

Gebhard

Environmental Center

Field Guide



Grateful recognition is given to

Robert Coates

and

Allen Terwilliger

for their level of expertise in writing this

Field Guide

Gebhart Environmental Center

Site Manual

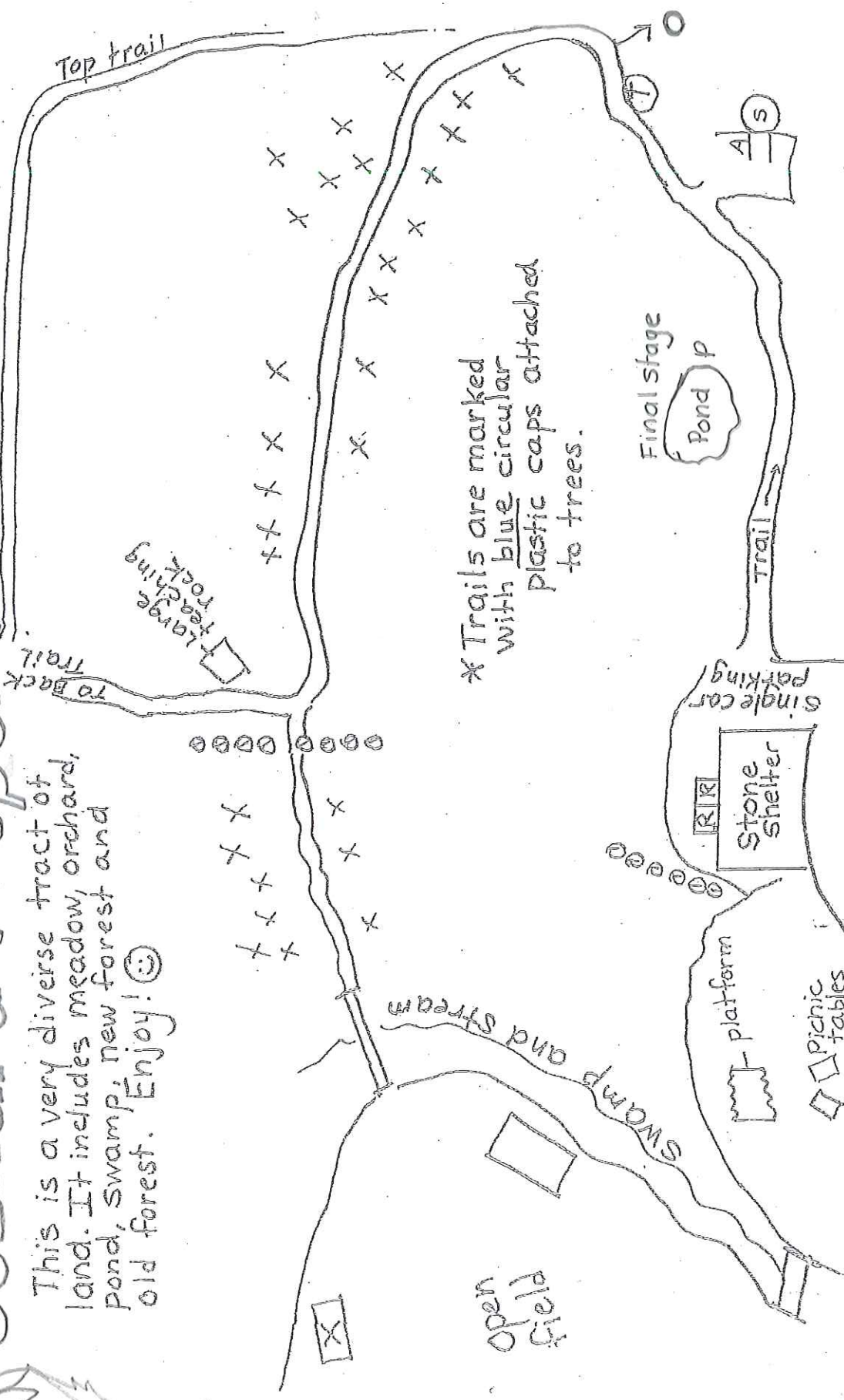
This site manual has been developed to acquaint teachers with the various areas of the Sussex-Wantage School District's facility, Gebhart Environmental Center, and to provide useful information regarding the center and teaching sites at the center.

Each area at the center is assigned a number on the field use map. More detailed sketches of each site with further details are also listed within. This manual lists the location, sketch, and description for that given site. Teachers should refer to the curriculum guide, by grade level, for specific instructional lessons that can be used.

Please note the "do's and don'ts" and the emergency procedures in the "Pre-Trip Planning" section. This information will help you with planning prior to your visit to the Environmental Center and make your trip a more pleasurable experience.

Gebhard Property

This is a very diverse tract of land. It includes meadow, orchard, pond, swamp, new forest and old forest. Enjoy! 😊



* Trails are marked with blue circular plastic caps attached to trees.

