

# INTERPRETING LACAWAC SANCTUARY

*From Summer Residence to Research Station and  
Environmental Education Center*

**Lacawac Sanctuary**



# THE EARLY YEARS

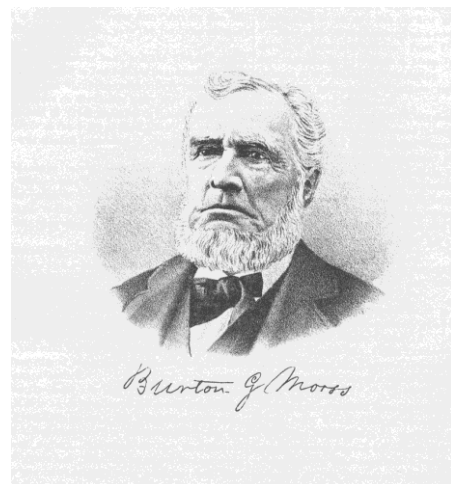
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The evolution of Lacawac Sanctuary is a wonderful and interesting history! Two dugout canoes found in Lake Lacawac indicate this area was originally inhabited by the Leni-Lenape (Len-ah-pee) Indians. In 1754 heirs of the William Perm family purchased a 12,500-acre tract of land in Wayne County called Wallenpaupack Manor, which was a private in-holding within the land granted to Perm by the British Crown.



With the demise of the Perm family, much of Wallenpaupack Manor was acquired, in 1793, by Mr. James Wilson. Wilson was a U.S. Supreme Court judge, and one of the signers of the Declaration of Independence. Although the largest land owner in Wayne County at that time, Wilson's lack of success at farming and sheep raising, and his inability to collect rent due from his tenants, found him 150,000 pounds in debt and on the run from debtors' prison at the time of his death in 1801.

Mr. Burton Morss, who owned and operated a sawmill and tannery on the Wallenpaupack River at Ledge Dale, acquired much of Wallenpaupack Manor in 1849. At that time, Ledge Dale was a considerable frontier town, boasting a post office, school and general store. The workers were largely Irish immigrants. Burton Morss conducted the devastating harvest of virgin timber in the Wallenpaupack basin. Photographs from 1875 show that the harvest of timber left very little forest standing on the Pocono plateau. Tannin from the bark of the hemlock tree was used for curing hides into leather. The tanning of leather was a major industry in Wayne County during Morss' years in business, as was logging. Regional roads were so primitive that Morss operated a steamboat between his mill and the head of the Wallenpaupack Falls, at Wilsonville. There he had access to markets by way of the Delaware and Hudson Canal and the railroads connecting to the Lackawanna Valley and to the Erie Railroad, at Lackawaxen. The Lacawac property had been part of the Morss' land holdings, and he and his family used to fish at Lake Lacawac, which early developed a reputation as an excellent bass lake. Their rough wagon road reached the lake at the present dock site. After a fire in 1895 burned the tannery to the ground, Morss closed down his business.



# CONNELL PARK

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Mr. William Connell, born in Nova Scotia in 1827, moved to the Pennsylvania coal fields in his youth and began his career driving a coal wagon. Illiterate, he married a woman of great character named Annie Lawrence, who taught him to read and write. Their extreme frugality and industrious careers enabled them to purchase the coal company for which Connell had worked during the decade following the Civil War. From there, Connell branched into other activities, establishing a huge button manufacturing plant, and finally serving in the U.S. House of Representatives, and seeking, unsuccessfully, the Republican nomination for Governor of Pennsylvania in 1902.



Connell purchased the 400-acre Lacawac estate, which he called Connell Park, in 1902-1903. Establishing the first of the "second homes" in the Wallenpaupack basin, Connell set a standard of style and comfort unique to the neighborhood. It was typical of estates which wealthy Americans were building in the Berkshires and Adirondacks at the turn of the century. The lodge boasted indoor plumbing with hot and cold running water, central heating, and a walk-in cooler supplied with ice cut from Lake Lacawac in winter and stored in the icehouse. The main



lodge, with rustic trimmings and Mission oak furnishings, was paneled throughout with southern yellow pine. The large living- and dining rooms with fireplaces, kitchen, pantry, and screened dining porch provided a gracious setting for living and entertaining. Eight bedrooms, three bathrooms and sleeping porch provided ample accommodation. At the lake's edge were a spring house, a boat house, and a pump house containing a one-cylinder steam pump (which was fired up weekly to fill a big water tank in the lodge with lake water, in order to supply the house with water by gravity flow). Behind the house was a coachman's house in which carbide gas was generated for gas lighting in the lodge. In back of the coachman's house were a woodshed, and a privy (without running water) for the help. The ice house and the large two-story carriage house stood at the end of the road. Along the entrance drive stood a deer house, a unique feature in the neighborhood.



