10th Anniversary of The Sun Catcher's Journey!

Prologue: Solar Energy and Transportation (written in 2012)

What Was The Sun Catcher Trying To Do?

Ty and Debra Newell, from Urbana Illinois, intend to recreate Roy Chapin's historic 1901 Detroit to New York City car journey in reverse. Roy's trip was first time anyone had driven an automobile the nearly 700 mile distance. At that time, the automobile was considered to be useful for only local trips around town. Ty and Debra will be following Chapin's journey by driving their electric Ford Focus, nicknamed The Sun Catcher, along his path, but in reverse from New York City to Detroit.

Ford's new electric Focus was only available in New York, New Jersey and California at that time, so the Newells picked up the car in Massapequa, Long Island, near Debra's childhood home. They drive into New York City, where Roy Chapin's journey ended, to begin their journey to Detroit. When they arrive in Detroit, Ty's birthplace, they visit Ford's modern, solar powered Michigan Assembly Plant in Wayne Michigan where the car was made, and then continue their journey to their 100% solar powered home in Urbana Illinois.

How Can The Sun Catcher Be Powered By Solar Energy?

Ty and Debra's electric Ford Focus is 100% solar powered. But, how can their car be solar powered? There are no solar panels on the car.

Solar energy powering The Sun Catcher has already been harvested by the solar energy collector system at Ty and Debra's home in Urbana, Illinois. The solar energy they have collected has been fed into the electric grid where it is available whenever they stop to plug in for a charge. The Newell's groundbreaking house, named Equinox House, is also 100% powered by solar energy. Over the past two years since building their home, additional energy for transportation has been collected. To date, 5000kWh of energy for transportation, enough for nearly 20,000 miles of electric vehicle transportation, has been collected.

The cost for their solar energy powered journey of nearly 1200 miles is less than $40. The cost for the same trip with a gasoline powered car would be more than $100. Solar energy powered transportation is much less expensive than old-school fossil fueled vehicles, despite myths to the contrary.

Why Does It Matter?

This is a crucial time to begin the transition off fossil fuels to a sustainable, secure economy that only uses our daily allowance of solar energy. Solar energy can power all of our needs today in an economical, environmentally beneficial manner. And, solar energy can do that in a manner that improves our quality of living.

Wouldn't it be great if our grandchildren and beyond look back on us as the generations who decided to create a healthy, sustainable world for them? And, wouldn't it be sad if future generations look back on us as the ones who could have done something…. but didn't?

And Even If You Can't Own One Now, You Can Do This….

Electric vehicles are expensive now, but they won't be for long. Similar to flat screen TVs and iPhones, the initial costs are high due to low production volumes, high demand and the need to recoup research and development costs. If you cannot afford solar collector panels or an electric car now, there are many other things you can do.

First, conserve energy. Buy a tube of caulk and seal leaks around your house. It is not the most exciting thing to do in the world, but it matters. Every kilowatt-hour reduction of energy usage in your house is equivalent to 3 to 4 miles of electric vehicle transportation. Do you have a 100 watt lightbulb for your porch light when an 8 watt LED or compact fluorescent bulb could do the same job? The difference between the two types of lights is nearly 1600 miles of electric vehicle transportation per year! Try using "cold water" laundry detergents. Whether you have electric or gas water heating, the energy reduction for a family of 3 is equivalent to another 2000 miles of electric vehicle driving per year. If your neighborhood allows clothes lines, try drying your laundry outside when it's nice.

Second, buy energy efficient technologies that reduce fossil fuel usage. The new "heat pump water heaters", which currently cost about $1000, pay for themselves quickly while cutting a family's water heating energy in half. This simple conversion to a better technology is worth another 2000kWh of energy savings, or about 8000 miles of electric vehicle driving per year.

Third, watch for the continuing release of products that further reduce our energy needs while improving our quality of life. What's coming down the road in the near term? Clothes dryers are the next big household energy item after water heaters. "Heat pump clothes dryers" (not easily available in the US yet, but already common in European and Asian markets) reduce clothes drying energy in half, saving another 1000kWh of annual energy, equivalent to another 4000 miles of electric vehicle driving.

The future is very, very bright! Follow our journey from New York City to Detroit, and then home. And, contact us if we're coming through your town to find out when and where.