- Libertyville Road → North
- Key -
- RR = porta johns
 - P = pond site
 - A = Dig boxes
 - S = Silo
 - T = Teaching benches
 - = herb box
 - ▭ = bridge
 - = orchard
 - X = woods
 - ⊖ = stone wall
 - ⊞ = conestoga wagon

Pre-Trip Planning

Before leaving with your group for the Environmental Center, the following steps should be taken:

1. Select a date and check with principal for conflicts; then call the Board Office for bus transportation.
2. Turn in appropriate trip form to Board Office and prepare student permission slip. Be sure to address tick concerns.
3. Make a pre-trip visit on your own before you take your class. (Key available from building principal)
4. Make sure you have adequate adult supervision for the day of the trip. Take extra emergency vehicle if bus is not staying.
5. Make sure you have a first aid kit and have anticipated any medical/ medication needs of your children by speaking with the school nurse. Arrange for additional nurse if necessary.
6. Take garbage bags so that lunch garbage may be collected and returned to the school at the end of the trip.
7. Gather appropriate materials for lessons to be taught. Run any copies needed for students.
8. Check to make sure children have necessary lunches and beverage for trip prior to leaving for trip. Check for allergies.
9. Encourage students to use bathroom facilities prior to trip. Port-a-johns are available on site behind the stone shelter.
10. Take an emergency manifest of student names and numbers for emergency notifications.
11. Enjoy your experience.

LYME DISEASE

WHAT IS LYME DISEASE?

Lyme disease is a preventable bacterial infection transmitted to humans by the bite of a tick. Lyme disease was named for Old Lyme, Connecticut where it was first recognized in 1975. The first cases of the disease were diagnosed in 1978, and it has since become the most reported vector-borne disease in the United States.

WHAT CAUSES LYME DISEASE?

Lyme disease is caused by a corkscrew-shaped bacterium (spirochete) identified in 1982, and named *Borrelia burgdorferi*. This bacterium mainly inhabits the digestive tract of deer ticks of the genus *Ixodes*. The tick acts as a vector transmitting the Lyme disease bacterium to humans when the tick feeds on a person.



WHAT ARE TICKS?

Ticks are small, spider-like creatures that have eight legs attached to a flattened body and can be found on grasses, shrubs and leaf litter. After they hatch from eggs, all ticks have three stages (larva, nymph, and adult) that feed on the blood of vertebrates.

The adult female is about 1/8-inch long and has a dark head and reddish brown hind parts. The males are smaller and entirely brownish-black. The eight-legged nymphs are less than 1/16-inch long, and the six-legged larvae are slightly larger than the period at the end of this sentence.

WHAT ARE THE EARLY SIGNS AND SYMPTOMS OF LYME DISEASE?

Within 30 days of when a tick became attached, an expanding rash may appear (not always at the bite site) known as *erythema migrans* (EM). Flu-like symptoms may also develop that often include fatigue, headache, stiff neck, muscle aches and joint pains. Some individuals will have no recognizable symptoms or the classical rash. For these patients, the physician will have greater difficulty making the correct diagnosis.

WHAT ARE THE ADVANCED SYMPTOMS OF LYME DISEASE?

Possible complications include chronic arthritis, nervous system abnormalities, and cardiac disease. These symptoms may develop if the disease is not properly or promptly treated.

DOES TREATMENT EXIST FOR LYME DISEASE?

Once diagnosed, Lyme disease can be treated by taking certain antibiotics. Treatment during the early stage of the disease can cure the infection and prevent complications that can occur in the advanced stage. Treatment during the advanced stage is more difficult and not always successful. Therefore, it is important to obtain early diagnosis and therapy.

WHAT PREVENTATIVE MEASURES CAN AN INDIVIDUAL TAKE AGAINST LYME DISEASE?

The best prevention against Lyme disease is to avoid being bitten by ticks. Whenever possible, persons should avoid entering areas that are likely to be infested with ticks. Individuals who venture into these areas should be aware of the hazard associated with tick bites and make it a habit to regularly check their bodies for ticks. Other personal protective measures should include:

- Wear light colored clothing so ticks can be seen and removed before they become attached to skin.
- Wear long pants and long-sleeved clothing.
- Tuck pants into socks or boots, and shirt into pants.
- Use approved repellents around shoes, ankles and on exposed skin. Be sure to follow the manufacturer's instructions carefully!
- Choose wide trails and walk in the center. Avoid brushy and grassy areas as well as off-the-trail hikes.
- Inspect yourself and others (including pets) thoroughly for ticks at least once an hour while walking in suspected tick-infested areas.



Tucking Pants into Socks

POISON IVY

Notice the thick, hairy vine climbing this tree. Look at it closely, but **DO NOT TOUCH!!!!** Do you know what it is? Here are three rhymes to help you figure it out.

- If it's hairy, be wary!
- Touch a rope, you're a dope!
- Leaves of three — let them be!

By now you should have figured out, it's poison ivy.



You've probably heard that poison ivy can cause an itchy rash. But did you know that poison ivy, poison oak, and poison sumac all contain the same rash-causing substance?

It's called **urushiol** (say: yoo-**roo**-shee-ol), a colorless, odorless oil (called resin) contained in the leaves of the plants.

These plants can be anywhere — from the woods to your own backyard. The green leaves of poison plants blend right in with other plants and brush, so it's possible to sit down in a patch of poison ivy and not even notice. You might notice later, of course, when you start to itch!

