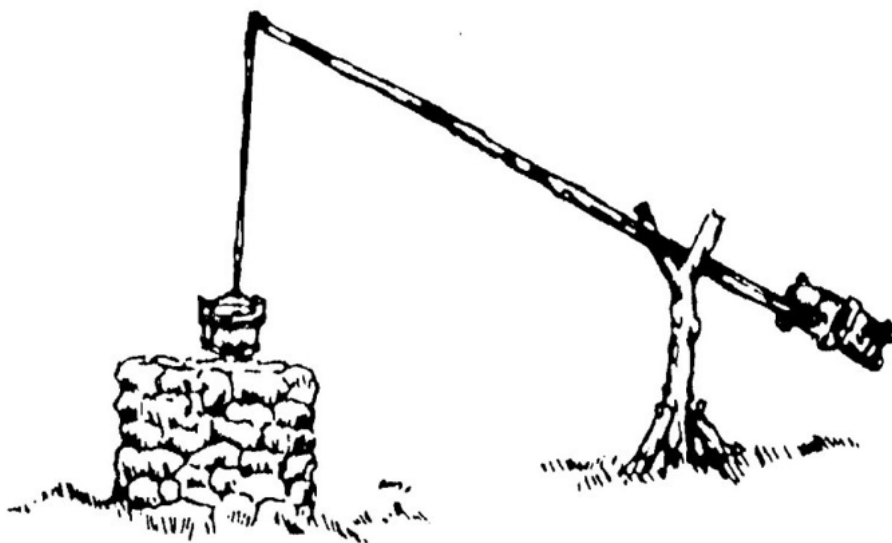


Then & Now - Development of Water Systems in Princeton by Richmond S. Hamilton - 1975

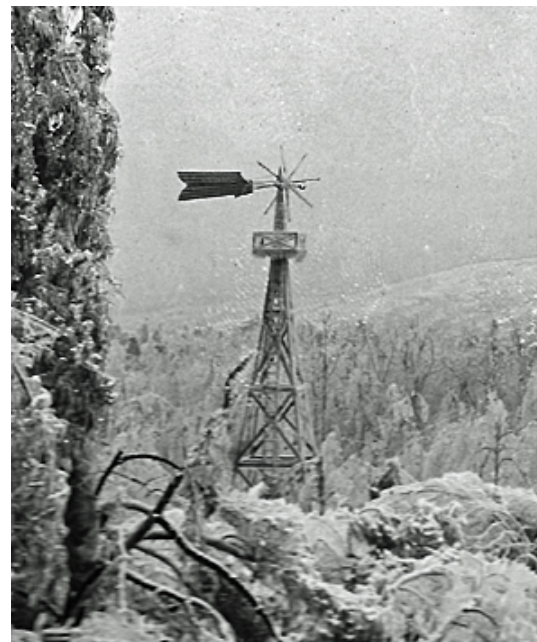
The first settlers of Princeton only had access to spring or clear brook water. Lucky was the settler, who had a spring at a higher elevation than their house. Because once pipes were available, they could run water by gravity into their house or barn.



The resident who had to dig a well near his house had to use a [well sweep](#); many are still around used as antique ornaments in their yard.

Before going on to other types of water supplies, I would like to name a few of the more popular springs in Princeton.

- The Dr. Lewis spring on west side of 85 Merriam Rd. , which did not come into its own until the days of electricity.
- At 33 Allen Hill Rd., as part of the Allen Estate, there were 3 windmills which pumped spring water into a cistern into the attic of the main house, and supplied water by gravity to houses as far south as those owned by Russell Brickey (44 Hubbardston Rd.), Philemon Sturges (46 Hubbardston Rd.) and DeWolf Perry (48 Hubbardston Rd).
- The East Princeton spring that supplied half the village of East Princeton with running water as well as the watering trough for horses, located at the top of Mill Hill.
- There was also the Skinner spring, now called Ikalainen spring, this did not supply any houses, but made another watering trough half-way up the hill on East Princeton Rd. just before the

