

“From Clean Lake to ‘Witch’s Brew’”

Robert W. Andrews

first in a five-part series *Onondaga Lake: A Paradise Lost?*

Syracuse Post-Standard
October 14, 1985

On the west shore of Onondaga Lake, a terraced hillside of chalky chemical waste rises 80 feet above the barren shore. Scattered patches of tangled brush cling to the white, spongy slope.

It is quiet here, and desolate. yet less than a football field away, cars and trucks rush past on Interstate 690. Across the way is the village of Liverpool. And off to the right, across the water, are the city skyline and the Carrier Dome.

It was along this shore in the 1890s that many of the grand resorts and hotels flourished, drawing thousands for weekend recreation – swimming, fishing, dancing, watching vaudeville or just enjoying the rides, games, and grand times.

One by one, the west shore resorts lost their allure. The fish population was decimated. Swimming became unsafe. And Allied Chemical Co. built a wall of waste on the shore.

For decades, the white hills of the west shore have been a visible metaphor for the lake over which they tower: a lake that will never come clean. At least that is the popular perception.

“A concoction as vile as found in any witch’s brew” is how Daniel Jackson, a scientist and environmental crusader, described Onondaga Lake in the 1950s.

It stank. It looked dirty. People who went to the bottom emerged with thick, black goo covering their feet and legs. Human excrement floated on the water.

It was a lake little loved and often ignored. A letter to the editor in the 1950s urged that it be paved so the road to Baldwinsville would be

shorter. Another, in the ‘60s, suggested it be filled with garbage.

Onondaga Lake and its west shore: abandoned, written off, and neglected.

How did it happen? And can such a lake ever be clean again?

During months of research and discussions with dozens of scientists, bureaucrats, politicians, and people who know the lake, *The Post-Standard* sought answers about Onondaga Lake – about its past, its present, and its future.

Among the answers that emerged:

- Allied Chemical Co., once Solvay Process Co., is by far the lake’s worst polluter.

When the company began producing soda ash in 1884, the lake began to die. Within two decades, the fish population was decimated. As the lake’s waters worsened, Allied built its enormous wall of waste on the west shore.

Since the 1880s Allied has literally been filling the lake with its waste – tons of sodium chloride and calcium chloride.

Scientists say that between 20 and 40 percent of the lake has been filled with Allied’s waste in the past century, creating a 15- to 30-foot layer of goopy black muck on the bottom.

- Allied’s other major contribution to the lake – 20 pounds of mercury a day for 18 years – was halted by the federal government in 1970, and the mercury level began to drop. But to the bewilderment of lake scientists, recent tests have found a resurgence in that level. Until the mercury mystery is solved, it will not be safe to eat fish from Onondaga Lake.

- Despite Allied's leading role in the lake's decline, there's plenty of shame and blame to go around. Over the years, virtually everyone has polluted Onondaga Lake.

Crucible Steel dumped its chromium waste. Bristol Labs added organics from its penicillin plant. Syracuse China disposed of broken dishes there. In the 1950's, one estimate was that 139 industries used Onondaga Lake as their waste basin.

And, for decades, the city of Syracuse used the lake as a toilet. Even today, raw sewage flows directly into the lake on rainy days, when the city's antiquated wastewater system overflows.

- Year after year, the government agencies whose job it was to keep the lake clean refused to crack down on the blatant pollution. Often, they encouraged it.

Engineers in the 1920s wrote reports advising the city to use Onondaga Creek and Onondaga Lake as sewers on the theory that sewage would decompose entirely as it went from one end of the lake to the other. And city officials decided with little debate to do just that.

State officials failed to enforce state laws against pollution. Instead, the city and the state made quiet deals allowing Allied to continue despoiling the shoreline and to continue discharging waste into the lake.

Politicians - Gov. Thomas Dewey, in 1946, for one, made promises never fulfilled. Dewey promised lake improvements and action to protect Onondaga Lake against despoilment by any private company. Still, the pollution went on unabated, and local environmental crusaders blamed the governor for blocking legal action against Allied, which by then was one of the largest employers in the Syracuse area.

Newspapers mostly ignored the pollution and the growing wall of waste. When the Syracuse Post-Standard did write something in 1903, attempting

to describe what was happening on the west shore of the lake, the story's relation to truth was remote.