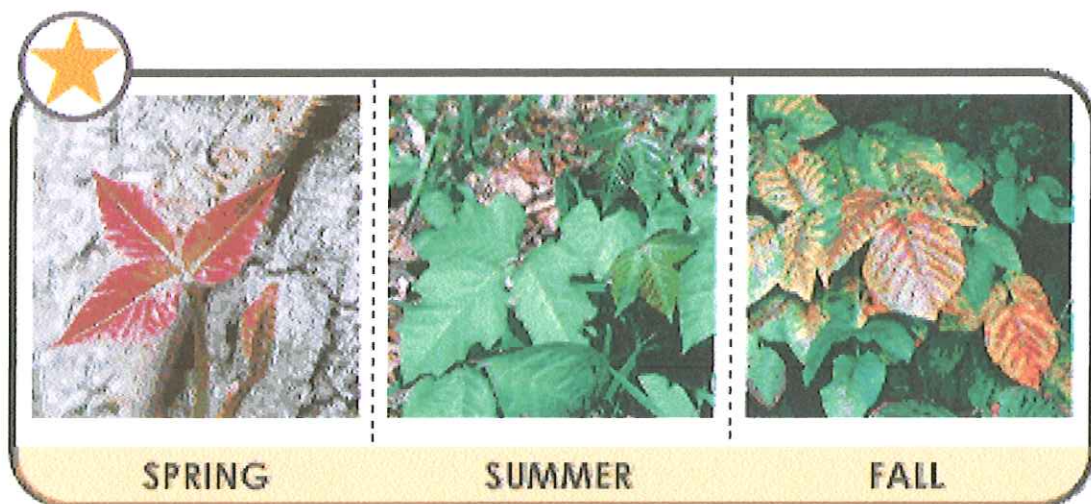
And it's not enough just to know what one kind of poison ivy looks like. Poison ivy comes in several types — and may look different depending on the time of year.

The leaves of poison plants release urushiol when they're "injured," meaning if they get bumped, torn, or brushed up against. Once the urushiol has been released, it can easily get on a person's skin, where it often causes trouble. When the oil is released, the leaves may appear shiny or you may see black spots of resin on them.

It's also possible to get this kind of rash without ever stepping into the woods or directly touching one of the plants. A person can pick it up from anything that's come in contact with the oil, including your dog that likes to roam the woods! Urushiol even can travel through the air if someone burns some of the plants to clear brush.

Urushiol is considered an allergen because it causes an allergic reaction — the rash and sometimes swelling. Not everyone will get a reaction, but about 60% to 80% of people will.

This reaction can appear within hours of touching the plant or as late as 5 days later. Typically, the skin becomes red and swollen and blisters will appear. It's itchy, too. After a few days, the blisters may become crusty and start to flake off. It takes about 1 to 2 weeks to heal.



THE STONE SHELTER

The Stone Shelter is located along Libertyville Road at mile marker 10. It is the arrival point for students to the Environmental Center. The shelter was once the wagon shed for the farm. The front of the shed was enclosed with cement blocks and a security door was installed. The ramp was later installed to assure special needs students would have easy access into and out of the structure.

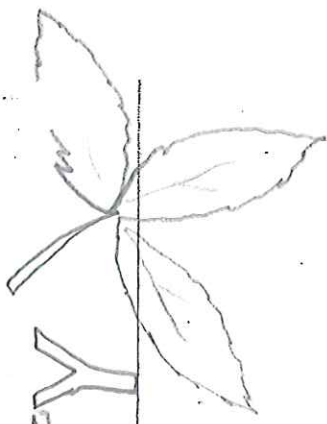
Inside the shelter there are tables and benches on a cement floor. There are shelves, a chalkboard, a teacher's desk and supply shelf to further make the shelter feel like a school classroom. There is sufficient room for 25-30 students. Heat and electricity are available for relief from the rain or cold. A phone is provided, as is a current list of emergency numbers. Access to the shelter may be obtained by securing two keys from the building principal.

The building should be used as an arrival point and may be used for storage of lunches and coats. Lessons may be introduced at this point. Supplies stored on the shelves are listed on the blueprint drawing. Special materials needed for individual lessons should be secured by the teacher.

It is the responsibility of each user of the site to remove garbage and sweep the floor at the end of their activity. Tables may also be washed using provided supplies.