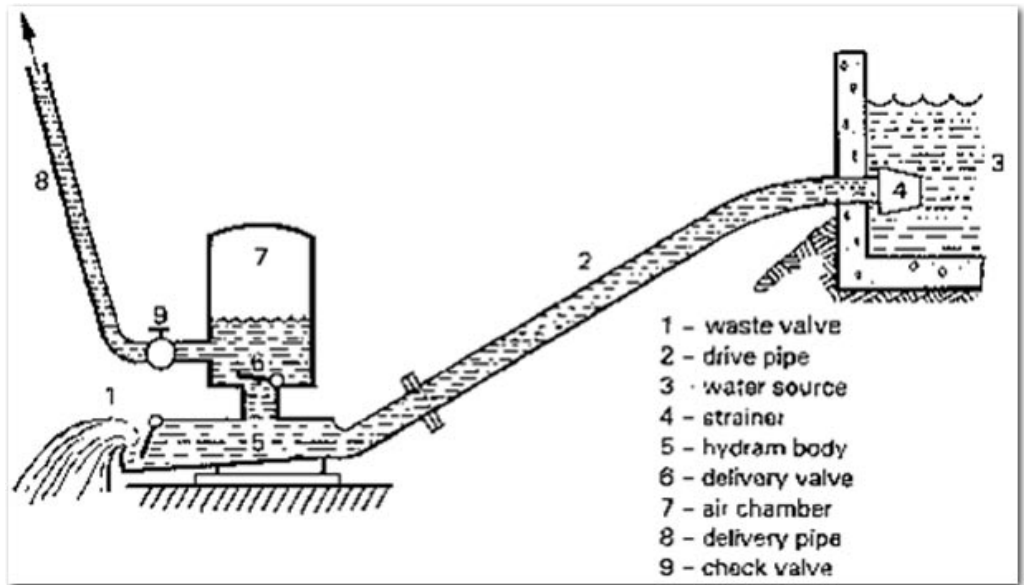


Allen Estate Windmill 1908 Ice Storm

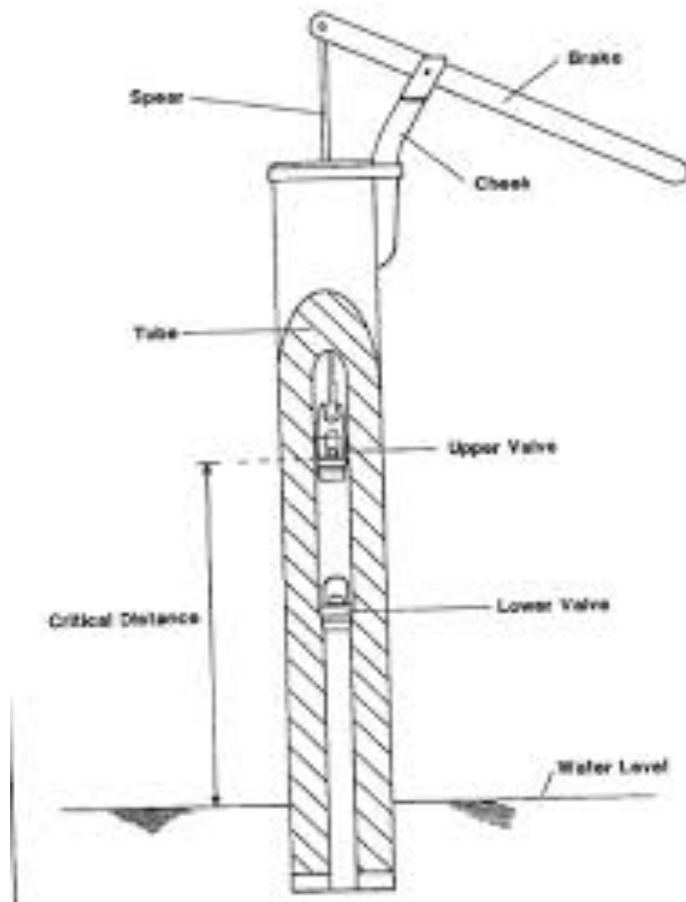
junction of Mirick Rd., where both man and beast could get a drink of cold clear water.

- The spring at the Stone House or present Washburn place on 264 Mirick Rd., supplied both the Stone House and the next house on the opposite side of the road, known as the Al Rice house.
- At the house currently owned by Mr. & Mrs. Wooten on 133 Beaman Rd, the spring in the early 1930's, a new pipe line was laid by the Lion's Club, who at that time ran a day camp for the Lion's Club Members of Worcester. There were many more springs, some just as good, but too numerous to mention.

The [water ram](#) or as some called the water waster - the principle of the ram was that it took a lot of water to run a box, which was a series of valves that was operated by the power of the brook to pump a small amount of water into an open tank. The only one worth noting was the



one in the brook at Brook Station Depot. This kept a 10,000-gallon water tower full of water that supplied the steam engines on the Worcester-Peterborough branch of the Boston & Maine Railroad. The ram never became popular because the conditions that would operate one near a set of buildings were few and far between.



The next development in pumping water was the **wooden suction pump**. The part above the ground was a square wooden box, 4-feet high and 8 inches square with a handle and a spout. The suction pipe also was wooden. This pump had a top and bottom box, or valve. The top box was connected to a small iron rod. The bottom box was stationary, as the pump handle was raised to its full height the valve in the top box opened and the top box was lowered to an inch or two to the bottom box, as the pump handle was pushed down the valve in the bottom box opened trapping the water in between, and the process was repeated, water came out of the spout. This was the simplest form of pump. The last pump of this kind in Princeton was at the George Mirick place at 160 Mirick Rd.,

which is still family owned. Whether it is still in use now, I don't know.