EV Feasibility

This little solar powered car operates from the power of the sun, but can it be scaled to what we need for practical purposes? And, is the cost feasible? After all, we know that if a mosquito was enlarged to the size of an elephant, it would crush its legs (and make a pretty big bump on your arm). The answers to the above in terms of electric vehicles are emphatic yes and yes.

Let's discuss the first question regarding the practicality of solar powered, electric vehicle transportation. For our "historic" NYC to Detroit trip, we will require charging about every 60 miles to try and avoid getting too close to running out of charge. What happens if we run out of charge? Back in 1901, frequent breakdowns and lack of gas stations resulted in many, many automobiles being towed by an enlisted farmer and his horses. We'll probably call AAA.

On our "EVing" trip, 60 miles is a nice distance because we're interested in the journey, and there is a lot to see from NY to Detroit and beyond. Maybe EVing will catch on? Just imagine cruising through the heart of our small towns and large cities, and enjoying the countryside in between rather than rushing along an interstate with everything a blur from the start and finish.

The reality is that electric vehicles will increase in range, as already demonstrated by the Tesla Roadster, a beautiful car with excellent performance and a 250 mile charge range. But, charging takes so long, how can that ever be practical? Our great research universities are providing the tools and solutions we need for sustainable living. Entrepreneurs will rapidly move these technologies into the marketplace as we've seen with so many other technologies.

The rapid advances being made in energy storage systems and increased rate of energy storage charging/discharging technologies means one thing: **you are going to be crying for a bathroom break because your car will never, ever need to stop for a charge**. You will simply drive over roadway sections that transport an energy charge into your vehicle (while charging your account for it) with the power of a lightning bolt.

Vehicle cost is an even simpler issue than the practical feasibility issue, because just as we've seen in flat screen TVs and cell phones, the cost for an EV is going to drop and auto manufacturers' profit margins are going to increase as they have a much simpler, less expensive car to build than an IC (internal combustion) engine car. The motor of an electric car has one moving part, the "rotor", compared to hundreds of parts in an IC engine. No exhaust system to corrode or replace, no air filter, no fuel filter, no oxygen sensors, no EGB sensors, no MAP sensor, no oil filter, no oil drips on your garage floor, minimal if any brake pad changes. Full torque at zero RPMs with no pollution. And, your sound system will sound better than it has in any car you've ever owned.

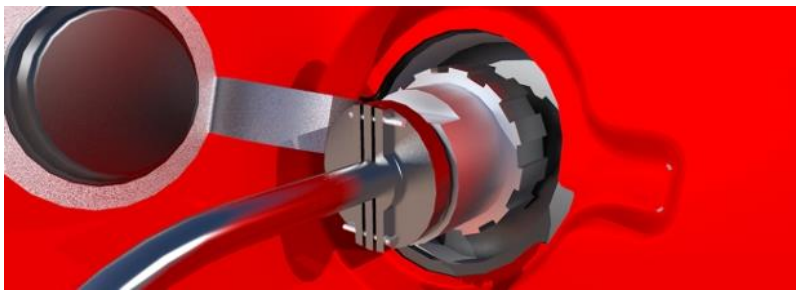
As far as energy cost for driving, the math is very simple. Solar electricity cost 12.5 cents per kWh (kilowatt-hr is the energy unit most utility companies use on your electric bill). These are not some projected costs taken from some pencil-neck study. I know the cost for solar electricity because I design and install solar energy systems. You can read the details on the cost to install a solar PV (photovoltaic)

electric system in this article that my son Ben and I wrote for an engineering journal. Electric vehicles, whether from the Ford Focus EV to the Tesla Roadster, obtain about 4 miles for each kWh of energy. This results in a solar powered cost of 3 to 4 cents per mile.

The cost for solar energy is going to keep decreasing as continued increases in solar system performance, increases in manufacturing efficiency, and decreases in installation cost keep driving the cost of solar energy lower. And as the technology matures and this first generation of solar panels are recycled, the cost for solar energy will take a tremendous plunge as most of the hard work of material purification has already been performed. Just as aluminum soda cans re-manufactured from soda can aluminum require a small fraction of cost compared to soda cans made from bauxite ore, the same is true for solar panels. The cover material, frame material, wiring, inverter electrics and photonics material are all recyclable.