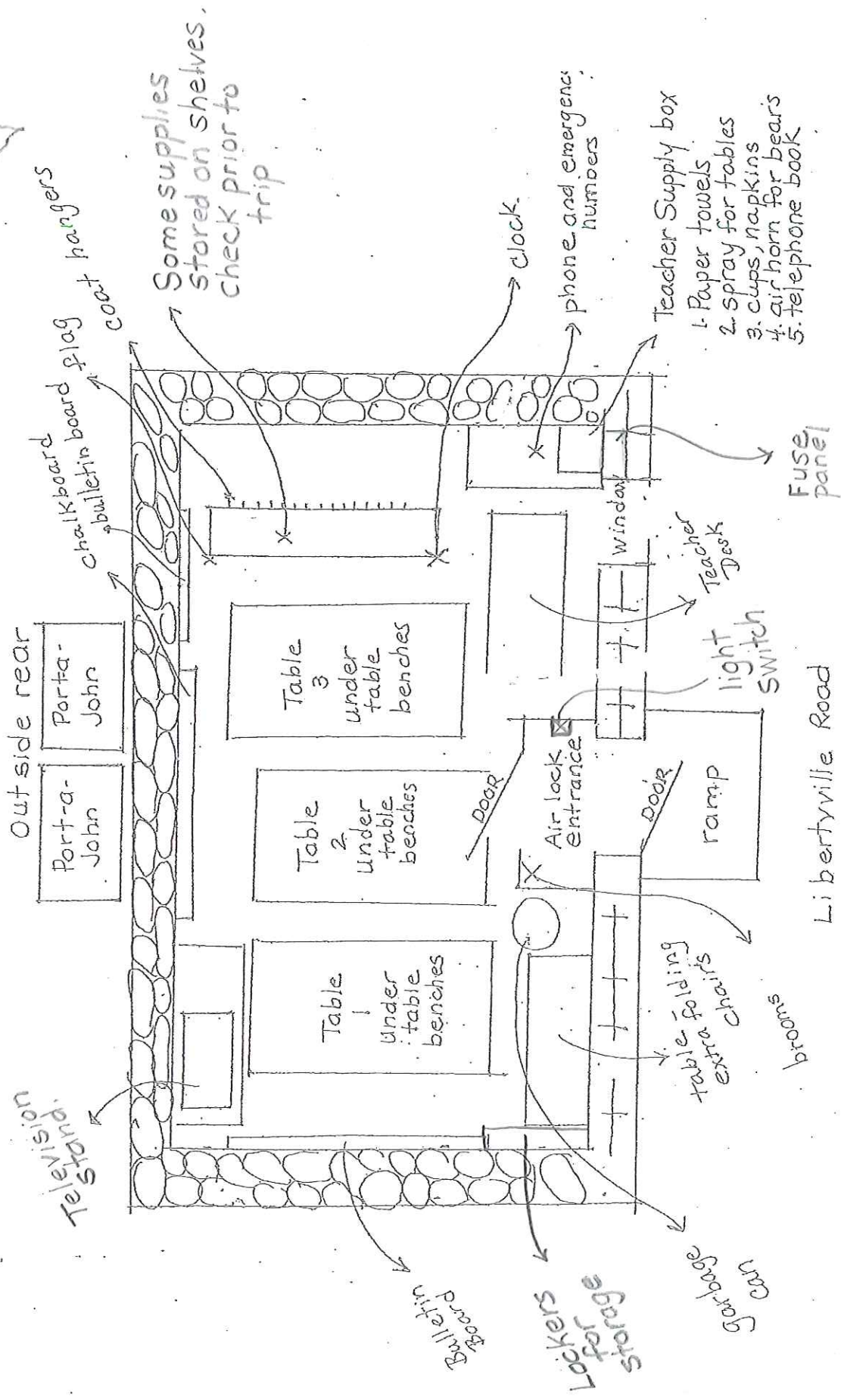


GEBHARD PROPERTY



Shelter

Site: Stone Shelter



- Teacher Supply box
1. Paper towels
 2. Spray for tables
 3. cups, napkins
 4. air horn for bears
 5. telephone book

Libertyville Road

THE POND SITE

Upon arrival at the stone shelter, proceed northwest toward the silo along the trail that is to the left of the stone wall. Approximately 50 feet past the stone shelter, you will spot the pond on the left of the trail.

This pond site was used by the owner of the farmer as a spring-fed watering location for livestock. It appears to be manmade around a spring outlet. At present, the site is near the end of Stage 5 of Eutrophication. This is the final stage of pond life before the area becomes a grassy meadow. Large grasses, duckweed and other vegetation are slowly filling in the bottom of the pond. (See chart for further explanation of Eutrophication.)

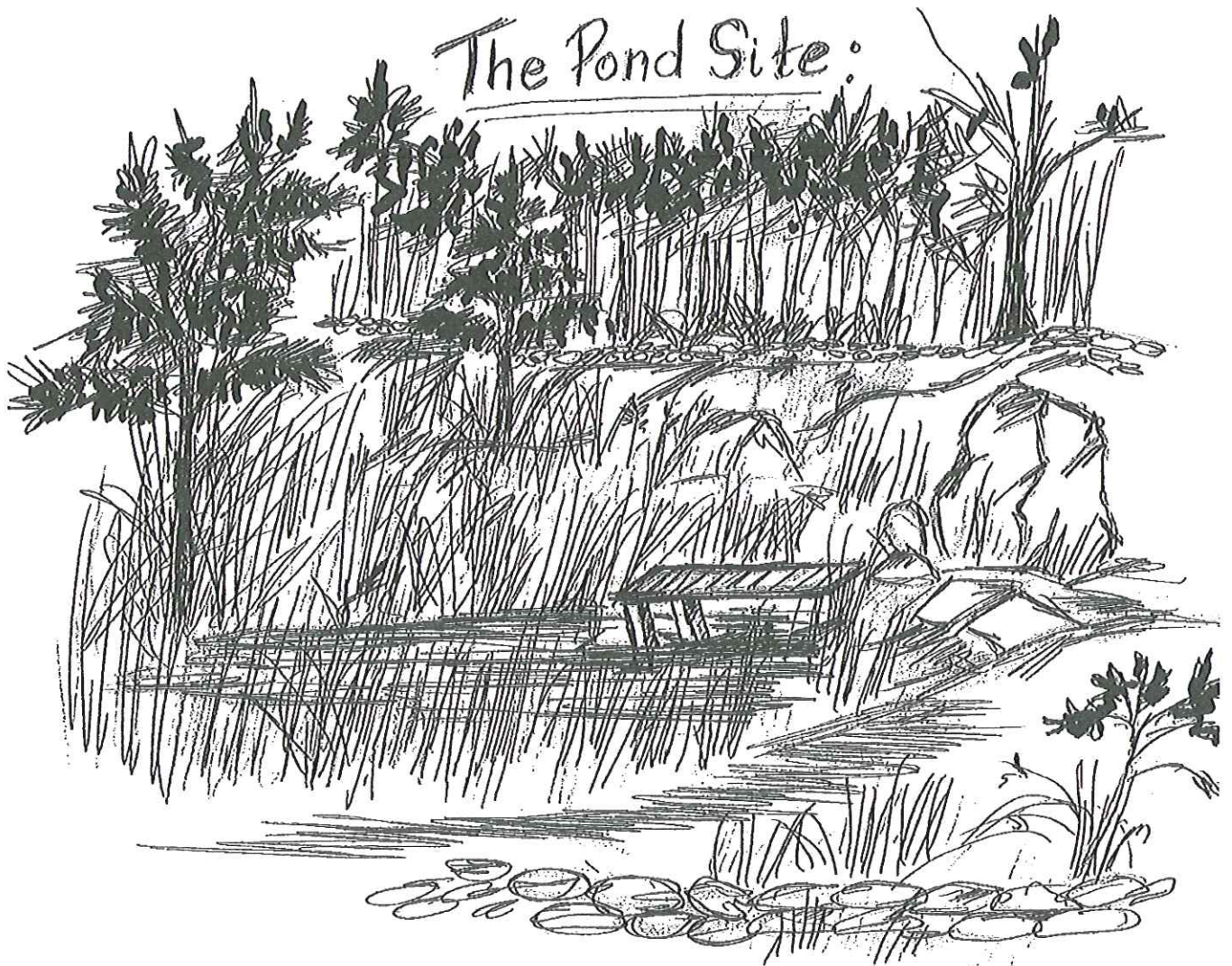
The pond is covered with green duckweed and contains many types of organisms. The pond has a small dock that should not be used at this time.

