(Editor's Note: This year is the 150th anniversary of the invention of the fish hatchery by Seth Green in Caledonia, New York. Allen Mac, the manager of the Caledonia Fish Hatchery, reported that the 150th anniversary of the first fish hatchery in America was observed on August 4, 2014.)

Fish hatcheries and fish farms are found all over the world today. They are used to breed and grow fish to be released into streams, ponds, and lakes in nearly every nation. Some fish are bred and grown and go directly to the market. Fishing may be considered something of a rural activity to those who live in cities, but there was a time in the mid-19th century when depletion of many species of fish in lakes and streams was a major problem that affected everyone no matter where they lived. Fish was a major food source and since prehistoric times, the only way they could be obtained was by either spearing them, angling with a rod and reel, or by using various types of traps and nets. Fish breeding was relatively unknown or was only a mild curiosity. Several people toyed with the idea, but no one had experimented with actually growing fish more than Seth Green. In fact, he mastered it and turned it into a major world industry. His observations of fish in the wild caused him...
to move from fish catching to fish hatching and made him world famous as the father of fish culture.

While attending Finger Lakes Community College in Canandaigua, New York, I had the privilege of taking fisheries technology classes with Professors John Faust and Frank Smith, two of the most educated individuals of fishing techniques I have ever known. They introduced me to many various fishing methods that I never would have known otherwise. Professor Faust gave me the opportunity to try fishing with a “Seth Green” rig, which is five flashy hooks on a single, heavy-duty pole, resulting in higher productivity because five different strata in the water column are targeted at the same time. Although my luck was not good that day, I was impressed enough to want to know more about Seth Green.

Seth Green became internationally famous and was known as the “Father of Fish Culture.” His invention of the fish hatchery repopulated the world’s waterways and made fish an economical food for millions.

Green was born on March 19, 1817 in a cabin in a heavily wooded area near what is now the corner of Culver Road and Empire Boulevard. His father, Adonijah, was one of the only farmers living in the town of Irondequoit at that time. Seth grew up an average country boy, with a deep love for the woods and streams. A friend of his said that Seth took to fishing like a duck to water. He was a true angler and made his own hooks from pins. In fact, Seth’s hooks were so well made, that his friends would trade two of their store-bought hooks for just one of Seth’s homemade ones. Seth also learned farming very early and learned how to sow wheat and corn. Seth befriended some local Seneca Indians, and from them he learned many secrets of hunting and fishing. He became a capable trapper and his father could depend on Seth to bring in plenty of small animals and fish for dinner. Hunting together in the forest, father and son would also bag larger game such as deer, wild hogs, and even bear.

As successful as they were, Adonijah was ambitious and wanted to leave the area that was then considered to be wilderness, for bigger and better things. His wife, Betsey, had grown weary of living in fear of wolves, wild cats, and rattlesnakes that lived in the area in those days. The family moved, but not too far away, to what was then the village of Carthage, located by the lower falls of the Genesee River, three miles north of downtown Rochester. Ships that were laden with goods bound for Canada would leave Carthage and then return with Canadian goods. Adonijah opened a tavern called the Pavilion and the family enjoyed comfort and prosperity until 1837 when a financial panic hit the area, severely affecting the economy of the village.

Seth had learned much about fishing on the Genesee River and decided to make it his trade. As a boy, he had sold the fish he caught to local ships and crews that docked at the port near his father’s tavern. By the time Seth was twenty, he had started providing for himself so well that he decided that fishing would be his trade. He loved his rod and reel dearly and, through fishing, he learned more than just how to fish; through observation he acquired special knowledge about fish which distinguished him from other anglers along the banks of the Genesee.

When he was twenty-one years old, he was fishing on the shore of Keeler’s Creek, a small stream 30 miles north of Coburg, Ontario and saw something peculiar going on with the salmon in the stream. A tree partially hung over the stream, and he climbed it to get a better look. He concealed himself in the foliage, and he witnessed the method of fish propagation. This was the discovery that was the turning point in his life. He began thinking of ways that the process could be improved. For two days he watched the salmon and observed that when the female released her eggs, the males ate as many of the eggs as they could find. Very few eggs remained, and they only
survived because they were covered with gravel on the bottom of the stream. This waste bothered Seth, and he began thinking of ways he could prevent it. He decided that in the future, he would try to find a way to hatch fish artificially. When he returned to Carthage, he observed various types of other fish and conducted various experiments.