The average gasoline powered vehicle is about 30 miles per gallon of gasoline with a current cost of $3 to $4 per gallon (want to bet on it staying at that cost?). Dividing the cost per gallon by the mileage per gallon, we find that on average the cost per mile is somewhat greater than 10 cents per mile, well above that of a solar powered car. Even high mpg cars in the 50 to 60 mpg cost 5 to 6 cents per mile and are not competitive. And, which direction do you think the price of fossil fuels will go in the future?

The area required for solar energy collectors, whether they are on your roof or someone else's, for providing all of your annual transportation is surprisingly small. In Illinois, about 150 square ft, or smaller than the roof of a carport, is required to produce about 10,000 to 12,000 miles of driving per year. In the cloudy northwest, about 20% more area is needed and in the sunny southwest, about 20% less solar collector area is required.



This is a cool picture that Alex Long, co-owner of Build Equinox, drew. I like it a lot and thought it would look nice here.

Roy Chapin's Journey

Story of Roy D. Chapin's Historic 1901 Journey

In 1901, Roy D. Chapin, a young engineer at the fledging Oldsmobile company in Detroit, became the first person to drive a car from Detroit to New York City. Educated at the University of Michigan at a time when the automobile industry was "new" and offered exciting entrepreneurial opportunities, Roy joined the recently formed corporation bearing Ransom E. Olds' name. As one of Oldsmobile's test drivers, he was selected to make the trip to New York City, with the hope of arriving in time for the inaugural New York auto show. There were no paved roads, no gas stations, no repair shops or any other services we now take for granted. The automobile, at that time, whether gasoline, steam or electric powered, was considered to be useful only for local trips around town. Despite nearly 10 days of travel with frequent repairs, Chapin arrived just in time for the auto show at New York's Waldorf Astoria at 5th Avenue and 34th Street.

Roy's historic journey opened the public's imagination to the possibilities of automobile transportation. Before long, others were going further. Here is a TV report about a historic 1903 San Francisco to New York City trip.

Roy Chapin went on to become a founder of the Hudson Motor Company, one of the most innovative car companies of its era.

Roy's Path

Roy started out on October 27, 1901 and arrived at the old Waldorf-Astoria Hotel in New York City on November 5, 1901, just in time for the New York City Automobile Show. The Empire State Building now occupies the former Waldorf-Astoria site.

Roy's rest stops and mileage are listed below:

1. Detroit to Leamington, Ontario (40 miles)
2. Leamington, Ont to St Catherines, Ont (210 miles)
3. St Catherines Ont to Rochester, NY (100 miles)
4. Rochester, NY to St Johnsville, NY (166 miles)
5. St Johnsville, NY to Little Falls, NY (10 miles)
6. Little Falls, NY to Hudson, NY (107 miles)
7. Hudson, NY to Peekskill, NY (78 miles)
8. Peekskill, NY to New York City (48 miles)

Total = 760 miles

This was an amazing journey! A broken transmission, broken suspension, inflating tires every few miles by hand pump, very few roads and no service stations. And look where we are just a few decades later.

Why Not Just Drive the Car Home?

Roy's trip is rarely a footnote in automotive books, but at the time his accomplishment made a historic jump from what was thought to be impossible to the possible. Ty's family history is interwoven with Detroit's automotive history. His grandfather, father and many relatives worked for many of the auto companies. John L. Newell, Ty's grandfather, was an early employee of the Hupp Motor Company and Hudson. At Hudson, he was in charge of service manager training for many years. Ty's dad, Jack Newell, started as a tool-n-die maker, and then became a service manager trainer for Hudson and then Oldsmobile.

Two of Jack Newell's service pins are shown below. Jack always had an eclectic car collection including a beautiful, all original 1965 V-8 Mustang convertible, a 1929 Essex (mostly in peach baskets), an "Amphicar" (boat car built by BMW), a 1962 Chrysler Imperial (where form and function definitely did not meet), and his string of small block, '57 Chevy dragsters named "Jumpin Jack Flash".

My Dad's Hudson and Oldsmobile service pins

The Sun Catcher Blog – July 2012

The Sun Catcher has been built

Posted on **June 1, 2012**

We just received news that the Sun Catcher will be built and headed to New York with an anticipated delivery date near the end of June. We'll pick the car up at Hassett Ford in Wantagh as soon as we can, take a few days to visit relatives and get a feel for the range and charge cycling, and then head to Detroit.

