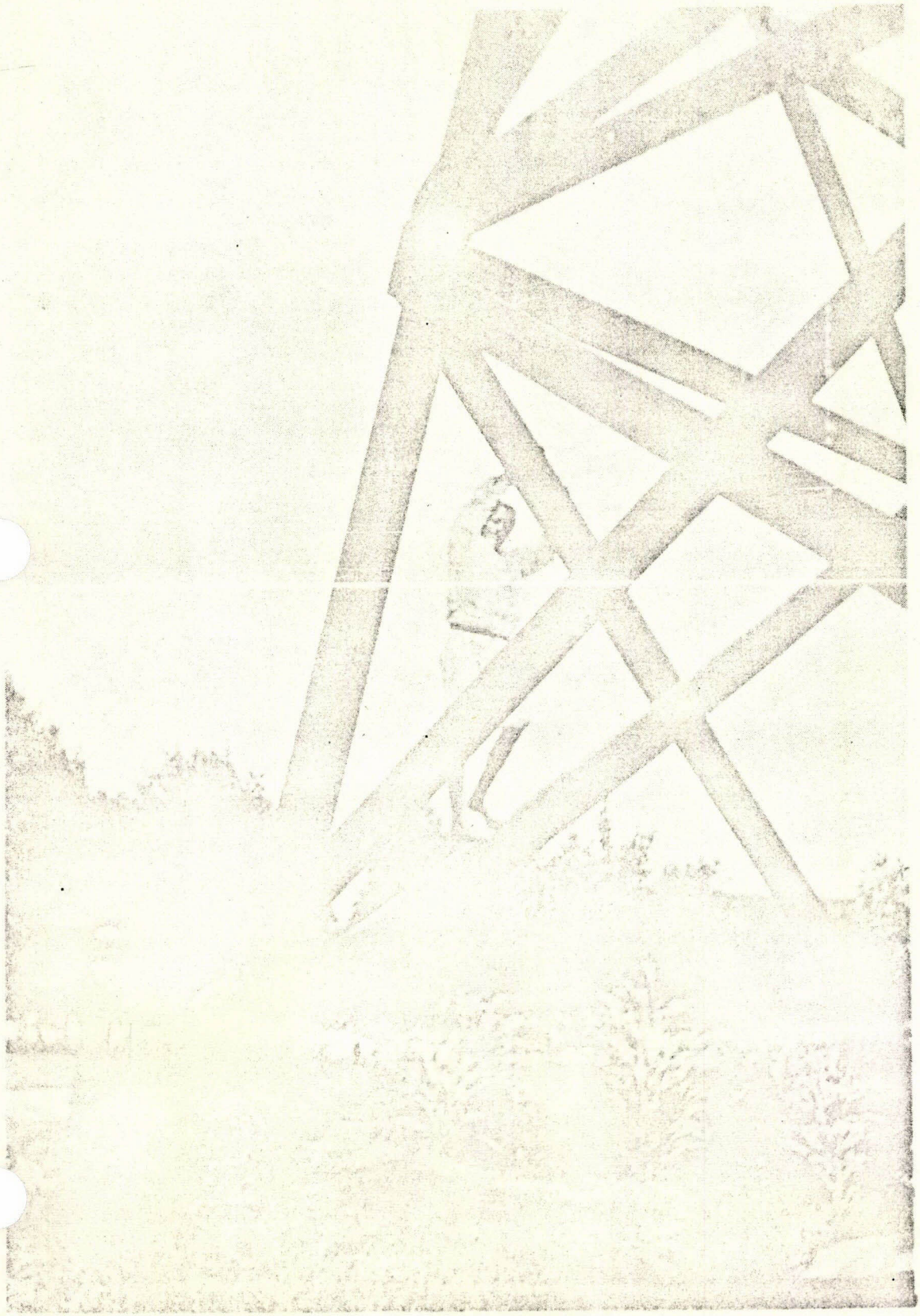
Photograph No. 2

Looking south showing upper part of windmill. Lacking clarity of detail it would nevertheless appear that the left center section of the wheel has been damaged.