The pond is an interesting area that can be used for the study of natural succession. This could be pointed out to children and the history of the area could be traced by studying the changes that have taken place as the pond has changed from a lake to a marsh.

Students could study the covering of duckweed on the pond. Hand lenses and stereoscopes can be used to observe duckweed roots. Microscopic organisms that live in the duckweed could also be studied.

Students may utilize tracking skills to find animal tracks and make casted molds of these tracks. The casts could be taken and identified by using manuals that show animal tracks.

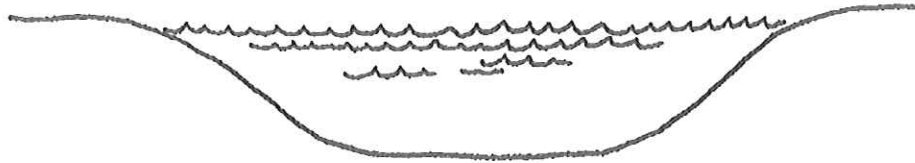
Future decisions about the renewal of the pond will be made in the near future. If the pond is to remain on site at the center, it may need to be cleaned and returned to Stage 2 of Eutrophication.



STAGES OF EUTROPHICATION

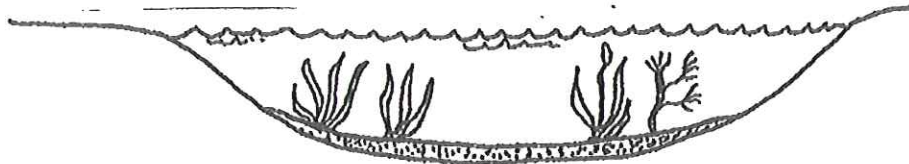
Lakes have a life cycle of thousands of years. After thousands of years (or tens of thousands of years), a lake bed may become filled, forming dry land.

Stage 1



Clean Bottom. Only microscopic forms of plant and animal life, and a few free-floating algae are present.

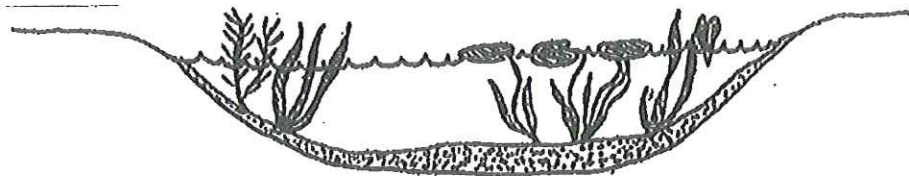
Stage 2



Submerged plants (pond weed, milfoil, crowfoot, algae and eelgrass—a pollen-bearing plant) grow in silt that is deposited from streams.

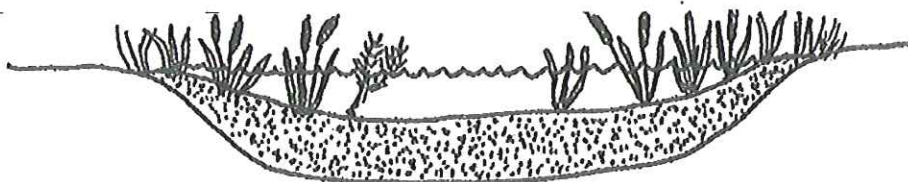
Stage 3

Floating-leaved plants (water lily, yellow pond lily, sedge) begin to grow from streams and accumulation of dead plants raising the level of the bottom, slowing current and allowing deposit of sand, etc.