He opened a shop near the High Falls on Front Street in Rochester. Seth soon had a reputation for being the greatest fisherman in the entire state, and by 1857 he was the largest dealer in fish in the New York State as well. He employed 100 anglers who were bringing in twelve to twenty-five tons of fish per month. In the summer of 1864, Seth decided to move to Caledonia Creek in order to experiment with hatching brook trout, without pollution and the normal seasonal limitations. The temperature of the creek was cold, between 45 and 60 degrees, which is perfect for hatching trout. He built his first rearing ponds in Caledonia, which was something entirely new. Some American and European scientists had experimented with artificial fertilization and incubation, but it was little more than a laboratory curiosity with no practical value. Seth’s idea was not only to use the fishing grounds in Caledonia that he purchased for catching and selling brook trout to Buffalo, Niagara, and Rochester, but also to raise fish himself so that he could restock public waters. He constructed large buildings near the creek and created the Caledonia Fish Hatchery. Huge tanks were used to conduct experiments in dry impregnation which caused him to achieve a 97% success rate. Eggs from the female and milt from the male are mixed in a pan containing no water. Originally, he had mixed water with the fertilized eggs, like the Europeans did, but found that he had only a 25 percent success rate. He kept his method secret for years and sold the spawn, 1,000 at a time, for $8 to $10. This made Seth very famous because what he was doing with fish found its way into the New York City newspapers.

Green was single-handedly responsible for devising the method for shad propagation in New England. He was contacted by the fish commissions of four New England states. He was unsuccessful at first because the method used for trout was not useful for shad. Not only that, but some of the shad fishermen who were assisting

Seth Green became world famous when he restocked the Connecticut River with shad, when the fish was essentially depleted from overfishing.
him did not want him to succeed. The shad population in the Connecticut River near Holyoke, Massachusetts was so low that there was a high price per pound for shad at market. If shad suddenly became more plentiful, the price would go down dramatically. Some individuals sabotaged his efforts, by knocking over trays of eggs, closing the gates that supplied his hatching boxes, and even tearing his fishing nets. Still, in the end, Green was successful in finding a method to hatch the shad eggs and as it turned out, it was even much easier than trout. He hatched 2,000,000 to 6,000,000 shad a day and by the end of 1868, 60,000 shad had been placed in the Connecticut River. Several years later, shad were so plentiful that the price of shad went from $40 for 100 to merely $3 for 100. The New England states that had hired Green paid him less than $200 for his efforts, and this severely troubled Green for some time to come, because he thought that his hard work was worth a lot more.

In 1868, fisheries had sprung up all over New York State, and they needed to be managed. The Board of Commissioners of Fisheries was formed that year, and the first three members included former Governor Horatio Seymour, Robert Barnwell Roosevelt, and Seth Green. Within two years, a hatchery house was constructed for the purpose of hatching whitefish and lake trout (then called salmon trout). In 1870, Green resigned as a commissioner and was promoted to Superintendent of Fisheries for the entire state, a post he kept until he died.

In this position, he received a massive amount of mail, and he answered letters in detail from all parts of the country. He received a letter in 1871 from the fish commissioners of California, Throckmorton and Redding, asking him if it was possible to take shad to California. Green did not think the eggs could be shipped because of the time required for travel, but he did believe he would be able to ship the hatchlings while their food sacs were still attached. Nevertheless, he believed the chances of success were poor because of the dry areas of land he would have to traverse which meant that finding fresh water for the fish would prove difficult. They sent him money to travel to California on a train with 12,000 hatchlings in milk cans. When water became scarce, he used fresh water from the train to replenish the supply for the little fish. When this was discovered by the porters on the train, their initial reaction was anger, but once they listened to the story of Seth Green's mission, they became sympathetic to the situation and helped him get as much water as he needed. When Green arrived in California, he deposited 1,000 shad fry into the Sacramento River and other places in California. Eventually shad became so plentiful on the Pacific Coast that fishermen had to limit their catch for fear of overstocking the market.

Green led the effort to restock the Potomac and the Hudson rivers as well, and back near Rochester, propagation of trout became so successful that in 1874, the Fish Commission notified the public that these fish could be obtained in Caledonia, but only by those with suitable means to transport them, such as milk cans. The fish were only available from February 10 to 26. Seth firmly believed that depleted streams could be repopulated with hatchery-raised trout, and he sent out articles and letters to promote the idea that soon caught on with the public. The legislators in Albany made an appropriation for the purchase of a site to build a state hatchery. Until this time, the Fish Commission ran its operations from a much smaller hatching house. Brook trout had not been produced at public expense before this time, but with the construction of the New York State hatchery on the same land where Green built his original hatchery, it became easy to produce thousands of fry (small, young fish) from a single pair of fish. In 1876, the Fish Commission issued a
statement that said that the hatchery in Caledonia would produce one million fish after February 15, 1876 and was willing to distribute them to anyone who was willing to take them. Green believed it was more important to feed people than to make a profit. “The importance of fish as food, and their cheapness, render it a matter of great importance that the supply shall not be diminished, but very much increased.”

Seth Green gained recognition from coast to coast in the United States and throughout the world as well. He was known in Germany and France and he was even known in New Zealand and Australia. He was the first to have packed and shipped fish eggs to each of those countries. In 1872 and 1875, the Société impériale d'acclimatation of France awarded him a gold medal for his work in pisciculture. In 1876, he was given an award by the United States Centennial Commission at the International Exhibition held in Philadelphia, Pennsylvania. In 1880, the German Fishermen’s Club in Berlin gave Seth a gold medal for his achievements in fish culture. In addition to his fish breeding reputation, Green was also known as one of America's finest fly fishermen. He won many fishing and casting tournaments from 1866 to 1878.