By the turn of the century, deer populations had been almost destroyed by market hunters. In the early 1900's, the appearance of a deer made newspaper headlines. Connell decided to establish a deer park on his estate. He installed four miles of wire mesh fencing topped by barbed wire to contain a herd of deer he imported from Virginia. His deer house was designed to feed the deer in winter.

Numerous local farmers were employed in building the estate. Some women from nearby farms served as domestic help, young

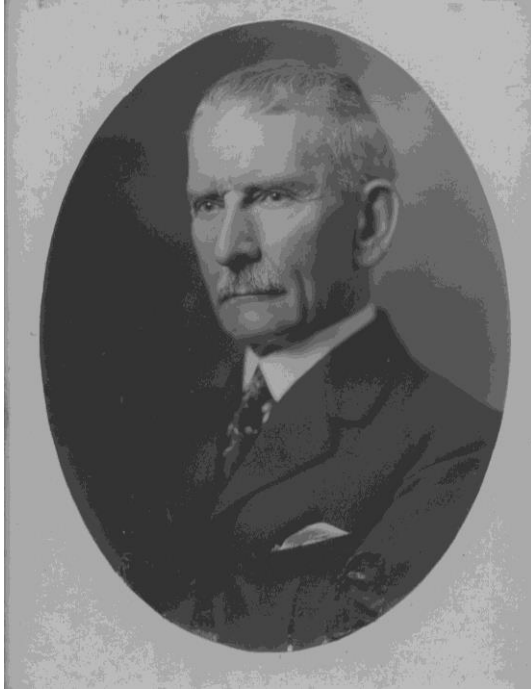
farm lads did odd jobs and towed boats for guests fishing on the lake.

William Connell died in 1909 leaving six of his eleven children, none of whom had any interest in retaining Lacawac. The Connell's lived in Scranton, and Lacawac seemed a million miles away in the hinterlands. To reach Lacawac the family had to take a train from Scranton to Lake Ariel, where they were met by their coachman for the rough and dusty seven-mile ride to Connell Park. It was just too logistically difficult to maintain the estate, to be appealing to the Connell heirs.



# The Watres Legacy

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At this point, another remarkable man entered the picture: Col. Louis A. Watres. Col. Watres, a major figure in Scranton for 50 years, was obliged to go to work after completing fourth grade of school. He continued to educate himself, however, for the rest of his life. As a young man he clerked for Judge John Handley, read law at home and, at an early age, became an influential member of the Bar Association and established a flourishing law practice. His business career began with the organization of a network of trolley lines to provide public transportation in the Lackawanna Valley.

At the same time, he pursued a successful political career as County Solicitor, State Senator, Lieutenant Governor of Pennsylvania and was a two-time Republican nominee for Governor of the State of Pennsylvania. Col. Watres organized the County Savings Bank, and was president of the Scranton-Lackawanna Trust Company. He owned and operated

two daily newspapers: *The Scranton Truth* and *The Scranton Republican*. He organized the Spring Brook Water Company. Watres joined the National Guard as a private and quickly rose through the ranks to become colonel of the 11<sup>th</sup> Regiment during the Spanish American War.

Ultimately, Col. Watres' business interests included the manufacture of chemicals, railroads, lumbering, coal, and the organization of the **Pennsylvania, New York and New Jersey Power Company and the Pennsylvania Reality and Investment Company** which initiated the **Wallenpaupack Power Project**. It was this Wallenpaupack project which connected Col. Watres and his family to Lacawac.



In order to create the basin for Lake Wallenpaupack, the **Pennsylvania, New York and New Jersey Power Company** needed to obtain 5,700 acres of land along Wallenpaupack Creek. The Power Company did not have the power of eminent domain, and had to bargain for every inch of land needed to flood the basin. The farms along the river were not prosperous and some landowners were very shrewd hold-outs. The Connell property was a typical example: Col. Watres needed only 40 acres of land along the river, but had to purchase the entire estate of almost 400 acres in order to acquire the needed parcel! All told, it was necessary to acquire 15,000 acres of land in order to flood 5,700 acres. Although Connell had invested about \$50,000 in building the infrastructure at Lacawac, Col. Watres purchased it for \$15,000. The entire acquisition of 15,000 acres had cost the Power Company about \$250,000. (Comparisons of this sort have little meaning, however, over long periods of time. When the Scranton family came to the Lackawanna Valley in 1840, the dollar had forty times its present purchasing power.)