- Onondaga Lake has been studied and restudied, prompting lake expert Robert Hennigan to call it "perhaps the most studied lake in the nation."

But still left unstudied are such key questions as: Why is deadly mercury still showing up in fish flesh? What other toxic chemicals are in the lake?

- Despite all this, Onondaga Lake has improved substantially from the slimy, miasmatic bog Syracuse knew in the 1950s.

The reasons are many: The tireless work of a handful of environmental crusaders, one generation leading to another. The county's new sewage treatment plant, which opened in 1979. And the impact of tough, new environmental laws, including the creation of the Environmental Conservation and the federal Environmental Protection Agency in 1970.

Scientists believe that, with Allied's scheduled plant closing next year, Onondaga Lake is entering a new era. It might eventually become reasonably clean and useful.

Already, they say, there are days each summer when bacteria levels are low enough that it is safe to swim.

A Place in History

Long before Solvay Process came to the west shore – before white men set foot in America - the Onondaga Indians fished and trapped along the shores of the lake.

When the Europeans arrived and began struggling for a foothold in the New World, the lake became a battlefield.

In 1615, a French force led by Samuel Champlain launched an unsuccessful invasion of

an Indian camp at the south end of the lake where Oil City is now, hoping to gain control of the lake, a crucial link in a system of inland waterways.

Years later, an enormous force – 2,000 French soldiers and Huron Indians in 400 canoes stormed into Onondaga Lake, intent on wiping out the Onondagas. It probably was the largest army ever gathered in North America up to that time, but it never saw battle. The Onondagas burned their village and fled into the woods, leaving the French with nothing. The invaders soon abandoned the site, and the Indians returned to the lake.

Around that time and for centuries thereafter, the lake's shoreline was marshy and mosquito-ridden.

The lake was larger than it is at present - much of what is now the city's west side was underwater. In 1822, the state lowered the level of the lake by making its Seneca River outlet deeper and wider. The lake receded from the shallow, marshy shoreline to roughly its present configuration. A road along the shore was built in 1878.

From then until the early 1900s, Onondaga Lake was a vibrant part of Syracuse.

People swam in it, fished in it, boated along its waters and took the trolley or the lake steamer to its west shore resorts – places with names like Lake View Point, White City, Rockaway Beach, and Maple Bay.

The resorts were places of romance. Couples could take the open-air, double decker streetcars to the Iron Pier resort. There you could dance on one of the area's largest floors.

For children, the resorts were a summer haven. There were hot dogs, ice cream, games and rides, as well as swimming and fishing. In the

winter, Onondaga Lake was a place for ice-skating and ice boating, and someone always had a pick-up hockey game going.

As the lake was becoming popular toward the end of the 19th century, the industry that dominated its shore for a century began to decline. Where once Syracuse had a virtual monopoly on salt-making, it now was possible to mine salt elsewhere at a cheaper price.

Salt production was possible here because Syracusans discovered a salt spring along the lake shore: a well that tapped into a deep underground layer of salt that was formed in pre-glacial times. For 100 years, it was a multimillion-dollar business that dominated the local economy and made some Syracusans rich.

As the 1800s approached, a new industry rose along the lake shore. Twenty years after Solvay Process Co. was established, a burgeoning ice industry was banned because of impurities in the lake's water. And resorts began to fold.

From that time on, the soda ash company would control the lake's destiny.

A Handful of Heroes

Even in the darkest periods of the lake's decline, amid the misguided policy decisions and the simplistic assessments, there were a few heroes. Among them:

✓ Norman Richards, a professor at SUNY College of Environmental Science and Forestry, spent years in his spare time during the late 1960s and '70s lugging fertilizer and seeds to the terraced mountain of chalky waste on the west shore. He was determined to prove that plant life could grow there. Singlehandedly, he covered a substantial portion of the shore with grass, shrubs, and wildflowers.

✓ A trio of environmental crusaders took on Allied, the city and the county in the late 1940s and '50s. There was Walter Welch, a State Fair official; Crandall Melvin, a banker; and William Maloney, a real estate developer. Well before the

environment was a hot issue, they formed the lake's first cleanup group and lobbied hard during the lake's worst years.

