The Blue Hole

Introduction

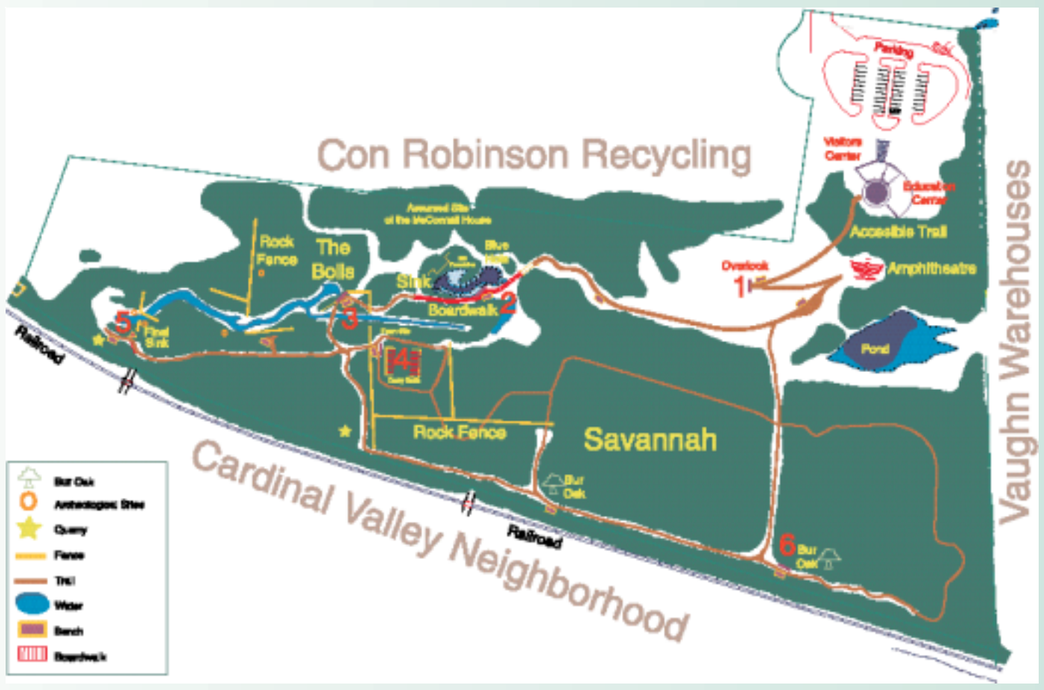
The Blue Hole has been a source of mystery since its earliest discovery by Native Americans thousands of years ago. Its blue color is caused by its unusual depth, which is estimated to be at least fifteen feet. The Blue Hole is the first of two major springs here at McConnell Springs. The waters originate from a wide area of southwestern Lexington, flowing underground through the limestone bedrock. It is very sensitive to rainfall activity and to the activities of man.

The wild animals which were the Native American's prey sought the Blue Hole for its consistent supply of water. In later years, as the area developed, the spring provided the motive power for a large gunpowder mill, the iron-free water for nearby distilleries, the cleaning and processing needs of nearby slaughterhouses, the water for trotting horses raised on the stock farm and an essential raw material for the Cahill Dairy. At one point, it was thought the "never failing" spring could serve as a reliable water source for the entire young city of Lexington.

Bright sky and tree shadows create abstract images across the waters of the Blue Hole, its trademark blue-green color evident in the upper left corner where water plants march along the shore and show in its depths. The Blue Hole is funnel shaped, with a constant flowing spring at its base; it was once thought to be bottomless.

As man's presence intensified, the possibility of contamination of the ground water became very real. Such contamination can occur quickly, spreading throughout the underground network of solution channels which eventually feed into springs such as McConnell Springs. Even the dumping of a small amount of engine oil or gasoline into the groundwater system can affect a very large area and can require a great amount of time before it has been flushed from the groundwater system. The water coming from McConnell Springs now is very pure, but contamination is an ever-present danger. Please do not drink the water, and remember how the water reaches this beautiful serene environment if you are tempted to dump material in a storm drain or stream.

Help preserve McConnell Springs, and the beauty of the Blue Hole, with its roiling surface and its mysterious depths contributing to its continuing allure.