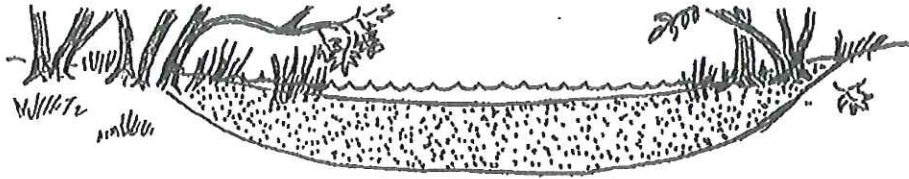
Stage 4

Emergent plants (cattails, sedges, bulrushes) appear and take root as dead plants and silt accumulate.



Stage 5

Land plants (shrubs, and trees – willows, elders, silver maples, poison sumac) creep along the banks and shallow water as continual deposits and growth occur.



Stage 6

Dry meadow or forest glade, without even a pond.



Our modern civilization is speeding up the life cycle of lakes so that instead of thousands of years, it may be only a few hundred years before many lakes disappear.

- a. Silting of the bottom of the lake, through erosion of land around the lake and along the streams that empty into the lake, makes the lake become more shallow.
 1. Erosion occurs when trees on hillsides are cut down or bulldozed.
 2. Erosion occurs when the plant cover (grass, mosses, shrubs, leaves, etc.) is removed from the ground.
- b. Eutrophication is the aging process of a body of water due to the accumulation of silt and organic material. This process is accelerated by excessive fertilization caused by sewage, leaching of fertilizers, detergents, etc.
 1. Decaying plant life robs the water of oxygen.
 2. Without oxygen in the water, fish and other life dependent on oxygen cannot live.

Pollution of lakes.

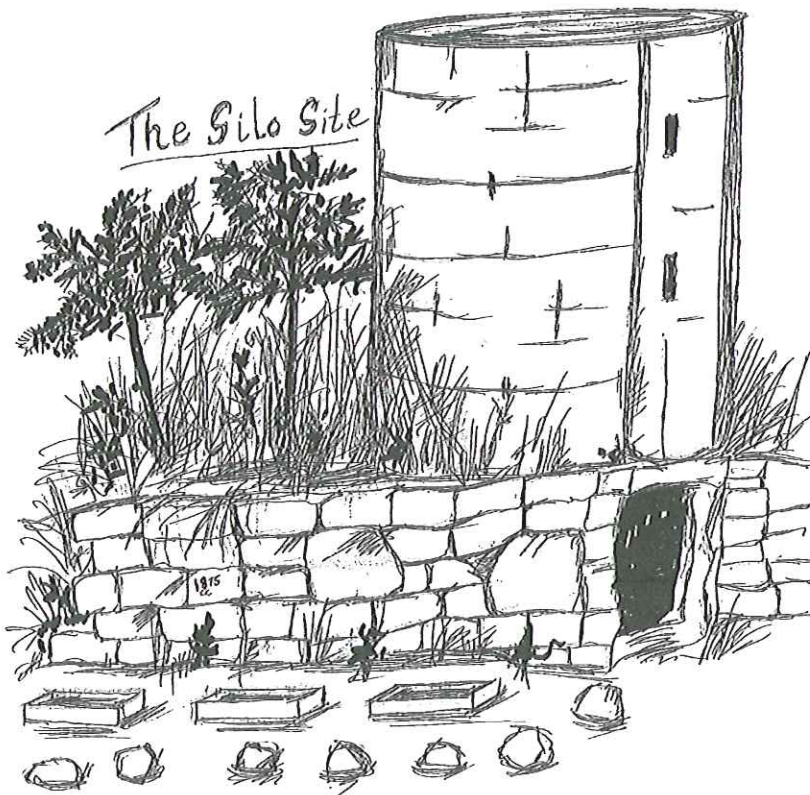
- a. Polluted rivers and streams empty into lakes.
 1. Sewage drains into streams.
 2. Industrial plants empty chemicals into streams that flow into lakes.
- b. Homes with septic tanks are sometimes built around lakes. Septic tank drainage seeps into lakes, making water unfit to drink and often unfit for swimming.
- c. Dumping of garbage, discarded household articles, and abandoned autos along streams and lake shores degrades scenery and adds pollution.
- d. Fertilizers used in farming are washed into lakes and streams.

THE SILO SITE

The silo is located along Libertyville Road northwest of the Stone Shelter. The road will be on your right side.

The silo was once part of a working dairy farm. The barn was destroyed by fire and the roof of the silo was removed. It is believed the silo has a cement floor. The floor is covered with a type of soil called humus. It is this humus that supports the growth of mosses, ferns, elderberry, burdock and grasses.

A narrow opening at the base of the silo serves as an entrance. On the rock wall



that was the rear structure of the barn is a date 1875 carved into the rock. This is perhaps the date the structure was completed. Classes can observe the rock foundation on the way into the silo. A single line should be used for entrance and exit when using the silo. No plants should be destroyed with its use.

CAUTION: Investigate the silo for any wildlife inhabitants before entering.