✓ A decade later, civil engineering professor Daniel Jackson and chemist Samuel Sage followed in their footsteps. Jackson, often criticized by county officials who thought he went too far, used a boat denoted by Syracuse University called Saltine Warrior to rally and cajole support for Onondaga Lake cleanup efforts. Sage, to this day, wages a solidarity campaign using laws that allow citizens to sue, to keep companies from illegally polluting the lake.

Thanksgiving in Lakeland

What prompted the area's environmental awakening was a disastrous event on Thanksgiving Day 1943.

While residents slept, the dam holding back the Allied waste beds broke open. An 8-foot wall of goo, thicker than week-old mashed potatoes, flowed into the Lakeland neighborhood.

Everything for more than a square mile was inundated: homes, trees, the boulevard, even the State Fairgrounds.

From then on, people started taking a much closer look at what Allied was doing to the lake and its shore. Only recently, however, have scientists begun to understand the complex chemical nature of Allied's pollution. And not until Allied leaves will the company's full impact on the lake become clear.

For more than 100 years, the soda ash company has been loading up the lake with its waste. At first, the company dumped directly into the lake; now it channels the waste into the lake through the county's only sewage treatment plant.

Allied's discharges have made the water salty, heavy, and stratified and have robbed the lake

of oxygen. For that reason, no fish can live on the lake's bottom, and some fish can't live anywhere in Onondaga Lake.

The pollutants also combine with algae to make the water extremely cloudy.

All the dumping has made the Onondaga Lake age quickly. It is normal that as lakes grow old they become shallow and cloudy. have too much algae and too little oxygen.

But in Onondaga Lake's case, the aging is not natural. The lake is aging prematurely because of all the pollution Syracusans have put into it.

Plenty of Grand Plans

Prospects for cleaning the lake depend partly on chemistry but mostly on economics and politics.

Some scientists say that with Allied's departure and a major effort to reduce sewage overflow, the future of the lake is bright.

There is already talk of a bathing beach. The county is pursuing plans to continue its bicycle trail along the west shore, making the lake the centerpiece of a trail that would go from one end of the county to another.

There is no shortage of grand ideas: A boat marina at the barge terminal area. A space needle restaurant on the west shore. Cafes and restaurants along Onondaga Creek. Fishing piers. A water park. Hotels and motels.

All have been proposed for the lake, its shore or the creek that feeds it.

Most await the answer to the basic question: Can Onondaga Lake ever be clean? (Andrews).

Onondaga Lake Superfund Site

New York State Department
of Environmental Conservation

Student Reading

Excerpt from the New York State Department of Environmental Conservation's website, 2012.

Onondaga Lake Cleanup - Overview

Onondaga Lake is located in central New York adjacent to the city of Syracuse. The lake covers an area of 4.6 square miles, has an average depth of 35 feet and a maximum depth of 63 feet. Its volume is about 35 billion gallons. The lake is approximately one mile wide and 4.6 miles long, and receives water from a land area, or drainage basin, of approximately 285 square miles in area, almost entirely within Onondaga County, New York.

Brief History

Before the American Revolution, the area surrounding Onondaga Lake was the center of the Iroquois Confederacy. European immigrants settled the area throughout the 17th and 18th centuries due in part to the presence of salty springs around Onondaga Lake. After the Erie Canal was built in the early 1800s, the booming salt industry in and around the city of Syracuse attracted many people. In the 19th century, Onondaga Lake served as a popular tourist attraction. The lake was populated with beaches, resorts and amusement parks.

Use of the lake changed dramatically when the water and lake bottom sediments became polluted with municipal sewage waste and industrial pollution which resulted in low oxygen levels and elevated levels of nutrients, harmful microorganisms such as disease causing bacteria, and toxic contaminants. For over 125 years industrial and chemical operations disposed a variety of pollutants to the lake. At one time industry discharged approximately 20 pounds of mercury to the lake each day. As a result of this, surface water was contaminated with mercury, and sediments were contaminated with PCBs, pesticides, creosotes, heavy metals (including lead, cobalt and mercury), PHAs and volatile organic compounds such as chlorobenzene. Groundwater at many upland sites around the lake was also contaminated.

By the early 20th century, the lake's western shore was industrialized and polluted and the fishing and resort industry began to decline. By 1940 swimming in the lake was banned, and in 1972 fishing was banned. Onondaga Lake and related upland sites were added to the Federal Superfund National Priorities List (NPL) in 1994. The lake and related upland sites were also added to the New York State Registry of Inactive Hazardous Waste Disposal Sites (State Superfund Program).