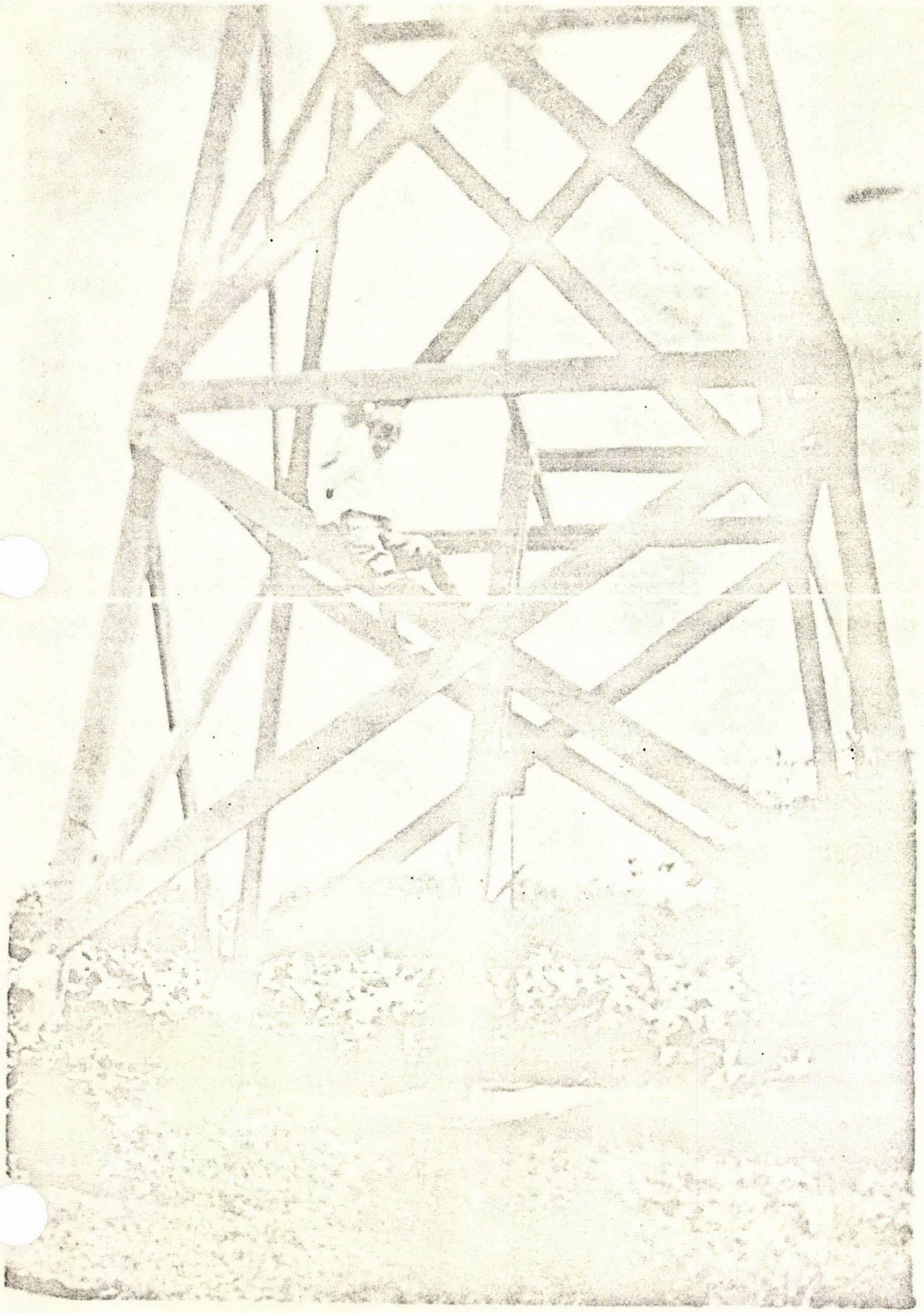
Photograph No. 3

Apparently looking southeast showing close up of foundation structure of the Sagamore Hill windmill tower. Note the manner in which the 6" x 6" x 2" x 10" framing is bolted into imbedded timbers. The boy shown in the photograph is Archie Roosevelt.