SHAGBARK HICKORY SEATING AREA

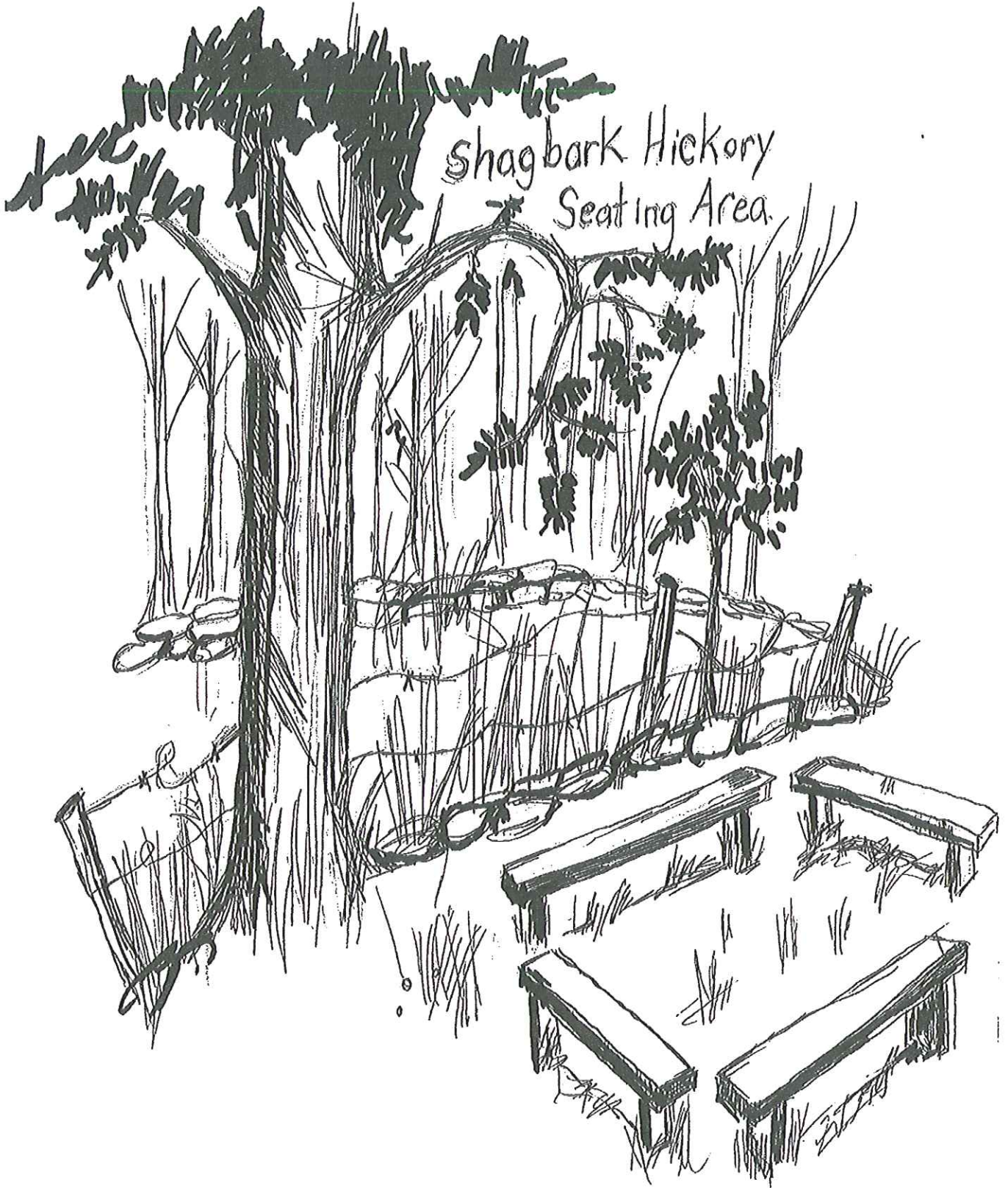
The Shagbark Hickory seating area is comprised of four log benches under a large Shagbark Hickory tree. It is located between the silo and the Blue Trail entrance.

At the Shagbark Hickory seating area, a brief history of the Libertyville area might be discussed. It was first inhabited by the Minsi tribe of the Lenni Lenape Indians. Their sub-tribe was the Wolf, whose paw was painted on their wickiwams and used in picture writing. The early settlers grew food primarily for their own use. With an ax and a team of oxen they cleared the land, built their homes, and at times fought with the Native Americans. They built log houses with a dirt floor, a window, and a door hung on leather straps. The house might be built up around a flat stump so the farmer's wife had a good firm table.

Platforms filled with hemlock boughs were probably the first beds. Wolves were a problem as well as the Indians. In early 1800, a bounty of \$35 was established for killing a wolf. Travel was difficult as the first roads were rough and narrow. After 1800, however, turnpike companies began to build roads. In 1808, the Paterson-Hamburg Turnpike was constructed through Milford, PA. In 1830, the Paterson stagecoach started regular runs through the area. A mileage marker still stands in Libertyville telling stagecoach riders there were 54 more miles to Hoboken and Jersey City. (A short stop can be made there on the way to the Environmental Center.)

Additional information on the history of our area can be found in Our Wantage Heritage in the school library.