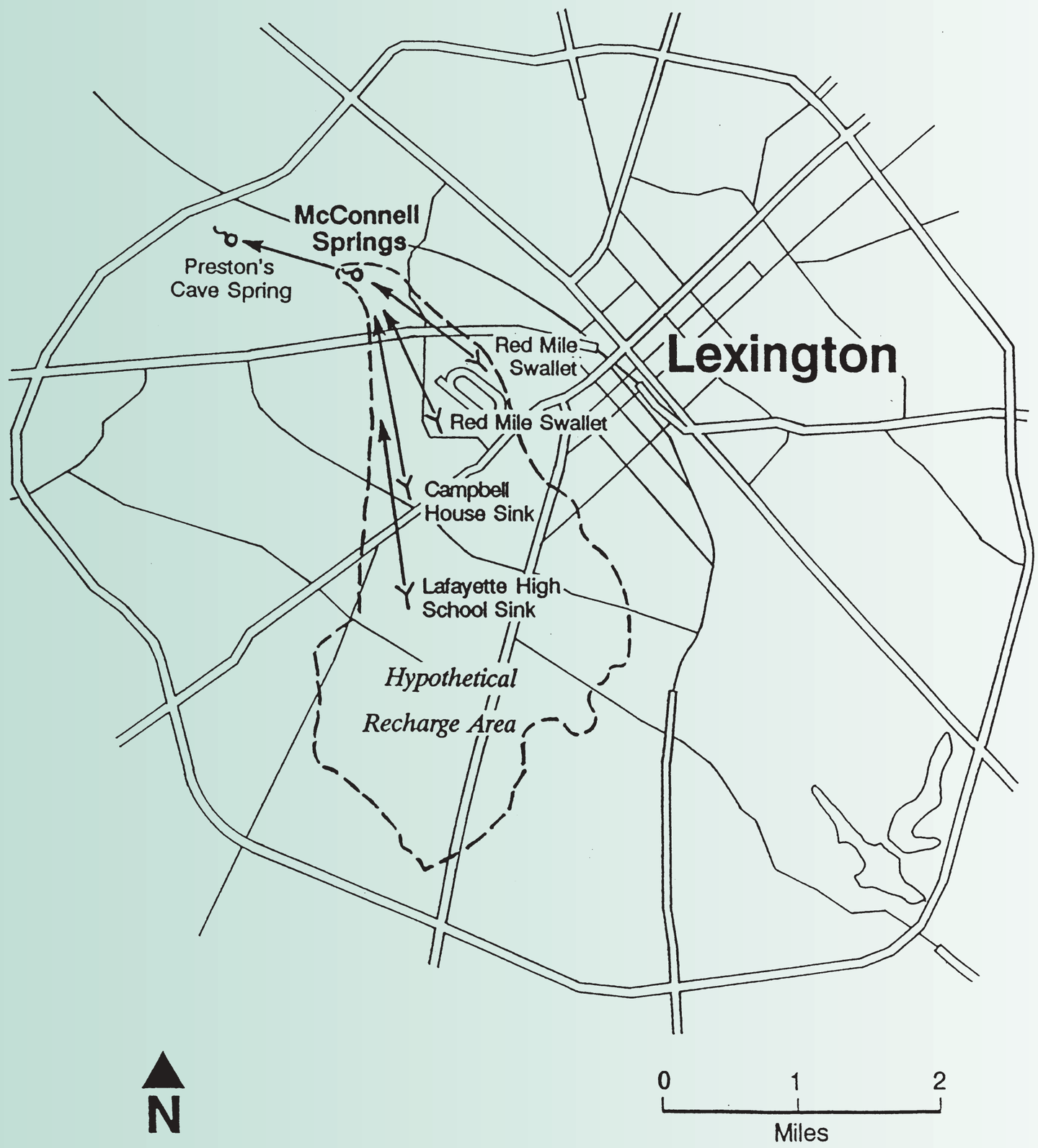


The Blue Hole
Physical Characteristics

The movement of water underground was a mysterious unknown for most of recorded history. The early inhabitants of Lexington believed that the many springs of the region were evidence that the town was built above a vast underground lake. In the 20th century scientists discovered that water from precipitation filters through the soil, becoming acidic, and very slowly dissolves limestone. As the acidic water seeps through cracks and crevices in the bedrock, it forms an underground network of ever-larger channels and conduits which resemble the merging branches of a surface stream. Ultimately the flow discharges from the ground into a body of surface water. Thus, a groundwater system in this karst formation has a recharge area - the expanse of land from which it collects surface water - and a discharge point or points, called springs.

McConnell Springs is unusual because it includes two successive artesian springs. Springs are generally classified into two types, gravity springs and artesian springs, based upon their relation to the stream or other water body that receives their flow. When the spring discharges above the receiving stream and flows down into it, it is known as a gravity spring. When the spring discharges below the level of the receiving stream, it is an artesian spring. Gravity springs are by far the most numerous in the Bluegrass region.

The artesian springs at McConnell are also of two different kinds. The Blue Hole before you is an open body of water, approximately 15 feet deep. Water that discharges from a



A group of visitors gather at the edge of the Blue Hole for a brief talk by Jim Rebmann of the Friends of McConnell Springs. On this day, the Blue Hole waters look opaque and milky green; the ever-changing appearance of the spring and the vegetation surrounding it make visits throughout the year a must to track its many moods.

bedrock fissure at the bottom has sufficient force to have blown away overlying soil and sediment and maintain a conical or bowl-shaped basin. The second spring further down the trail is of a very different nature, as you will see when you arrive there.