In 1988 Atlantic States Legal Foundation (ASLF), a Syracuse-based organization providing legal and technical assistance to citizens and organizations dealing with environmental problems, filed a lawsuit against Onondaga County. ASLF alleged that Onondaga County's sewage treatment plant, Metro, and combined sewer overflow discharges were violating federal water pollution standards established under the Clean Water Act of 1972. The State of New York joined as a plaintiff, alleging that Onondaga County also violated the New York State Environmental Conservation Law. The parties settled the litigation in 1989 through a consent judgment, requiring the County to complete planning, design and construction of facilities to bring wastewater discharges from Metro into compliance with regulatory requirements.

In 1989 the State of New York filed a lawsuit against Allied-Signal, Inc. (Honeywell International, Inc. is the corporate successor of Allied-Signal) seeking to compel the company to clean up the hazardous substances that it and its predecessor companies had discharged into and around Onondaga Lake, and to pay damages for the destruction of natural resources. In 1992, the federal court approved a consent order requiring the company to conduct, subject to state supervision and approval, a comprehensive environmental study of the area and to evaluate the feasibility of various remedial alternatives (Department of Environmental Conservation).

***Onondaga Nation's Vision for a Clean
Onondaga Lake***

Onondaga Nation

*Native American nation whose land
includes Onondaga Lake*

Student Reading: Four Perspectives
Document 1, Perspective 1

Excerpt from an April 2010 online brochure published by the Onondaga Nation with funding from the Onondaga Environmental Institute.

The People

From time immemorial, our ancestors lived near Onondaga Lake. The Lake, its waters, plants, fish, shore birds, and animals are an intrinsic part of our existence. Long ago, the Peacemaker brought together the five Nations on the shores of Onondaga Lake to bury the weapons of war and form our government. The Grand Council of the Haudenosaunee Confederacy continues to this day to meet at Onondaga.

The Lake is the living sum of everything in its watershed: the fish, the people, the plants, the soils, the tributaries. Onondaga Lake provides water which should be safe for drinking. Fish and birds make their home in and around the Lake. Food and medicinal plants grow along the shores of the Lake. The Lake was a place for people to fish and hunt. It was a place for children to play and swim and learn. Delegations would arrive at Onondaga for Confederacy meetings by traveling along the Seneca River to Onondaga Lake.

We are carrying out our responsibility to the Lake. We have our own name for the Lake, one which conveys the respect and sacredness of the place and the proper relationship with it. Someday we hope to share this name with our neighbors.

We will work to remove the contamination from the Lake and surrounding land. We will be sure that the Lake is clean enough to drink the water and eat the fish, and clean enough for children to play and swim in the water. We will strengthen our culture and restore our trust in the Lake. We will take our children and grandchildren to important places around the Lake and teach them the proper names and stories for them.

On this we agree...

The Creator

Onondaga Lake is central to the Onondaga Nation's aboriginal territory, and is deeply sacred to the people of the Onondaga Nation. Beauty and tranquility are gifts of the Creator. The rhythms and cycles of a healthy lake cause the people living around it to reflect on the rhythms and cycles of their own lives. The Lake will take care of the Community just as the Community will take care of the Lake.

We will continue to strive for innovation and creativity in cleaning up the Lake. By being creative we show the Creator that we are learning what our responsibilities are. We don't show that we are responsible by doing the same things over and over, but by being innovative. We will bring our best minds to correcting and restoring Onondaga Lake.

We have now arrived at the place where we end our words. We would also invite all things of creation that can help us with our effort to clean up Onondaga Lake. We give thanks to all things of Creation. Of all the things we have named, it was not our intention to leave anything out. If something was forgotten, we leave it to each individual to send such greetings and thanks in their own way.

Now that we have said this, we will bring together all of our best thoughts, best knowledge and best understanding to send to the Creator of all things for the beauty that surrounds us. All of this is to remind humanity of our relationship to all living things.

On this we agree (Ransom and Spence).

Syracuse Area Remediation Progress

Honeywell International

Company that bought Allied Chemical and is legally responsible for cleaning up its waste

Student Reading: Four Perspectives Document 2, Perspective 2

Excerpt from the homepage of Honeywell International's website, *Syracuse Area Remediation Progress*, 2010.