Between now and then, the real preparations begin. Lots of stops along the trip to plan. Hopefully we can raise interest and awareness that solar energy will power everything we'd like and need to do.

Crossing Paths with Henry and Thomas

Posted on **June 14, 2012**

As much as I like looking forward to how we can make positive changes to ensure a bright future for our children, I enjoy looking back to see where we've been. This past week, my son, Ben, and I went fishing around Grayling Michigan with some friends. No fish species will ever become endangered as our lack of fishing instincts keeps them safe.

We fished the North Branch of the Au Sable, a famed Michigan trout stream that was also a favorite of Henry Ford and Thomas Edison. The NB of the Au Sable near Lovells Michigan is a beautiful river, and certainly provided Henry and Thomas the atmosphere where many ideas can be spawned.

As an employee of Edison's "Edison Illuminating Company" in Detroit, Henry Ford once received encouraging words from the world famous inventor regarding Henry's efforts to develop an automobile. Henry never forgot Edison's kind words, and as Henry became a giant in the automotive industry, a lifelong friendship developed with fishing and camping as a favorite relief from the grind.

Sustainable living with modern technology was an important goal of both Ford and Edison. They could see firsthand how the required resources and their associated pollution wastes for the automotive and power generating industries could not be sustained indefinitely.

Henry and Thomas both built homes in Ft Myers Florida for winter vacations. Thomas Edison built an adjacent laboratory dedicated to the development of bio-materials. Henry financially supported Edison's efforts. Henry was an early advocate of the development of sustainable materials, developing bio-based plastics for automotive parts. The Ford Focus EV puts these efforts into practice with bio-based foam seat cushions and seat fabrics fabricated from recycled plastic resins. With continued effort, we will reach the goal of 100% cradle-to-cradle products required for a sustainable future.

During the Sun Catcher's journey from New York City to Detroit, we are going to cross paths with Thomas Edison, Henry Ford and many others who have played an important part in the development of technologies needed for living a solar powered, sustainable life. I hope you will find it interesting as we see how the inventions of jello, the ticker tape machine, the telegraph, the first air conditioned building,and my GreatGreatGrandfather in Port Huron Michigan intertwine in a series of historical events…some significant and some not so important….that have impacted our ability to create a sustainable future for our children.

The Sun Catcher has been Born

Posted on **June 19, 2012**

We received information that The Sun Catcher (our Ford Focus EV, and yes, I know it's weird that we name our cars and house) was born on June 13, 2012. The Sun Catcher's birth was attended by 1200 Ford employees at the Michigan Assembly Plant in Wayne, Michigan. Everything went well, and we will pick up our baby in two weeks at Hassett Ford in Wantagh, NY. We will visit Ford's MAP on our trip from New York City to Detroit to charge up a bit at one of their EV stations, and to extend our thanks to Ford's employees for bringing a wonderful technology to the marketplace.

We're getting more specific details put together for our trip and will be posting information as things develop. Currently, we plan to fly to NY on July 3, tool around NYC and Long Island for a few days to get used to the car (and vice versa), and to bother our relatives a bit. The rough route will be up the Hudson River, along the Erie Canal, across Ontario to Port Huron Michigan, and then Detroit. After a few days in Detroit, we'll head back to Urbana, but are undecided which route to take. I'm leaning toward Ft Wayne to Indy (maybe a lap around the Indy 500 track?) to Urbana, but maybe we'll head to the Windy City and home.

How can flying to NYC to pick up a car be sustainable? Well, it isn't, at least not yet, but it can and will be. As we look into more details on living a solar powered, sustainable, healthy life, we will look into that in more depth.