The Wallenpaupack assemblage of land was completed in 1913 seven years before the Pennsylvania Power and Light Company [**PPL**] was formed. The Guaranty Trust Company made a loan of \$25,000,000 to the **Pennsylvania, New York and New Jersey Power Company** for clearing the basin and constructing the dam and power plant, secured, in part, by the land. (At the outset, there were discussions between the Power Company and the Delaware, Lackawanna and West Railroad about selling the Wallenpaupack Power project to the railroad in order to electrify their line across the Pocono plateau, but the deal fell through.) The basin was cleared after World War I. PPL, formed in 1920, acquired the Wallenpaupack project in 1923. In 1924 construction of the dam began and Lake Wallenpaupack was full and operating by spring of 1926.



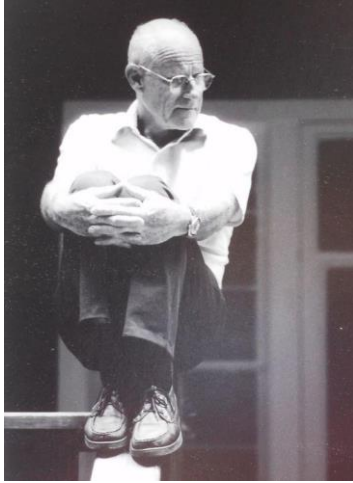
For many years the Watres family had owned a summer compound on Nantucket Island; therefore, Lacawac was not a high priority for Col. Watres or his children. Until the beginning of the Great Depression, a nephew, Lewis Healy, and a niece, Mrs. Cole Price and their families, vacationed at Lacawac. Throughout the depression and World War II, Lacawac was leased pending its sale. In the interim, the undisturbed natural aspect of Lacawac became more beautiful each year, while the buildings and entrance road suffered from almost total neglect.

Col. Watres had two grandchildren. Having visited Lacawac for an occasional picnic or weekend over the years, the diversity and beauty of the estate greatly appealed to his grandson, L. Arthur Watres and Arthur's mother, Mrs. Reyburn Watres. The vigorous second growth forest with dense thickets of rhododendron and mountain laurel competed for space and light with a vast array of other native plants. This abundance of vegetation in turn supported a remarkable population of animal life. Following the death in 1946 of Arthur's father, Mr. Reyburn Watres, Arthur and his mother decided to call Lacawac home. They moved to Lacawac in 1948.

The entrance road was almost impassable. The dock had collapsed into Lake Lacawac. The roof of every building leaked. The screening was gone. The staining of shingles and painting of trim had been neglected for two decades. Porches and windowsills were riddled with termites and timber ants. The Watreses began restoration of the buildings. Under the guidance of the state forester, a selective harvest of timber was undertaken to improve the stand.

# The Founding of the Sanctuary

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Long winter evenings found Isabel Watres and her son, Arthur, reading. Two books by Fairfield Osborne, "This Plundered Planet" and "The Limits of the Earth," had a profound influence on them. What, they wondered, would become of Lacawac after they were no longer here? Attempts to interest the local government in preserving Lacawac from developmental excesses, based on its sheer beauty, were unsuccessful. Beauty does not pay taxes! The Watreses decided to make a trip to the Museum of Natural History in New York in search of author Fairfield Osborne, for his advice.

At the Museum they were befriended by Dr. Richard Pough. In that year (1952) Dr. Pough was the first president of the newly established Nature Conservancy. Having become members of the Conservancy, the Watreses, at Pough's suggestion, went to speak to Dr. Radclyffe

Roberts, the Director of the Academy of Natural Sciences, in Philadelphia. The Academy was becoming an important research center for aquatic ecology under the guidance of a dynamic scientist, Dr. Ruth Patrick. Shortly thereafter, on a cold winter day, Drs. Roberts and Patrick made a visit to Lacawac. Dr. Patrick observed that Lake Lacawac was probably the southernmost unpolluted glacial lake in the United States, and that it would be invaluable as a baseline lake for research and education. For the past forty years, man's touch at Lacawac had been light, thereby protecting the watershed. Continued control over Lacawac, to protect the integrity of the Lake, would provide a living laboratory for research projects. To that point, the Watreses had felt that the beauty of Lacawac alone provided a basis for protecting the land. Now they had a serious, humanistic rationale for protecting Lacawac, and one that might attract support over time.

