



Photo by Eymund Diegel

The Office of Emergency Management has issued a warning for this coldest day of the year. But here, Liz Barry is phoning not for hot coffee, but rather the breakfast of balloon champions: microchips from Radioshack.



Photo by Eymund Diegel

Normally getting the camera to take pictures once up in the air involves just putting a rubber band over the "take picture" button. But the Gowanus merits fancy grade: loading a script on the camera to take pictures every 5 seconds.



Photo by Michael Weiss, Brooklyn Eagle

As well, the Balloon Photography project wants to explore the usefulness of creating high resolution aerial photographs to create a record of the Gowanus Canal as it goes through a Superfund pollution cleanup process.



Photo by Harry Zernicke

Leif intends to test a new GPS and angle measurement device on the balloon camera, and needs an extra chip part. The balloon, or rather taped together mylar survival blankets costing \$1.50, has been inflated with helium gas.



Photo by Harry Zernicke

The camera is housed in a cut in half plastic bottle, with stabilizer fins, and connected to the balloon kite with very high tech string and rubber bands. The camera is an old Canon PowerShot SD850 IS at 8 megapixels.



Photo by Michael Weiss, Brooklyn Eagle

Thanks to canoes lent by the Gowanus Dredgers, a local canoe club, the balloon can be taken to the center of the Canal, to get pictures of its edges. Here Hans is breaking the ice to clear a path for the Arctic Expedition.



Photo by Eymund Diegel

The 75 \$ worth of gas was donated by upward thinking Liberty Industrial Gases & Welding Supply, with half a tank being sufficient to provide the buoyancy for a small digital camera, purchased off Craig's List for \$80.



Photo by Michael Weiss, Brooklyn Eagle

Success ! John, Hans and Leif watch the revised balloon camera take off on the edges of the Gowanus Canal, opposite the offices of Friends and Residents of the Greater Gowanus (FROGG) and the Foro Marble Stone Yard



Photo by Eymund Diegel

Photographing the 4th Street Basin, next to the home of the future Whole Foods community park, with the 3rd Ave Bridge, Al Madinah Muslim School and the American Can Factory artists center in the background.



Photo by Eymund Diegel

The first "balloon" style design flops - it's too windy. Here Carlos from the New School is retrieving Plan A from the roof of the Marmurstein Bus Depot. The team will now redesign for windy conditions.



Photo by Eymund Diegel

Swaying gently in the bone freezing winds, thanks to the addition of a drag inducing tail of duct tape and mylar survival blankets, the Arctic Gowanus Balloon is ready to create art, or at the very least, UFO sightings.



Photo by Eymund Diegel

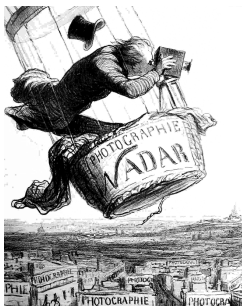
This involves reconfiguring the balloons into a "kite" formation, to provide the correct aerodynamics for navigating the treacherous freezing winds. This involves the two key ingredients of science: team work and sticky tape.



Photo by Eymund Diegel

The camera's mission is to create a four season record of the new Gowanus Canal Conservancy's bio-swale and rain garden, designed to reduce water pollution to the Canal as part of New York City's Green Infrastructure initiative.

## Grassroots Mapping: Aerial Photography of the Gowanus Canal using Balloons



This 1853 Daumier print of Nadar, a pioneer of Balloon Photography entitled **"Raising Photography to the Level of Art"** captures the spirit of exploration of a team from the Parsons New School and the Gowanus Canal Conservancy as they attempt to record the landscape improvements along the Canal and better understand the Gowanus Superfund site. The images shown are samples of the technique before images are georeferenced together. Local teachers wanting to try out aerial photography to map their own backyards can get instructions at <http://grassrootsmapping.org/>



Photo by Harry Zernicke

**The Arctic Gowanus Balloon Team** (l. to r., top row) John Donnelly, Gina Wirth, Eymund Diegel, Leif Percifield, Ray Cha (l. to r. , bottom row) Liz Barry, Mike Weiss, Jennifer Hudon, Hans Hesselein, Carlos Alvarez