We have made great progress on the restoration of Onondaga Lake. Under the direction of the New York State Department of Environmental Conservation (DEC), Honeywell is working with hundreds of world class scientists, engineers and technicians to implement the Record of Decision (ROD) issued by the DEC and the U.S. Environmental Protection Agency (EPA) in July 2005. Extensive public input has been incorporated into project designs.

In 2010, we began the construction of the area that will hold material removed from the lake. Last year we started constructing a lakeshore cleanup support area and a pipeline that will transport material from the lake to the containment area. A Community Health and Safety Plan, reviewed by DEC and the New York State Department of Health (DOH), describes the protective measures that are taken during this construction. A separate Health and Safety Plan is being developed for lake cleanup operations, which are scheduled to begin this year. Air monitoring results are available here.

We have completed the underground barrier wall, which prevents the primary source of contaminated groundwater from reaching the lake. Groundwater collected is being treated and cleaned at the groundwater treatment plant before being piped back into the lake.

The DEC released the third of four major lake restoration designs in May 2010 and in January 2010 the agency released the draft Onondaga Lake Habitat Restoration Plan for public review. The Habitat Plan includes new wetlands, shoreline improvements, and a robust habitat layer for the bottom of the lake where remediation is required.

In April 2010, DEC, in consultation with DOH and EPA, posted answers to Frequently-Asked Questions

about the plans to remove materials from the lake and pipe them to the containment area. And in June 2010, the EPA released an Onondaga Lake Human Health Risk Assessment related to the containment area.

Progress continues at other sites near the lake. In 2011, work began at Geddes Brook to transform 17 acres of land into a diverse new habitat for wildlife. The yearlong project will involve the removal of contaminated soil and invasive plants, and the planting of 50,000 native shrubs, flowers, and trees.

Wetlands around the old LCP plant in Geddes are filled with native species that are attracting wildlife. Twelve thousand newly-planted trees and native plants are now growing in these formerly contaminated wetlands. In 2005, Honeywell stopped the flow of mercury from this site by installing a five-story deep, underground cut-off wall, and removing more than eight tons of mercury from the soil through a new technology called "soil washing."

In coordination with the State University of New York College of Environmental Science and Forestry (SUNY-ESF), Honeywell has created a Shrub Willow Farm in Camillus by planting more than 200,000 shrub willows on 35 acres of Honeywell property. This rapidly growing plant creates a sustainable and effective vegetative cover while increasing biodiversity, promoting recreational opportunities and serving as a productive source of "green" energy and bio-fuels for the region.

Honeywell is committed to continued public input throughout our work. Two-way communication and opportunities for public engagement are critical to achieving a successful, sustainable restoration of the lake. As part of the Citizen Participation Plan (CPP), the Community Participation Working Group is meeting throughout the remediation and restoration work providing a forum to inform, receive input and discuss specific aspects of the design and construction of the lake restoration. Honeywell fully supports the implementation of the CPP (Honeywell International).

“Responsiveness Summary Comments”

Deborah Warner, Greater Syracuse Chamber of Commerce

Largest business organization in Central New York region where Onondaga Lake is located

**Student Reading: Four Perspectives
Document 3, Perspective 3**

Excerpt from Deborah Warner’s comments submitted to the Environmental Protection Agency’s National Remedy Review Board on the Onondaga Lake Superfund Site, January 12, 2005.

My name is Deborah Warner and I am Director of Government Relations at the Greater Syracuse Chamber of Commerce. We are the largest business organization in Central New York with more than 2,300 member firms employing more than 140,000 working men and women in our community...

Our chambers includes the Onondaga County Convention and Visitors Bureau. Although we already market the lake for a range of events, we are thrilled at the potential of visitors and events after the remediation is complete. Waterways are certainly a huge part of our tourism marketing efforts. Currently, to the naked eye, the activity along the shoreline of Onondaga Lake is a fabulous asset.

But the question remains from our out of town visitors, why is there no activity on the water? Imagine the tourism benefits when we can successfully host major fishing and boating events. When DestiNY (a large shopping mall) is built, the value of the lake to us is nearly inestimable. We urge final approval and implementation of this program as soon as possible. Many projects in and near Onondaga Lake are moving forward, particularly the more than \$200 million inner harbor project [by the DestiNY team] we should see this year begin.