The Watreses spent the next fourteen years endeavoring to find an institutional partner to provide strength, stability and significant programs at Lacawac. Having failed to find an institutional partner of recognized strength and stature, the Watreses formed the Lacawac Sanctuary Foundation in 1966, and turned over the lake, most of the infrastructure and much of the land to it. By 1967, the Sanctuary had become a field laboratory for scientists from the Academy of Natural Sciences and for researchers and graduate students from the University of Pennsylvania.



Dr. Ruth Patrick



# The Building of the Field Station

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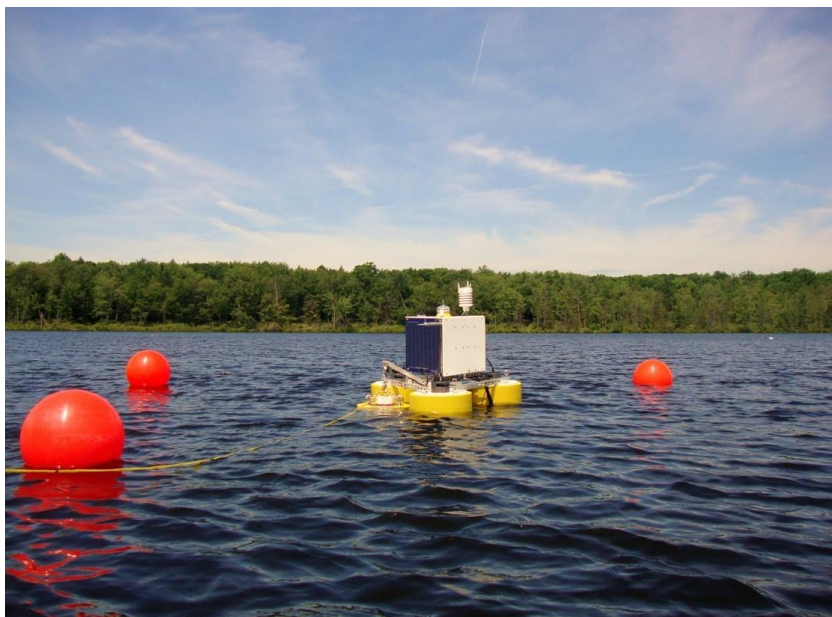
In 1988, Dr. Craig Williamson and his colleagues, brought to the region a group of field biologists (Bruce Hargreaves, Robert Moeller, Clyde Goulden, Win Fairchild, Mike Pace, Bob Sanders, and eventually Sue Kilham were all involved in these early efforts). as teachers and researchers. With help from the Mellon and Dodge Foundations, a dynamic program known as the Pocono Comparative Lakes Program was instituted to do research in three area lakes. Lake Lacawac is one of the three. Small groups of highly motivated students were recruited for training in research methods. With the assistance of Mellon and Dodge mini-grants, researchers from other institutions were also lured to the Pocono Comparative Lakes Program.

Dr. Craig Williamson noted, “Lacawac has held a dear place in my heart for decades, ever since I first met Arthur and shared his vision for a thriving ecology research program at Lacawac. The good science has persisted and put Lacawac on the map at the national and global scales.”

After Arthur’s mother Isabel passed away, Dan Townsend (University of Scranton) and Craig Williamson led an effort to establish the Watres Student Research Fund. Scientists and past and current students were the contributors along with the Sordoni Foundation.

After Robert Moeller passed away, he left a generous endowment that established the Robert E. Moeller Fellowship. His father, John Seland Moeller, and sisters, Siri Margerin, Andrea "Petie" Moeller, and Betsey Moeller Sally all donated to the fund.

Programs at Lacawac Sanctuary over the years have changed the lives of many people, opening their eyes and minds to scientific and ecological issues facing humanity. It is our goal to excite people about these issues and to entice them to become a part of the solution.