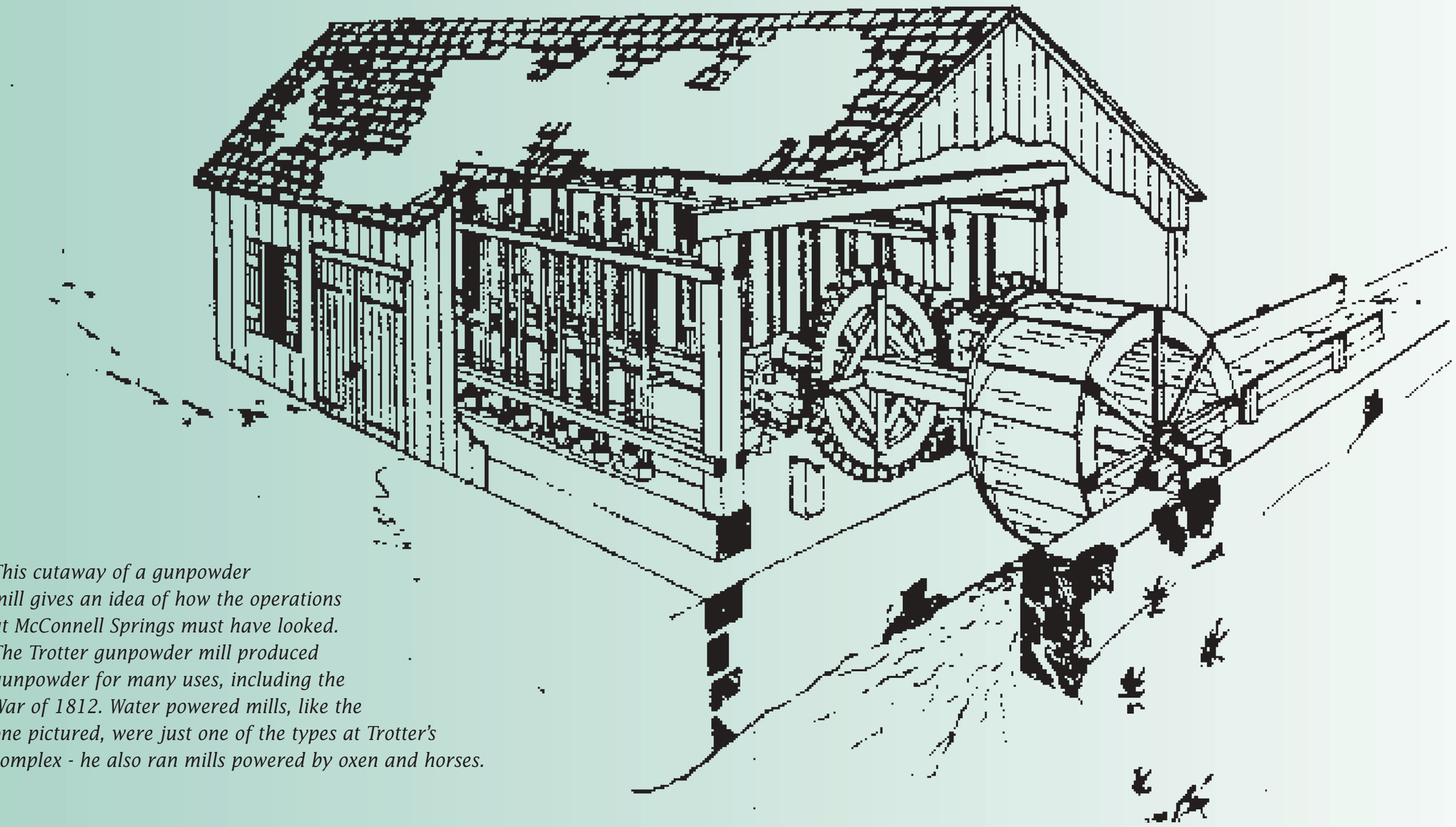
When underground water pathways in limestone are large enough to enter, we call them caves. In many areas of Kentucky, when a dropping groundwater level left the cave dry, a valuable mineral was found inside - potassium nitrate, commonly called saltpeter. When refined, this substance was the primary ingredient used in the manufacture of gunpowder. Many early residents of Kentucky made gunpowder on a small scale for local use, for gunpowder was a staple of the frontier civilization. Eventually, gunpowder manufacture became an important industry, because its product was easily transportable. The first commercial gunpowder factory near Lexington was established in 1793. By 1810, when war with Great Britain seemed inevitable, there were more than 60 gunpowder factories in Kentucky, most located in the inner Bluegrass.