Solstice Sunset on Equinox and Deb in the News

Posted on **June 21, 2012**

It's June 20, the summer solstice, and for Equinox House, that means a special sunrise and sunset. I hope you'll excuse my poor photographic attempts to capture how the shape of our front yard is aligned with the sun as it sets on the solstice (check out how the sunlit grass is parallel to the grass edging and the line of seedum in the front yard). This line also marks sunrise on the winter solstice. It is important to understand how the sun moves relative to the buildings we design. For ancient cultures needing to plant crops at the proper time, knowing the sun's path was a matter of life and death. We added some fun features like this around Equinox House to help visitors (a couple thousand to date) understand how the sun interacts with a building. Fortunately, I could run to Walmart and buy some lawn edging to mark the solstice rather than enslaving a populace and forcing them to carve and strategically place huge rocks in our yard. Maybe we can draw some of the Machu Pichu and Stonehenge crowds to Urbana, and make a few bucks selling crystals?

Deb has a somewhat reluctant look as a local television station prepares to interview her about Equinox House. Fortunately, she didn't say anything incriminating, and only minor bleeping will be needed in the editing room. We'll provide a link once we're notified that the "spot" is being aired. This is good practice for our

anticipated media onslaught as we prepare to launch The Sun Catcher in another two weeks(yikes!….the trip is coming up fast). Between Deb's NY accent and my southwest Missouri drawl, most folks watching will be heard asking, "What did they say?".

WICD TV story tonight

Posted on **June 22, 2012**

The news story on Equinox House ran last night on WICD, and Reporter James Fillmore did a nice job packing a lot into 60 seconds. It will take a bit more than 60 seconds to give the details on how the house functions and how one designs the features needed to make a house function properly, so that it can be economically operated on solar power. For more details on that, a series of a 12 month series of articles that my son, Ben, and I wrote for an engineering journal (but written for a general audience) provides a lot of this information. Be sure to make a strong pot of coffee before delving into these articles!

Here's a recent picture of Deb (Nana) and our punky grandbaby, Blaire. I like this picture because of Deb's expression of pure joy. This is what it's all about. Building a better future for our children.

Ford Tri-motor and Father's Day Gifts

Posted on **June 26, 2012**

On Sunday I had the opportunity to fly in a Ford Tri-motor airplane, the first mass produced metal aircraft. Here are some pictures of me with the Tri-motor. The Tri-motor cruises at 90mph and consumes 45 gallons per hour of fuel, which combines for a gas mileage of 2 miles per gallon, which doesn't sound too great. But, with 12 people in the plane, this is 24 miles per gallon per person, which is not so bad (think of us driving solo in a car that only gets 24 miles per gallon). With modern passenger aircraft, reaching 100 miles per gallon is a reality, and powering it with a variety of sustainable fuel sources is practical.

This plane was the first one in Eastern Airline's fleet in 1929.

Where was it made? In THE Motor City, of course!


Can you see Equinox House in this picture? This is where the old meets the new. If you locate the oval pond near the curve in the interstate, we are the little white speck between the pond and the interstate. Why can you see Equinox House, but not the neighboring homes? That white roof reflects rather than absorbs, and it makes a big difference on comfort.

Just as the Tri-motor and I look old and out-of-date, I expect Equinox House to look like the Model T of super performance, 100% sustainable housing sometime in the future. Although difficult to see, I have my "Photon Torpedo" tee-shirt on from the University of Illinois' 1997 Sunrayce Team. The front says "Resistance is futile".