# The Watres Lodge at Lacawac

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## **LODGE:**

The Lodge at Lacawac, built in 1903, preceded by 30 years the beginning of the second-home industry in the Wallenpaupack Basin. The only residence in the original complex of eight buildings on the estate, it was designed and furnished in the style of the turn-of-the-century lodges built by wealthy families in the Adirondacks, with gas lighting, refrigeration, hot and cold running water, indoor plumbing and central heating. It set a standard for style and comfort then unheard of in this rural area. Now restored to its original charm, the Lodge and its associated buildings are listed on the National Register of Historic Places and are available to students and researchers from academic institutions and other organized groups.



## **COACHMAN'S HOUSE:**

The left side of the coachman's house contained the generator for producing the carbide gas to supply the lodge with gas for lighting. The coachman lived in the right side of the building. Behind this building were a woodshed and a privy for the household help.

## **ICE HOUSE:**

In winter, a crew cut ice from Lake Lacawac and hauled it with horse-drawn sledges to the ice house. There, it was stacked up to the level of the rafters, each layer insulated with sawdust. As needed, the ice blocks in summer were trundled by wheelbarrow to the ice box and cold room in the Lodge. The last ice harvest at Lacawac was during World War II, when public power was brought to Lacawac. In 1949 the Watreses began conversion of the Ice House to a year-around dwelling and spent the winter of 1950 in it, after two sparten winters in the Lodge. In 1951, they moved to the brick house which they built overlooking the beautiful little wetland which they later flooded to create Heron Pond.

## **CARRIAGE HOUSE:**

The Carriage House, one of five remaining original buildings (there were originally eight), was in use by the Connell family until his death in 1909. Barn dances became a memorable feature of life at Connell Park. The family would hire an orchestra and spread the word in the community of an invitation. Buggies would come streaming in from all over the countryside for dancing in the Carriage House, all gaily decorated with American flags and bunting. The Carriage House is now used for community out-reach programs and a gift shop. There is one laboratory on the first floor. Upstairs one finds a laboratory, classroom and computer room and storage.



## **LAKE LACAWAC:**

Lake Lacawac was formed about 13,000 years ago when a glacier scooped a crater in the red Catskill sandstone, and melting ice created a scour lake. It is currently 52 acres in size, roughly 60% of its original size. At its deepest point (marked by the keg) it is now 43 feet in depth. At its inception, the lake was almost 80 feet deep. Over the years, Lake Lacawac has been filled in with layers of organic dead plant material at the rate of 1/10 of an inch per year.

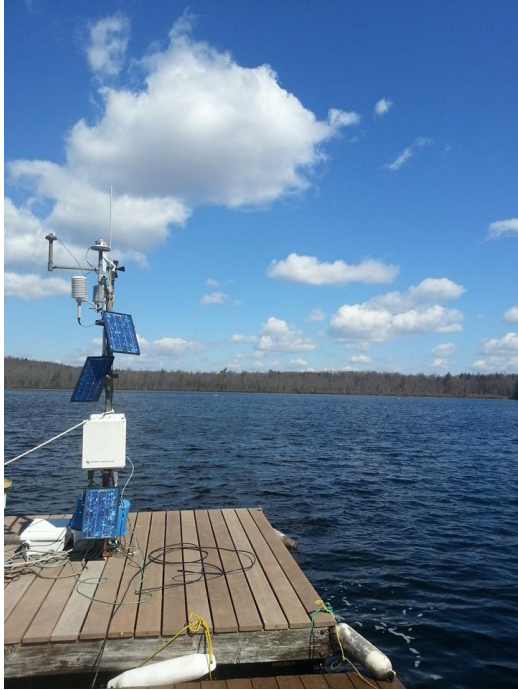
Dr. Ruth Patrick, from the Academy of Natural Sciences in Philadelphia, has penetrated 35 feet



of organic material down to the red clay basin of the lake in order to obtain a core specimen.

Because the bottom third of a lake lacks oxygen, the specimen has been well preserved. Scientists from the Academy and from the University of Pittsburgh have carried out studies on the core material to learn how old the lake is and what changes have taken place since glacial times.

Clyde Goulden, also of the Academy, saw in Lake Lacawac an opportunity to study eutrophication (or aging) in an unpolluted lake. In polluted lakes, such as Lake Erie, aging is accelerated by compounds of phosphorous and nitrogen (from sewage and other industrial waste). Whereas these compounds, in normal amounts, facilitate the growth of useful algae, excessive amounts cause an explosive overgrowth of algae which de-oxygenates a lake, fills it with organic material and eventually turns it into a marsh. Dr. Goulden has used Lake Lacwac as a living laboratory to teach ecology to his graduate students from the University of Pennsylvania.