And the faster the lake is cleaned up the more development and spin off jobs will occur. Of course we can't ignore the economic impact of over \$400 million over the next seven years in the local economy. We look forward to Honeywell being a valued member of the community for a long time.

I would also ask that in your remediation, you preserve development opportunities on the land that is reclaimed. We believe there will be very strong interest in additional development adjacent to the lake and don't want to lose or limit this economic potential.

I know our members want me to give you a vote of confidence in your work. The business community does not doubt the thoroughness or scientific acumen of the DEC and the EPA. We trust that you have not overlooked any aspect of the Remedial Investigation and Feasibility Study. And we trust in the monitoring programs that are part of the plan.

So we also speak tonight to the Honeywell representatives to voice our wish that they agree to the DEC proposal.

One last question we hope you'll be able to respond to as you go forward, and it's similar to a concern that the County Executive brought up. [The remediation plan is designed to be a permanent solution and will probably need monitoring for generations.] Going forward, what assurances can the taxpayers be given that if there's a failure in the cap or an engineered solution they will not be held responsible for such costs? If Honeywell no longer exists or has merged with another company, who will be responsible for costs in that event?

Onondaga Lake is a jewel for this community and the City of Syracuse. The lake is a resource that any city would envy. We gained a lot of notoriety as the most polluted lake in the land. Now we will have a new reputation as an example of state-of-the-art remediation of one of the largest Superfund sites in the nation. So we look forward to the earliest implementation possible and the support for the recommended [\$449 million] plan the DEC has put forward. Thank you (qtd. in New York State Department of Environmental Conservation).

“Re-imagining the Future of Onondaga Lake: A Presenter’s Guide”

Onondaga Environmental Institute

Nonprofit research and education organization located in Central New York

**Student Reading: Four Perspectives
Document 4, Perspective 4**

Excerpt from a presentation guide produced by the Onondaga Environmental Institute for the Onondaga Nation in 2010.

It’s vital that we start talking about these issues now. If we take the time to start asking some difficult questions, then we will be more prepared when we are faced with a short time period in which to offer our comments on remediation and restoration plans. And if we can work to find some common ground before we are called upon to offer comments, then our voices will have greater impact with decision-makers.

...If enough people participate in the Superfund remediation process, the Natural Resource Damage Assessment and Restoration, and other local environmental planning, we can have a big influence on the decisions that are made.

The communities of the Onondaga Lake watershed have many local resources that we can share with one another to support our participation in this discussion.

For example, we have a remarkable opportunity to benefit from an exchange of environmental knowledge with the Onondaga Nation. The Onondagas have many centuries worth of knowledge about the functioning of the lake ecosystem and could contribute that knowledge to our collective remediation and restoration efforts.

One way our communities could achieve that kind of cross-cultural partnership would be through a process called biocultural restoration. Biocultural restoration involves bringing the people who live in a degraded landscape into active participation in the landscape’s restoration. This is achieved by using the cultural goals and knowledge of the people to shape the restoration process.

Biocultural restoration has been used successfully across the country and around the world. Some researchers at SUNY ESF have argued that we have an opportunity to apply those successful practices right here at home.

The Internet is a valuable tool the community can use to share knowledge about the lake and ideas for its remediation and restoration. On your “Getting Involved” handout, you’ll find the address for a new blog called “Revive Onondaga Lake.” This site offers information about the lake, news updates, and event and meeting announcements. It also allows users to comment on blog entries and on an interactive map of Onondaga Lake.

We invite you to explore and use the resources on this website as you become involved in our community conversation about the lake.

Beyond the complex challenges of restoring Onondaga Lake lies the promise of a life-giving resource strongly interconnected with the lives of the people and other living things that call this place home. We can restore the lake, and our relationship to it, only through our active participation as members of its watershed community. As Bradley Powless of the Onondaga Nation has said:

“That’s how you save the lake. You know that you’re gonna be here and your children’s children’s gonna be here, and that you want the best for them. Your children are coming. And you tell your grandchildren, and you tell your relatives, and you think, ‘Onondaga is our home.’ And that’s what makes it sacred to you. But until you have that within yourself, ... it’s like a sidebar, Onondaga Lake as a sidebar, not as a part of” (Onondaga Environmental Institute).