## Ecology & Art

- Third Street Bridge at Gowanus Canal - 22 Jan. 2011

View of combined **social ecology** patterns and **botanical survival ecology** patterns at the “Whole Food” site. Art Graffiti has been painted on the *inside* wall not visible by passing traffic, but targeted to viewers on the F & G elevated subway line a quarter mile away. Balloon Photography can simulate sight lines from proposed buildings, and map the spatial thinking of teenagers. At the base of the fence is the typical vegetation adapted to edge and crack ecologies of the Gowanus Industrial Basin, where the constant land use changes of the open lots favor plants adapted to getting water and nutrients in the thin cracks between the more stable steel and concrete edges of property lines. As the digital cameras used with the balloons are typically older models purchased from Craig's List, their slower shutter speeds result in blur as the wind swings the camera sideways, as in this picture. Better cameras can be used to solve this problem, but you have to be willing to lose them should the balloon string snap.



## Movement Patterns & Energy Efficiency

- Bus Depot, end of 2nd Ave & Canal - 22 Jan. 2011

View of **animal track** patterns on Gowanus warehouse roofs. Feral cats and dogs, as well as raccoons and opossums have now adapted to the local industrial habitats. Even green parrots have been seen in the area, surviving winters by building their nests around the warmth of electrical transformers. One of the new energy efficiency programs being promoted by the Gowanus Canal Community Development Corporation ([GCCDC](#)), the Living City Block program, will examine ways to reduce the **urban micro-climate impacts** of badly insulated ware house roofs. Winter balloon mapping can capture the different thermal efficiencies of such buildings by capturing the different snow melting rates on roofs, such as in the two buildings above.







**Remediation** - Gowanus Canal Conservancy Salt Lot Bio-Swale, 2nd Ave & Gowanus Canal - 22 Jan. 2011

The expression “salting the earth” refers to the ritual of spreading salt on conquered cities to symbolize a curse on their re-inhabitation. Along the Gowanus Canal, salt is considered routine urban management, despite it’s environmental impacts. With urbanization, the Hudson River salt front has moved further north, affecting fish ecologies, and the hardening of urban areas via roads and concrete backyards results in routine flooding and sewer backups. But there is hope. The Gowanus Canal Conservancy, in conjunction with New York City’s commitment to more sustainable landscape management, has obtained permission from the City to test **strip planting to reduce pollutant runoffs**, seen on the left of the above picture, along the Canal’s City 2nd Ave. Salt Lot. Despite its ecological impacts, there is a stark beauty in the industrial processes and the routines of the City along the Gowanus Canal.



**The Poetry of Rain** - Gowanus Canal Conservancy Rain Garden, end of 2nd Ave & Canal - 22 Jan. 2011

This poem from Walt Whitman’s 1868 observation on Brooklyn ecology “The Patient Spider”, (in Leaves of Grass) seems appropriate to both the balloon technology of the image, and it’s subject - reestablishing a web of livable green spaces around the Canal:

*“A noiseless, patient spider, I mark’d, where, on a little promontory, it stood, isolated; Mark’d how, to explore the vacant, vast surrounding, It launch’d forth filament, filament, filament, out of itself; Ever unreeling them—ever tirelessly speeding them. And you, O my Soul, where you stand, Surrounded, surrounded, in measureless oceans of space, Ceaselessly musing, venturing, throwing,—seeking the spheres, to connect them; Till the bridge you will need, be form’d—till the ductile anchor hold; Till the gossamer thread you fling, catch somewhere, O my Soul.”*





### Analysis

- 3rd Ave Bridge & Gowanus Canal 4th Street Basin- 22 Jan. 2011

One of the key advantages of balloon cameras, is that it photographs can be taken at lower altitudes with the resolutions necessary for capturing subtle shadow details. In this picture of the frozen 4th Street Basin, we note that the water in the colder shadows under the bridge is NOT frozen. Why? This basin used to continue under the bridge, and has been slowly and illegally filled over the last years. The **distinct outflow patterns** coming from the buried section may be from **A**) road salt from the bridge (which has a concrete rim, so unlikely) **B**) Unmapped (and unpermitted) drain connections from industrial buildings discharging into the now buried canal basin **C**) a remnant of Vechte's Brook and it's original spring, whose course prompted the original configuration of the 4th Street Basin in the 1847 Douglass Drainage Plan for the Gowanus marshes.. Whatever the answer, the image creates the question.