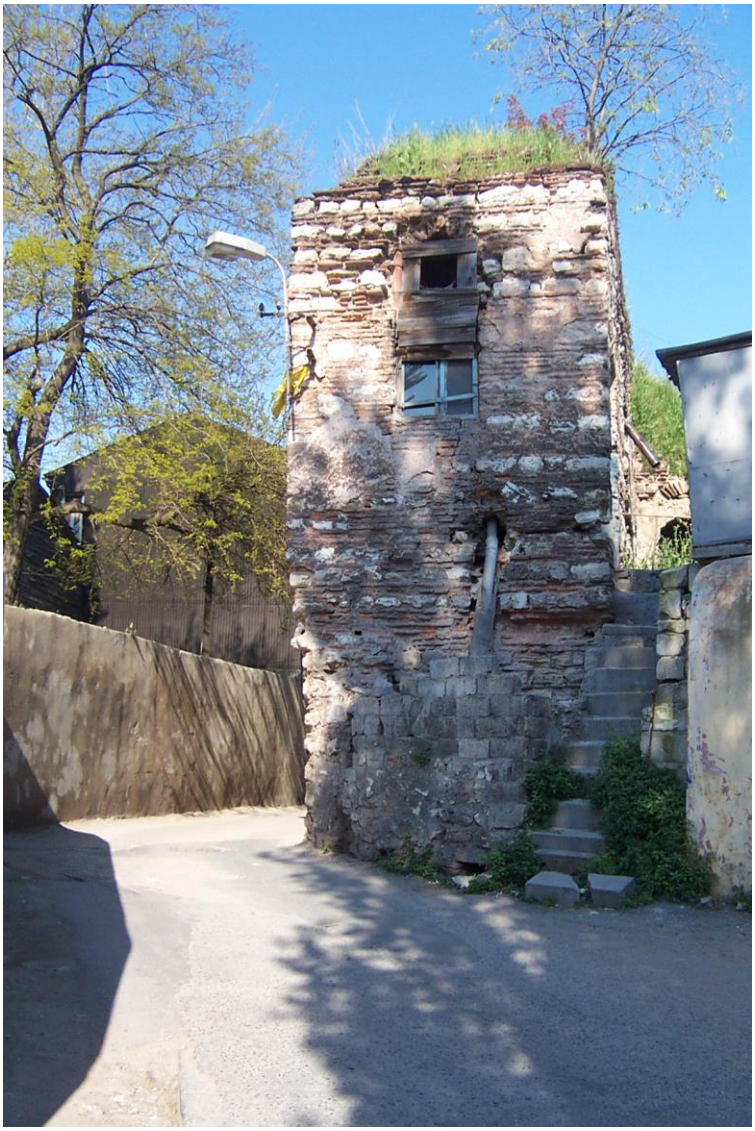
One final note with the recent Father's Day. We had an enjoyable day with a crawdad boil at a local bar that was serving beer from one of my favorite breweries (Bell's Brewery from Kalamazoo Michigan).
I enjoy bbq and sour cream n onion, as reflected by my Father's Day gifts from the kids. My chickens were also quite happy with the presents . As strange as these "foods" may seem now, maybe the path of unsustainable living leads to a shift in food production from our current to one consisting of protein-rich bugs. Hormigas con queso, anyone?

Sustainable Teachers

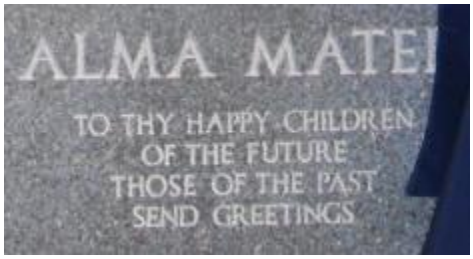
Posted on **June 27, 2012**

I had the privilege today of hosting a tour and giving a dinner talk to a group of middle school science teachers attending a two day workshop on energy and science at the University of Illinois. We toured Equinox House, Gable House (2009 Solar Decathlon competition house), and if that wasn't tough enough on them, they also had to listen to me at their dinner. Middle school teachers are pretty tough, as we all know….they have to be. Aren't you thankful there are people willing to brave the classrooms filled with our most energetic kids?

I showed this picture of a crumbled Byzantine wall in Istanbul (isn't it curious that someone lives in the wall), and noted that an essential piece of sustainability is education. Without our teachers and educators, there is no effective way to pass on the knowledge and understanding required to prepare the next generation for the challenges that face them. As the Mayan culture decayed, they could no longer read or write, losing valuable information on how to sustain a complex society.



Here's another picture I showed that comes from the base of a statue call the "Alma Mater" on the University of Illinois campus. Hopefully we really mean it.



Proud Dad photographing my daughter, now Dr Melissa Newell.

Jupiter and Beyond

Posted on **June 28, 2012**

I went to Jupiter today….Jupiter, Florida, that is, for some work activities. I had a phone message from Hassett Ford in Wantagh NY that The Sun Catcher has arrived! Of course, they didn't refer to our car as The Sun Catcher, but Hassett has been very helpful and even put Ford's media folks in contact with us regarding our trip activities.

We're getting trip details put together, and basically have the following laid out:

1) Fly to NYC on July 3 (Tues), and pick up car; drive to eastern Long Island to sister/brother-in-law's (~50-60 mile drive) to try things out….hope they charge the car up for us!

2) July 4, drive back to Massapequa to visit more relatives and to continue getting a feel for the car. Celebrate Independence Day with a real feeling of independence!