Because the prevailing wind pattern is from the northwest, the continuous wave action from that direction breaks down sandstone and washes away plant material from the eastern and southern shores (visible near the Spring House). Golden club, a rare plant, can be found on this shore. Lining the north and western shores is an acid bog mat caused by years of fallen trees and deteriorating plant matter. These shores have a diversity of plants including sphagnum moss, pitcher plants, sundews, and water lilies. One can also see virgin forest on this side of the lake. It is likely that the lumber harvest did not affect the bog growth on this side of the lake, owing to the difficulty of skidding timber in such terrain.

William Connell had used Lake Lacawac to supply his house with drinking water. A one-cylinder steam engine, located in the Spring House, was fired up as needed to pump the water into a water tank located on the second floor of the Lodge. The water tank occupied the space now converted to a bedroom. Connell had therefore taken very great care to direct wastewater from the house away from Lake Lacawac via a 6" terra cotta drain line outside of the Lake's watershed. Because of this, and because of man's light touch to the Sanctuary over the many years, Lake Lacawac is an unpolluted lake in an unspoiled natural setting. Lake Lacawac has been selected to participate in the Comparative Lakes Program and is held the standard against most other lakes which endure water quality problems.

The weather station at the center of the Lake belongs to Lehigh University. It takes readings every 15 minutes as to wind velocity, air and water temperature, pH, UV radiation and relative humidity. (During a storm in 1994, it clocked winds at 70-mph.) Scientists, teachers and their students from over 100 institutions of higher learning within a 100-mile radius have used the Sanctuary and Lake Lacawac as a field laboratory. Lake Lacawac has become the "control" in a vast scientific experiment: here in 40 years of research activity scientists have sought to understand the dynamics of life in a lake. They and their students become the "experts" to whom we look for help in dealing with water quality problems of the community at large.

Fish in Lake Lacawac include small- and largemouth bass, perch, pickerel, pumpkin seed, blue gill, and bullhead (catfish)

## **LANDMARK:**

In 1968, the US Department of the Interior National Park Service declared Lake Lacawac to be the nation's 86<sup>th</sup> Registered National Landmark. There are 400 glacial lakes in this part of the country. This national Landmark designation signifies that Lake Lacawac differs from most of these others because man's touch has been light. Having essential control of Lacawac's



watershed, the Sanctuary protects this lake from the developmental activity affecting most of the other lakes, which is causing water quality problems in them.

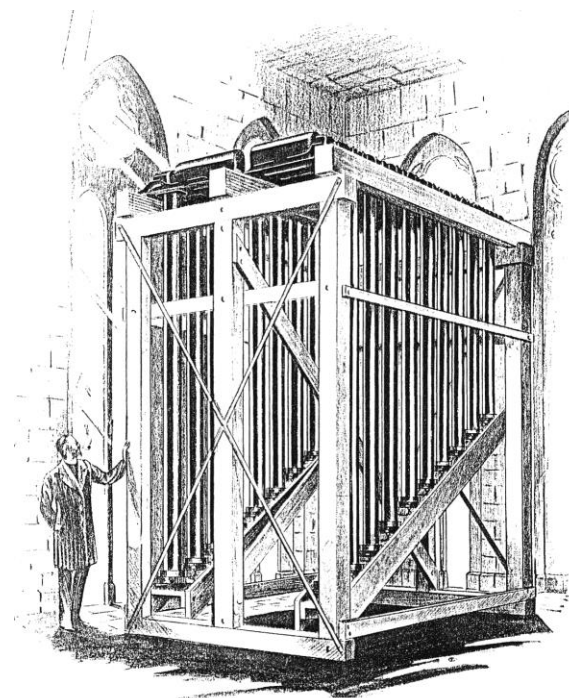
Lacawac Sanctuary is a private non-profit facility dedicated to education, natural and historical conservation and preservation, and scientific research, supported by donations, memberships, use fees and an occasional grant from government agencies or foundations.

**The mission of the Lacawac Sanctuary Foundation Inc. is to preserve our glacial lake, its watershed, surrounding forest and land, and historic buildings; educate the public on the environment and the wise use of our resources; and promote ecological research, scholarly interaction, and the training of scientists.**

### **CHIMES:**

The chimes, now standing outside of the Carriage Barn, were originally part of Col. Louis Watres' estate in Scranton. Of the 438 chime sets manufactured by the Deagan Chime Factory, only six sets were produced for non-commercial use. Other sets on private estates included the DuPont's Longwood Gardens, Scotty's Castle in Death Valley, and the Wrigley Estate on Catalina Island. Throughout the world today, there are only 96 working sets remaining.