### The Shadows of the Past

- 3rd St Bridge SE Lot & Gowanus Canal 4th Street Basin- 22 Jan. 2011

In the wheat fields now covering the ruins of the old Roman empire, it is said that at sunset, you can see the shadows of old buildings in the different colors of the rippling wheat. This is because the old foundations affect the water available to the wheat, which grows shorter. **The ghosts of the past are captured in the body of the living.** In the above former coal and construction materials lot, we note the oddity of snow everywhere, except on a slight slope with some trees. Why no snow? And why are the biggest trees growing there ? Chronological overlays of the past industrial uses of the site may provide an answer. We can also note the potential usefulness of balloon mapping for **post-occupancy analysis**, should this canal waterfront area get redeveloped as a green trail. The human footprints, one set recent, the other already windblown, give clues to the **natural paths** people follow along the Canal now, and as new parks are laid out, what shortcuts they will take.





## What makes a Legend?

- Gowanus Canal 4th Street Basin Entrance - 22 January 2011

An article in the January 27, 1851 edition of the Brooklyn Eagle reports this: “*The **Merman** who was captured in Gowanus Bay last summer and found to be a man who lived on the beach and had become a fish by being continually in and about the water, has now nearly returned to his pristine form...*” Officially the Gowanus Balloon Project’s goals were to record the Gowanus Canal Conservancy’s new landscaping, and to test the usefulness of Grassroots photography in searching for unnoticed clues about the Canal’s history. But with a [Proteus](#) archivist onboard, there was also a secret agenda: Cryptozoology. This is the art of looking for **the small grains of truth in local legends**, in particular the many stories of mutated creatures living among the 350 million gallons of raw sewage that pour into the Canal every year. The floatables from these Combined Sewage Overflow (CSO) discharges are clearly visible to the right of the canoe as it approaches one of the suspected aquatic habitats of these legendary creatures.



## The Gowanus Water Monster

- Gowanus Canal 4th Street Basin Entrance - 22 January 2011

The above aerial shows the dramatic final moments, as the Arctic Gowanus Balloon Expedition canoe disappears under the ice, pulled down by a school of Gowanus Mermen, now grown to monstrous proportions by a century long diet of urban sewage nutrients and Coney Island whitefish. The Balloon Camera does not lie.

Well maybe it does. In aerial photo interpretation, it is important that viewers **continuously re-examine assumptions** about the story a picture tells. The above may only be a sunken barge, and the monster just pollution. It is hoped that the Community Mapping aerial photo samples presented here will encourage local teachers and students to try the techniques themselves. These pictures were made possible by a tank of helium gas donated by [Liberty Industrial Gases and Welding Supply](#), canoes from the [Gowanus Dredgers](#), the [Gowanus Canal Conservancy](#) and innovative thinking from the Parsons / New School Urban Studies program and Jeffrey Warren at [Grassroots Mapping](#).