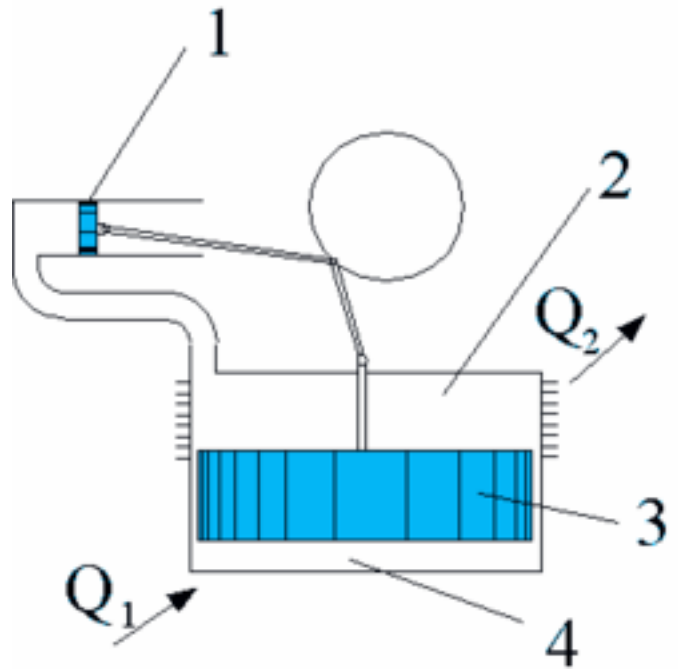
This pump was able to lift water approximately 24 feet. The next step was to force water higher, for example to an open tank in the attic. This was done with a series of valves in a water tight container, these opened and shut as the water came from the suction part of the pump. In this manner water could be forced to almost any height, depending on the amount and type of power. The first forced pumps were manually operated either by a T handle horizontal combination suction and forced pump, the other was a more common vertical pump. Both performed the same function to first suck the water, then force it to the height desired.

After this, man began to look for a new source of power to run the pump. This brought in the wind mill which has been a source of power in Holland and Denmark, not only to pump water but to grind grain, etc.

The wind mill became very popular in Princeton from the late 1800's and early 1900's. The first wind mills, the super structure was made of wooden beams, and the blades and gears that changed the whirling direction of the wind mill to an up and down motion which was connected to a rod of the type of forced pump already described. There were many wind mills in Princeton. In the 1920's, when I first started working on them, the wind mills had already begun to disappear in favor of the gasoline driven

engine. The wind mills that I remember best are the ones that I worked on. There was one at the A. George Bullock place on ??Rd., one at the Gregory Store that pumped water to both the store and the Josiah Gregory house at 2 and 4 Mountain Rd respectively. These both were iron. There were 3 wooden frame wind mills on the Allen Estate, but the one at the summit of Mt Wachusett was the one I remember the best. The wind always blows on top of the mountain and anyone working on the tower was lucky to hang on, let alone do any work. There probably were dozens more that I never worked on or remember.

At the same time, as the wind mill, there was a **warm air engine** in Princeton, this had many advantages over the wind mill. First, you did not have the unsightly tower in your yard, and its operation was very simple. It stood about 4 feet high, outside about 16 inches in diameter and a piston about 7 inches. Of course, it had to have a flue connection. It had 2 heavy flywheels on either side. A fire was built in a small fire box directly under the piston and as the air became heated under the piston the heat expanded the air, you gave one of the flywheels a push and the hot air pushed the piston up and was exhausted into the air, at the same time a valve closed at the bottom which as the piston reached the bottom by the momentum of the heavy fly wheel the cycle was completed. I don't remember the name or make of this pump, after considerable research I found that M.I.T. has a museum of antique pumps. The



Gregory Store Windmill Left Above Rook

Princeton version was not among them. After considerable reading I am convinced that it was a variation of the Sterling pump, manufactured and sold by Lord Sterling in England. Further reading of warm air engines I found a description of the Princeton pump, this was manufactured by a man named Erickson, a