In 1810 Samuel Trotter, a prosperous Lexington merchant, bought the property that included McConnell Springs and built the largest gunpowder factory in the state. During the War of 1812, gunpowder made by the Trotter Powder Works was used in the battles of the Northwest Territory and was shipped south to Andrew Jackson for the cannon and muskets of the famous Battle of New Orleans. The gunpowder manufactured at McConnell Springs thus played a vital role in helping to maintain American independence.

A re-enactor disappears in a cloud of smoke from his just-fired antique gun; the gunpowder produced at the Springs was used in guns like these during several wars and skirmishes in the early years of the 1800s.

The Blue Hole

Culture History



This cutaway of a gunpowder mill gives an idea of how the operations at McConnell Springs must have looked. The Trotter gunpowder mill produced gunpowder for many uses, including the War of 1812. Water powered mills, like the one pictured, were just one of the types at Trotter's complex - he also ran mills powered by oxen and horses.

Settlers drawn to Kentucky by the promise of improved fortunes knew a constant, reliable source of water was essential to success. William McConnell, a Pennsylvanian who came to Kentucky in 1775 with his brother Francis, acknowledged this when he claimed McConnell Springs for settlement, with the intention of establishing a Presbyterian colony. Local folklore holds that while McConnell and his fellow settlers were camping at the springs, perhaps here at the Blue Hole, they learned of the first battle of the American Revolution at Lexington, Massachusetts. To honor the battle, the settlers decided to christen their fledgling settlement "Lexington". Later, McConnell helped construct the fort at Lexington in 1780, served as one of the town's trustees, ran a tanyard downtown, and farmed the 1400 acres he acquired by military headright.

Across the Blue Hole from the boardwalk, a substantial stone foundation stands at the downstream end of the pool. The foundation is the most visible reminder of past human activity at McConnell Springs. The central rectangular section of the foundation was built around 1810 when Samuel and George Trotter, brothers and prominent business partners in Lexington, decided to open a gunpowder factory on the nearly 200 acres of land they had purchased from William McConnell's heirs. The land included a natural spring - McConnell Springs - providing a necessary component for their manufacturing process. The Trotters opened their factory as the War of 1812 began, and found the military a ready market.

According to a census taken in 1820, the Trotter mill complex employed 10 to 15 men operating several mills powered by water, horse or oxen. The factory could produce up to 140,000 pounds of powder, production depending on demand. Heavy pestles or pounders pulverized the saltpeter, sulphur and

charcoal which are the raw materials of gunpowder. After the pulverized ingredients were mixed with water, the paste was forced through a sieve or "grainer" to produce a specific particle size. The damp particles, or grains, were tumbled in a "glazing barrel" to round them, then taken to a "drying house" where the mixture was spread out on trays. Once the powder was dry, it could be packed into casks or barrels for shipment. Historians say the Trotter mill work force consisted entirely of male slaves, producing gunpowder among the highest in quality in the new nation, much in demand by the military.

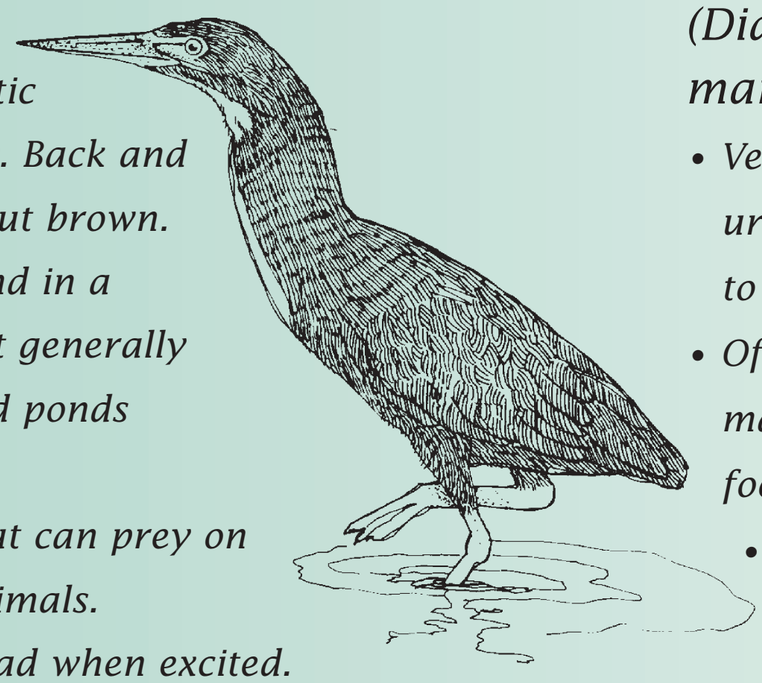
Because gunpowder production was vulnerable to explosion, each step was completed in a separate building. A typical gunpowder factory would have one or more mill buildings for the pulverizing/mixing process, a refining house, storage facilities for the ingredients, a drying house and other associated buildings such as a cooper's shop and perhaps an on-site residence for an overseer.