Shagbark Hickory
Seating Area

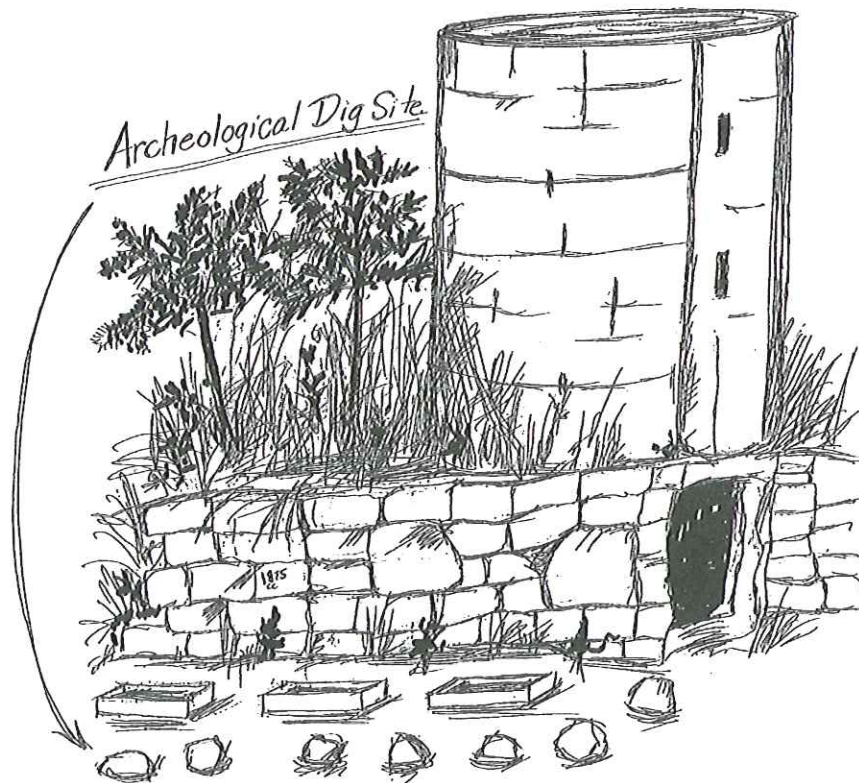


ARCHEOLOGICAL DIG SITE

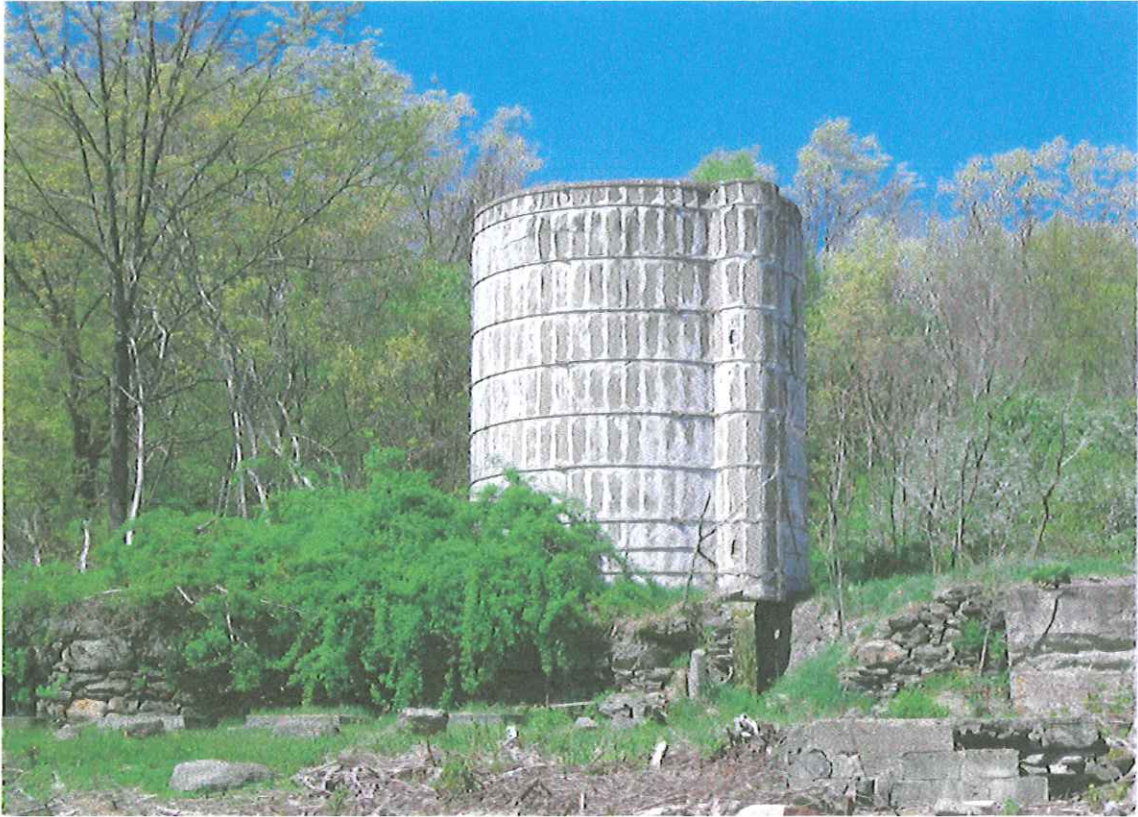
The Archeological Dig is located on the left side of the silo. It consists of four 4' X 4' wooden boxes filled with clean sand. The intent is to provide a medium for burying and unearthing artifacts so that students can experience the recreation of a civilization.

Some preparation time is needed to assure the success of the experience. Students should be acquainted with the slow, almost tedious, method archeologists use to unearth ancient and fragile items left behind. They can also research prehistoric man, Egyptians, American Indians, etc., that we have learned about through archeological studies.

It is recommended that children use plastic forks and spoons for unearthing tools. This will allow a slow accurate method for removal of sand layers.



Photos by Lisa Van Orden



The Silo



Shagbark Seating Area



The Stone Shelter



Trail Entrance