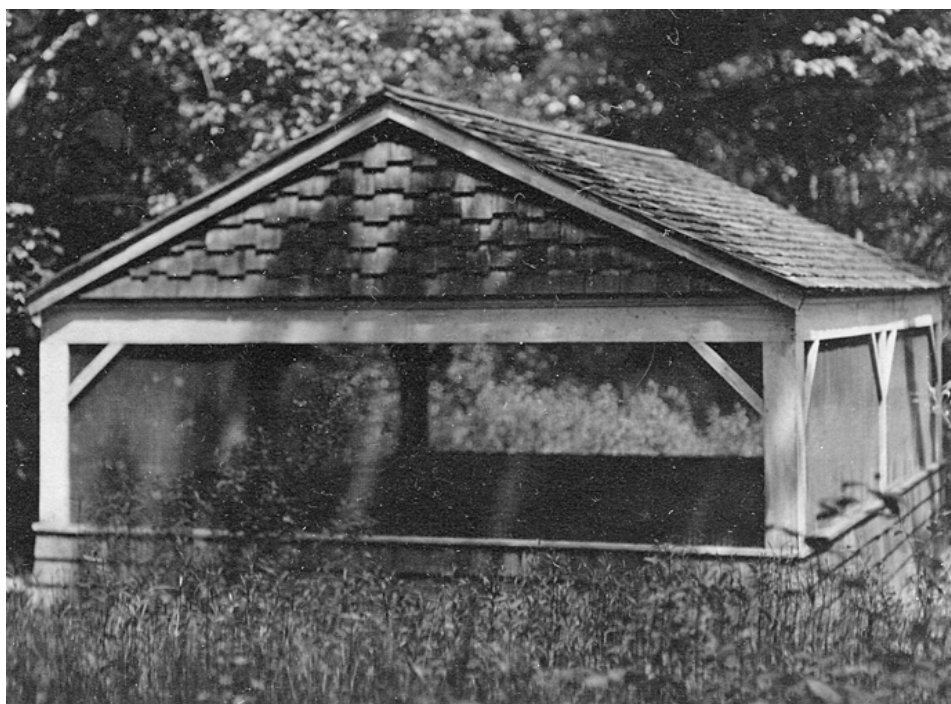
naturalized Englishman, so these pumps must have come from England. It really was a refined Sterling engine of low power, just enough power to pump water. The ones I remember best were at the Sturges on 46 Hubbardston Rd, Raymond Gregory on 4 Mountain Rd., McIntire, Chapley and Alexander Bullock on 26 Bullock Lane.

With the coming of electricity, about 1914 or 1915, big advances were made in well drilling equipment, water systems rapidly became simpler. The first artesian well pumps had to be placed close to the house in a pit. This is because the first artesian well pumps were just a variation of the old windmill pump, with a cylinder of the pump placed down the well, and operated by an electric working head that had to set directly over the well, and the electric working head took the place of the old wind mill. The pump pit was covered by a man hole cover which allowed the rod to be pulled up and the boxes releathered. About the same time the pressure tank and automatic switch was developed. This eliminated the open tank in the attic, and really became the first fully automatic system. From here on, pumps developed rapidly.

The **jet type pump** was really a variation of the old water ram, where a lot of water was pumped down a big pipe forcing a small amount of water into the pressure tank. With this type of pump, the well could be placed anywhere as the rod did not have to be re-leathered.

Next came the sub-merger pump, the one which most modern home owners are familiar with. Here again England seems to lead the way as they made the first sub-merger, and now they are made by several companies in this country.

Before we close this discussion, two systems that are peculiar to Princeton. Number one, the Dr. Lewis spring system that pumped from his spring, located in the valley close to the Frank Skinner house on 85 Merriam Rd. This water was pumped into a large wooden tank, just below the Washburn house at 30 Mountain Rd., just above the Congregational Church, although it was only for summer use, at



Dr. Lewis Spring Merriam Rd. Across From the Old LaPorte's Bus Co.

one point, about 20 customers got their summer water supply from this source, also a 2 inch line was laid in the ditch from the Dr. Lewis place to the Gregory Store, on this line besides the customers were about 5 fire hydrants, which were merely a nipple and elbow with a hose connection and cup, this system was a laugh to city people, who were used to modern fire hydrants, as a matter of fact the only fire equipment the town had was a hand drawn, hand operated pump.

After the Princeton Inn near the Gregory Store on 8 Mountain Rd. burned, the town bought its first motorized fire truck, a Reo truck, hard rubber tires with a 3-piston pump, mounted on back. The old hand pump was sold to Goddard farm at 113 Goodnow Rd. (Wachusett Meadows), where Paul Beardsley and I rebuilt it into a spray rig, it may still be around.

Long before the Dr. Lewis system, the John Brooks family, later known as the Goddard (Hillside Farm) on 25 Worcester Rd. built a large cistern under the common and collected roof water from the Town Hall, Library, and the Congregational Church, this was piped below the frost line to the Goddard house, this was done some time during the late 1800's. There was a high enough elevation to run water to the second floor of the Goddard house. It might be interesting to note that before this was put in, the Goddard place was the only place where there was a three decker "Chic Sale" in the house (Indoor privy, one above another).



1915 Goddard/John Brooks Farm called Hillside Farm 25 Worcester Rd.

Updated in 2022 to better identify locations by using current house numbers and adding images. William "Bud" Brooks

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We would love to hear from you at, princetonmahistory@gmail.com