The Trotter mill suffered at least one explosion, in 1818. But the end of the factory came from a very different cause - in 1833, Samuel Trotter, then the last surviving member of the business partnership, died in the cholera epidemic which swept through Kentucky that year. His heirs decided to close the factory, which had been operating below full capacity because of low demand. The land and its inventoried equipment were sold.

The stone foundation behind and to the left of the Blue Hole probably served as the base for several buildings on the property over the years, from the gunpowder mill in the early 1800s to a dairy barn in the 1950s. Its exact usage is not fully known, but its construction is consistent with those conclusions.

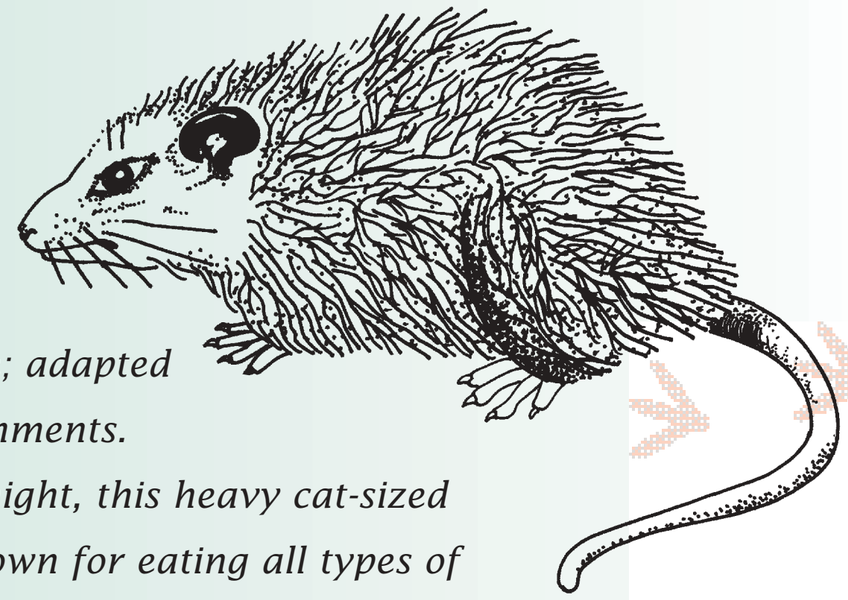
The Blue Hole
Field Guide

Green-backed heron
(Butroides straitus)



- *Small, with characteristic greenish-black feathers. Back and sides are a deep chestnut brown.*
- *Solitary in nature. Found in a variety of habitants but generally prefers the streams and ponds of woodlands.*
- *Usually feeds on fish but can prey on a variety of aquatic animals.*
- *Will display crest on head when excited.*

Opossum
(Didelphis marsupialis)



- *Very common urban creature; adapted to most environments.*
- *Often seen at night, this heavy cat-sized mammal is known for eating all types of food, including carrion and other garbage.*
  - *Only North American marsupial.*

Carolina wren
(Thryothorus ludovicanus)

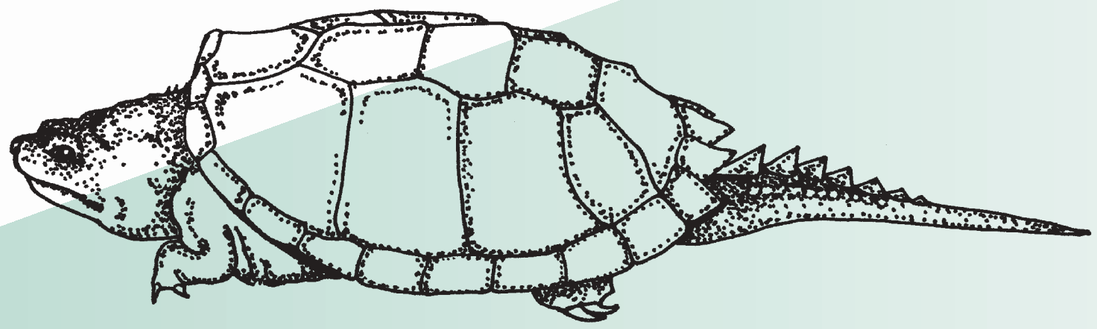
- *Non-migratory resident of wooded thicket.*
- *Dark brown bird with curved beak and conspicuous white eyebrow.*
- *Easily identifiable "tea-kettle, tea-kettle, tea-kettle" song is heard all year round.*

Raccoon
(Procyon lotor)