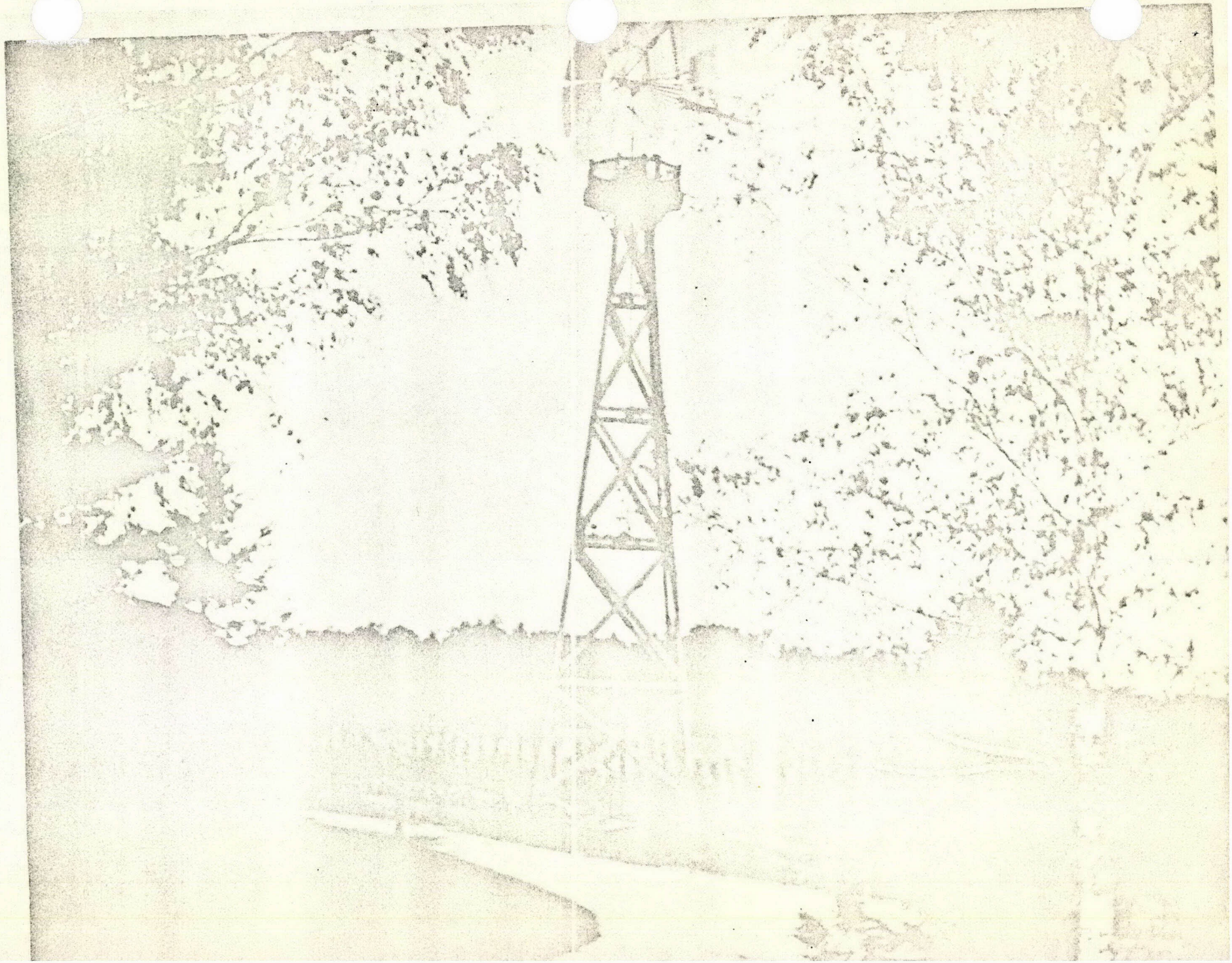
Photograph No. 4

Looking south showing further foundation detail of the Sagamore Hill windmill tower. Note the concrete well cap and windlass. The two boys here shown are Quentin and Archie Roosevelt.



Photograph No. 5

Looking southeast showing the reconstructed windmill at Sagamore Hill erected in 1905. See photographs Nos. 3 and 4 for foundation structural details.



A comparison of photographs Nos. 1 and 5 would seem to permit the following conclusions:

1. They are not the same windmill structures. No. 1 is the first structure antedating March 1905 and No. 5 is a subsequent structure.

2. There are apparently four structural sections in No. 1 while there are five such sections in No. 5. Thus No. 5 is the later and taller structure.

3. The estimated height of the tower in No. 5 is approximately 60 feet based on the man shown in the photograph whose height is estimated at 5'8". Using the same scale it would appear that the wheel was about 22'. If Corcoran put it in it would have been 22'6" for that was the size he recommended and sold.

Though no further documentation was found relative to the choice osevelt made relative to the three alternatives proposed by Corcoran in regards to the size and location of tanks it would appear from photograph No. 5 that he did decide to purchase the new improved wheel with a diameter of 22' 6" and a new tower.

We therefore recommend that photograph No. 5, supplemented by photographs No. 3 and 4 showing structural detail, be used as the guide to authentic restoration of the Sagamore Hill windmill.

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PICTURES TAKEN FROM LOCATION "A" "B" ETC.

ROOSEVELT MEMORIAL ASSOCIATION

"SAGAMORE HILL"

COVE NECK OYSTER BAY.

GREAT AMERICAN INS. CO.

Incorporated Village Of

COVE NECK

Town of Oyster Bay,

Nassau County, N.Y.

Scale - 1 in. to 200 ft.