The chimes weigh over 10,000 pounds, and the longest ones are over 14 feet. When Watres built his mansion, he had a WWII Kimble pipe organ inside and Deagan chimes installed in a tower on the mansion grounds. The chimes were run by a clock mechanism in Col. Watres' home and rang out over the countryside every quarter hour. The chimes also had a keyboard, so as to make it possible to play



appropriate tunes on special occasions, such as Christmas and the Fourth of July.



In 1937, fire destroyed Watres' imposing mansion on the East Mountain. The fire, visible from all over Scranton, occurred on a Sunday morning. Large numbers of citizens had been guests at Pen-y-Bryn at concerts, picnics and other large affairs and knew the house well. Many rushed to the fire and carried from the burning house antique furniture, rugs, paintings, sculpture and anything else they could save. The organ mechanism, on the third floor, created a great spectacle when it crashed. The clock mechanism, which controlled the chimes, was also destroyed; however, the 16-tone, 10,400-pound set of tubular chimes were in a tower some distance from the house. Col. Watres died three months after the fire. The romantic stone walls of the ruined castle were a safety hazard, and were dismantled. When Isabel Watres and her son, Arthur moved to Lacawac in 1948, the chimes went with them, becoming a storage problem for half a century.

D.J. Roberts, a past Lacawac Trustee and owner of Lakeside Electric, learning about the chimes, checked out the striking mechanisms and found them sound. He set a goal of installing them in a tower so that they could be played manually in celebration of Isabel Watres' 100<sup>th</sup> birthday. On a subsequent Lacawac tour, Jon Tandy, a retired Navy officer, became intrigued with the chimes. With a degree in sonics and electrical engineering, he was soon deep in coordination with D.J. Roberts. He weighed in with a scheme to play the chimes electrically again, using a trickle charger, storage batteries and personal computer. One of the damaged chimes had to be repaired. This remarkable feat of metallurgy proved a major team effort. With over 70 volunteers a scheduled concert treated the community to an exciting lecture and music co-hosted by Roberts and Tandy. Lacawac functions on a very small operating budget, and this chime restoration honored by the Wayne County Historical Society was possible only through the enthusiasm and labor of volunteers. They have breathed life in to the Lacawac Sanctuary over the years.

### **DEER:**

One of the ironies of Lacawac's deer history is that, 100 years ago their population had been almost totally destroyed by market hunting in Pennsylvania. William Connell wanted Lacawac to be a "deer park" and imported his own herd from Virginia. So it is from this herd that our huge deer numbers are largely descended. A sustainable deer population at Lacawac is 0-5 deer per square mile (the Sanctuary is approximately one square mile). The 2002 deer census estimated 37 deer per square mile. One should not be able to see more than 15 feet into the forest at Lacawac. Because of excessive deer browsing, there is no longer forest undergrowth. We no longer find many of the animals that require a thicket environment, such as grouse, woodcock, songbirds like cardinals. Neither is there regeneration of trees as the deer nibble away new seedlings. In the spring of 2000, Dr. Dan Townsend, biologist at the University of Scranton, organized a deer census in an attempt to measure deer density. At the orientation session, one of the foresters extracted a \$20 bill from his wallet, placing it on the table. He announced, "We're going to be walking transects in these woods

all day. All you have to do to claim this \$20 bill is to find us a 15-inch oak seedling." By evening, after a long day, there were no claimants.

Deer overpopulation has adversely affected our forests. Rhododendron are defoliated, mountain laurel are severely damaged. Wildflowers are disappearing. One no longer finds wild orchids in the woods. Dr. Dan Townsend, from the University of Scranton, has established deer "exclosures" at the Sanctuary in order to learn if forest life will regenerate if deer are excluded. We are in great danger of losing our forests and the beautiful landscape we have always taken for granted. With loss of the wolf population, only man and his automobile remain a threat to deer. According to information from a recent Audubon 2002 workshop, deer collisions on Pennsylvania highways now cause \$220,000,000 per year. There are more deer in Pennsylvania today than in the entire United States before the Europeans. Gary Alt, former Chief of the Pennsylvania Game Commission Deer Management Section, has recently altered hunting laws to encourage, over time, a smaller, healthier population of deer.