1924



1951



1974



2004



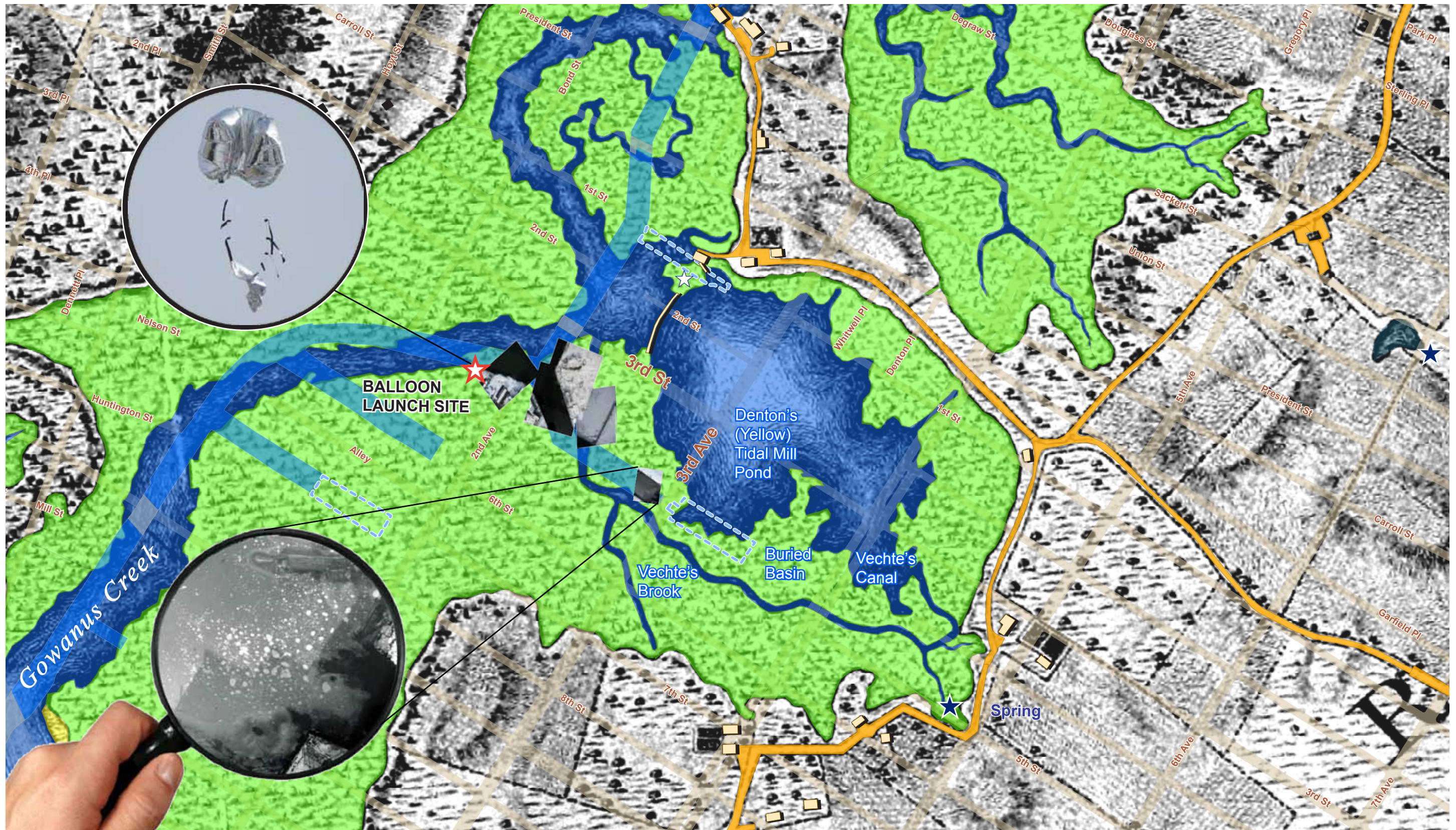
2010



2011

Gowanus Canal 4th Street Basin Aerial Record





Base Map: 1766 Bernard Ratzer Map of the Gowanus Marshes, with 2006 New York City DOITT Digital Base Map Overlays

eymund@gmail.com, February 2011

100 meters 250 feet

**WHAT DO WE DO WITH THE BALLOON PHOTOS ?** The photos keep a record of Canal developments, such as the Gowanus Canal Conservancy's new rain garden. They will be georeferenced to get cheap high resolution details of Canal study sites. For example, the January 2011 test flight shows intriguing melted ice patterns in the shade of the 4th Street Basin under the 3rd Street Bridge. Could they be caused by **A**) Salting of the bridge (*bridge has concrete rim, probably not*) **B**) Illegal drain connections via the now buried section of the Canal **C**) A historical spring that is recorded to have fed now buried Vechte's Brook ?