- *Another common urban mammal which has adapted well to human encroachment.*
- *Found mostly along streams and lakes in native habitat.*
- *Slow moving, nocturnal, and easily recognized by its black "mask".*
- *Omnivorous. Will eat fruits, nuts and grains as well as crawfish, bird eggs, insects and frogs.*

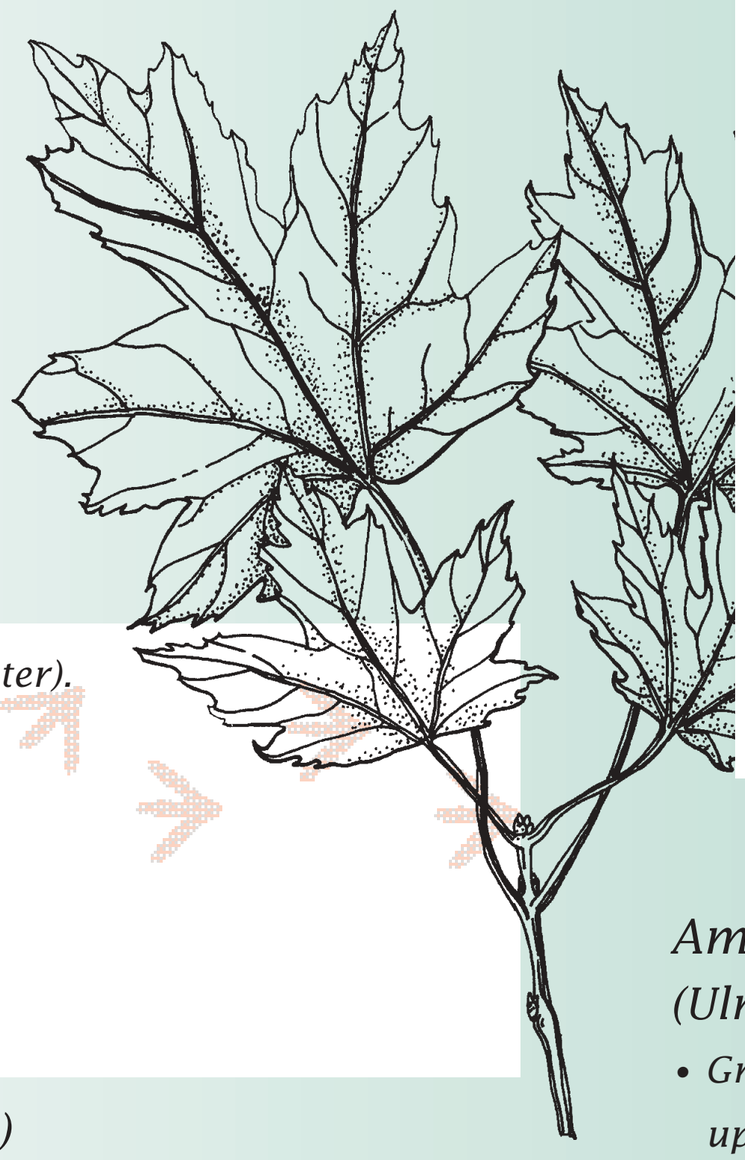
Snapping turtle
(Chelydra serpentina)

- *Common in any body of fresh water*
- *Dramatic appearance - carapace (back) has very rough plates, tail is saw-toothed, head is large.*
- *When on land, may strike aggressively with hind quarters elevated, but usually timid when in water.*
- *Omnivorous; will eat live food (aquatic invertebrates, fish, reptiles, birds, mammals) as well as carrion and vegetation.*
- *Used to make turtle soup.*