Green wrote several books on breeding and fishing. In 1870 he authored Trout Culture and in 1879 he coauthored Fish Hatching and Fish Catching with long-time associate R.B. Roosevelt. In it he made known that his primary concern was yielding vast results for the benefit of all humanity.
Seth Green’s impressive monument in Mount Hope Cemetery, Rochester, NY is a tall gray granite column topped with a female statue pointing to heaven.

The birth and death dates of Seth Green and his wife, Helen M. Cook, are engraved on the west face of the monument.

The name of the person memorialized at this significant monument is prominently displayed on the base of the stone.
Greene returned to Holyoke, Massachusetts in 1874 and
was surprised that many people surrounded him and
were genuinely glad to see him. Later when he spoke
of this event he said that it made him feel so happy at
this outburst of affection from the people that he forgave
everyone who had misused him and tried to sabotage his
efforts, including the New England states that had paid him
so little for his hard work in 1867.

He was a regular writer in a weekly journal devoted to
fishing called American Angler. In 1888 his final work was
a book called Home Fishing and Home Waters. He gave
strict advice about the sizes of fish to take home. "Do not
save any that are under six inches in length. In another
year these will more than double their weight, and be fish
worth taking. Do not act on the principle that if you do not
take them, someone else will, but do your share manfully,
and your good example will, without doubt, have its effect
on others."

Green was very fond of going on fishing trips with his
friend R.B. Roosevelt. Great South Bay near Long Island in
New York was one of their favorite places to fish as were
various rivers and streams. Unfortunately in 1882,
on one of these trips along the coast of the Carolinas,
Seth contracted typhoid pneumonia. He never fully
recovered, but he managed to carry on his work despite
his weakened condition.

In January 1888, while traveling with his son to view a
new fish species, the cutter in which they were riding
overturned. Seth fell on his face while still managing to
hold on to the reins. He strained the muscles in his back
most severely and as a result was bedridden at his home
until he died. Oddly, the official cause of death recorded
on the interment records at Mount Hope Cemetery in
Rochester, New York is senility, which is a serious loss of
cognitive ability in a previously unaffected person. In a local
newspaper, his friend Wm. R. Montgomery gave a tribute to
him: "Died at Rochester, N.Y. on August 20, 1888, the great
fish culturist, Seth Green. If a man who adds to the heritage
of the world a blade of grass is a benefactor, what must
we say of the man who gives to the worn-out, exhausted,
and barren streams of the country, as the result of his skill
and observation, by artificial means, planned by himself,
millions of palatable fish, that without his judgment and
manipulation would not have existed? ... Seth Green was a
great benefactor and a friend of the poor." The Democrat
and Chronicle on August 22 read: "The last moments were
painless and he never awoke from a stupor into which he
fell several days ago. His physicians, Doctors Hurd and
Dayfoot, did all in their power, but his condition was beyond
the help of medical skill."

Seth Green was buried in a family plot along with his
father Adonijah and his mother Betsy. He was survived
by his wife, Helen Cook Green, and several children. The
monument stands in the middle of the plot with a female
figure on a pedestal. She has her hand raised with her
finger pointing upward, which symbolizes "gone home to
God". Beside her at her feet is an anchor, which represents
hope. On the upper part of the pedestal, on all four corners,
is a symbol representing sheaves of wheat, a metaphor
reminding us that we are like wheat that is ready to
be harvested and taken up to God. Since it is a family
monument, other family members are listed as well. Seth's
individual stone simply reads "Seth Green 1817-1888" with
the word Father on the very top of the stone.

The famous angler and fish farmer, Seth Green was a
pioneer who transformed a laboratory curiosity into a
way to repopulate depleted fish species and feed masses
cheaply. He was a well-respected scientist; an adventurer
and a hero of a different sort, the kind who gave life a
helping hand when it needed it most. His fish hatcheries
led pisciculture from infancy, until they moved from being
a fad into a major industry. Today, fisheries technology is
taught in many places in the world, including the State
University of New York at Cobleskill, New York and Finger
Lakes Community College in Canandaigua, New York. Many
of the methods students learn today were developed by
Seth Green.

(Note: The author, Mirlin Douglas Moorfield, is a student
at the University of Rochester and prepared this essay as
part of the course requirements for Religion 167, taught
by Professor Emil Homerin, who is also a trustee of the
Friends of Mount Hope Cemetery.)
The gardening committee of the Friends of Mount Hope Cemetery, headed by Mary Olinger, maintains a number of historic grave sites, and they also have created three rock gardens in the north entrance area on Mount Hope Avenue. The garden pictured here is on the downside of the shoulder of the cobblestone road that runs from the entrance area up the hill to Indian Trail Avenue. It and the other two rock gardens are worth a visit, as is the cemetery itself. All of the ingredients that make a cemetery beautiful, peaceful, and quiet are to be found in the first municipal Victorian cemetery in America, Mount Hope. — PHOTO BY MARILYN NOLTE