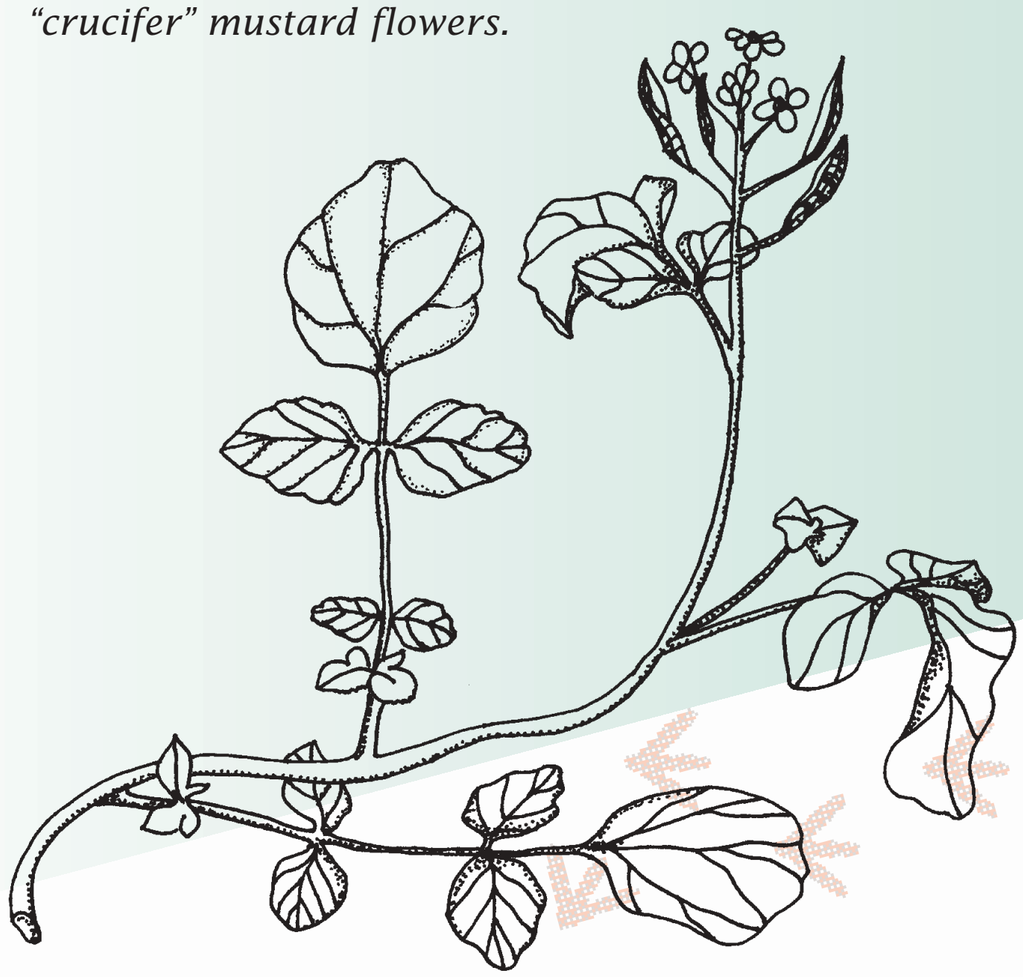
Silver maple
(Acer saccharinum)

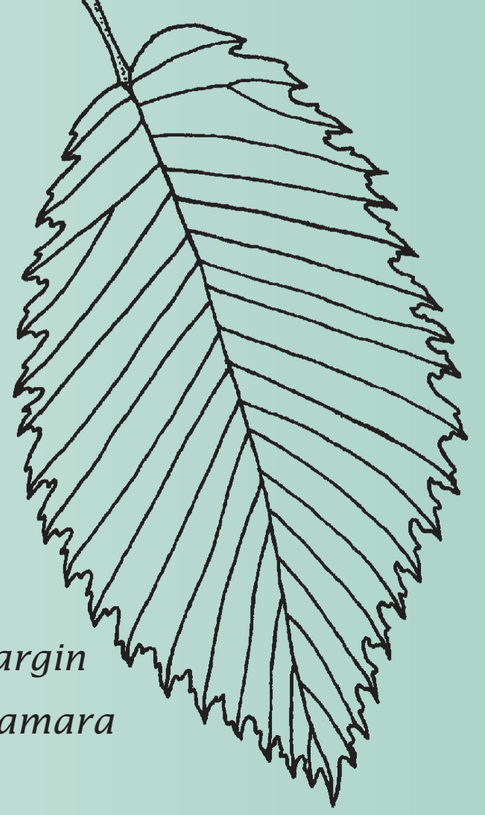
- *Prefers moist bottomland sites.*
- *Simple, opposite, deeply lobed leaves are silvery yellow underneath.*
- *Fruit is a samara with divergent wings (helicopter).*



Watercress
(Nasturtium offcinale)

- *Grows partly submerged in shallow water of brooks and springs.*
- *Edible plant used to make sandwiches and salads.*
- *Native of Europe naturalized throughout Kentucky.*
- *Member of the mustard family. Has mustard-like leaves and characteristic "crucifer" mustard flowers.*





American elm
(Ulmus americana)

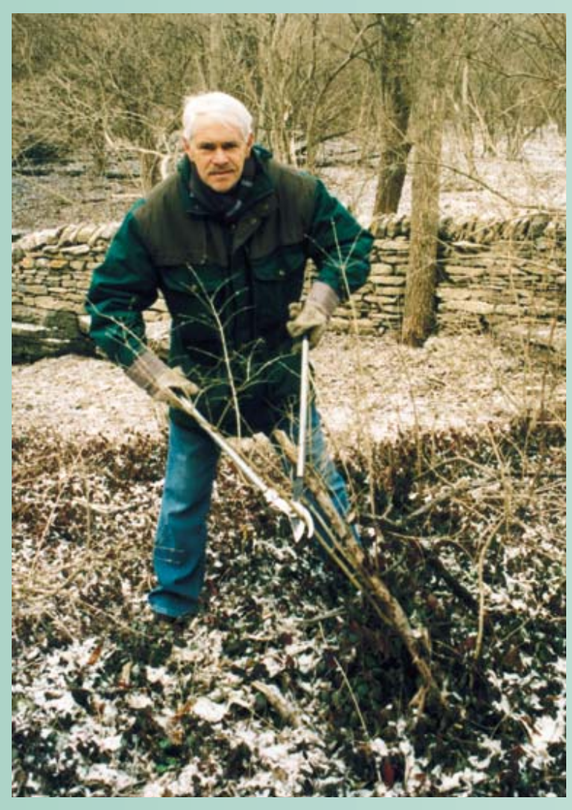
- *Grows best on moist upland sites and well-drained bottomlands.*
- *Has thick, corky bark, with alternating brown and white patterns.*
- *Leaves simple, alternate with a doubly serrate margin*
- *Fruit is a one-half inch samara*

Spotted jewelweed (Impatiens capensis)

- *Frequently found in moist, shady soil, especially along streams*
- *Has spotted orange flowers in July and August*
- *Also called touch-me-nots due to the seed capsules that explode when touched*
- *The juice from this plant and the pale jewelweed is good to relieve and prevent poison-ivy*

The Blue Hole

Friends We Miss



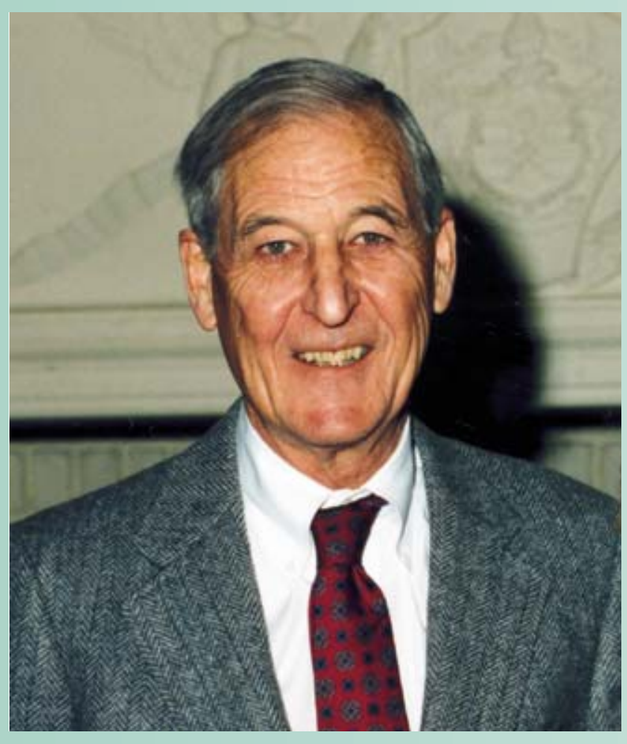
In every endeavor, there are people who touch it in many ways, people whose contributions may be very different but invaluable. The Friends of McConnell Springs has been blessed with many of those people. We are very saddened by the fact that in 1997 we lost three of our best Friends. We would like to share with you briefly their contributions to our efforts, as a memorial to them and a recognition of their value.

Tom Hickey

Tom Hickey was always a "behind the scenes" man. He did not serve on the Board of Directors, although he was on our Steering Committee for the first several years. He didn't speak much in meetings, but he was a constant presence at the site. If mowing needed doing, Tom was there. If there was a clean-up day, Tom was there. He (list of other things). In 1994 he was recognized as our first Volunteer of the Year. We miss his willingness to work and his efforts at the Springs, but most of all we miss his quiet can-do attitude that was always an inspiration to each of us.

J. Ed McConnell

J. Ed McConnell was a direct descendent of William McConnell, after whom the Springs is named. He took great pride in his heritage, and enthusiastically endorsed the preservation of the Springs. A successful businessman, he retired as chair of Blue Cross Blue Shield in Louisville. He was among our very first donors, and the first benefactor with his donation of $10,000 toward the preservation of the Springs. But his contribution was far beyond monetary - he spoke of the Springs to many other influential people, and he closely followed the development at the site. He is also known for his humor - he once published a book of his home-grown tales. His dedication and support will be difficult to replace.



E. Wilson Yates

E. Wilson Yates contributed to the efforts of the Friends in a supporting role - that of husband to our founder and chair, Isabel Yates. He too was a successful businessman, an attorney and a member of the board of directors of Kentucky Central prior to his retirement in the 1980s. Through his constant support of Ms. Yates, he enabled her to spend vast amounts of time and energy starting the Friends and being the driving force behind their success. We thank him for all he did to keep us on track.