3) July 5, drive into NYC and see some sites….you might find the places we visit to be quite unusual and hopefully interesting!

4) July 6 and 7, more driving around Long Island; prepare to launching off on the journey.

5) July 8, leave on the journey with White Plains (where I lived as a teen); visit "Camp" where Deb and I met (and who knows what might happen there) in the Poughkeepsie area for the night.

So, at least one day is planned. A few more to go in order to make it to Detroit. Stay tuned!

Sustainability and Winglets

Posted on **June 29, 2012**

Electric vehicles and comfortable healthy homes are just part of the puzzle to live sustainably. The puzzle is complex, and if it isn't put together properly, the desired result may not be what is needed.

How much energy is needed per person? My estimate is 5000 to 7000kWh of energy per year for your daily living (household operation) and transportation (~10,000miles per person per year) as we move toward efficient homes and vehicles.

This is about $600 to $900 worth of energy per person per year at today's solar energy cost. Some regions need more (Alaska) and some less (California). You can think of this as about 300 to 400 sqft of solar collection surface area per person. The installed cost is about $50 per sqft for the solar system, for an upfront cost of $15,000 to $20,000. That's about $5 to 6 trillion to completely solar power everyone in the US, which is a small fraction of the projected national debt, and about the amount it costs to wage war for a decade or so to protect the oil industry's interests.

Reaching a self-sustaining way of life is complex, and solving that puzzle is our challenge. It is common sense that an unsustainable way of life is, well, unsustainable.

What we can't predict is when or how the implications of our unsustainable ways will make itself known. Will it manifest itself through the unsustainable buildup of wastes that pollute and alter the environment we need for living? Or will it be a dwindling resource we developed an essential reliance on? Will the difficulties occur in 1 year or 1000 years?

What we can predict is our failure if we do not maintain a sustained effort over whatever time it takes. Championship teams are the ones who maintain a sustained effort for the whole game, not the final inning or minute of play. Losers think they can make up for a lack of effort with a spurt of activity at the end.

Here's a small piece of the puzzle. Ever wonder about the "winglets" that have been appearing on the tips of airplane wings? According to WOE (Winning the Oil Endgame), these pieces improve a plane's aerodynamics and reduce its fuel consumption by 3 to 4%. The installed cost of a pair of winglets is about $700,000 (think employment), and the lifetime fuel savings is about $800,000 (think avoided oil cost…a large fraction of which is exported to people who don't care for you very much).

Notice the rich Illinois farmland on the ground below the plane. As written over the main portal to Davenport Hall, formerly the College of Agriculture building on the University of Illinois campus: "The wealth of Illinois is in her soil and her strength lies in its intelligent development".

ET drives an EV

Posted on **June 30, 2012**

I'm still visiting Jupiter, and I found out that Burt Reynolds is from Jupiter. I ate lunch at a cafeteria today near the test facility I'm working at, and apparently, EVs are quite popular here, too. Two Nissan Leafs and a Chevy Volt are shown plugged into a charging station below. We need to follow the example being set by the citizens of Jupiter.

I ordered some Sun Catcher car door magnets and baseball hats, and they arrived at home today. We want you to be able to spot us on our journey. Pull over and say hi when you see us stopping for a charge!

Countdown, Blaire and Bees

Posted on **July 3, 2012**

We're in the final countdown for leaving for New York to pick up The Sun Catcher, our electric Ford Focus. We picked up a check to pay for the car, the proof-of-insurance card, passports (headed through Canada as did Roy Chapin in 1901), and gas money…..oops, scratch the last item.

Blaire came to say goodbye to Nana and Nappy, and to check out the solar collectors at Equinox House to make sure they are pumping out plenty of high voltage electrons for our trip.

Whenever our bees at Newell Instruments laboratory have been ordered to go outside, you know it is hot. Solar energy adds absolutely no excess energy to the environment as does power from "conventional" energy sources. Thermal pollution causes "heat island" effects in our cities, decreases oxygen levels in our waterways (and screws up the fishing), and overall impacts and pummels us and our environment. Our daily oil consumption (20 million barrels of oil per day in the US…about a third of our energy use) is equivalent to the energy of 100 trillion fastballs released into our environment. That's 36,000 fastballs per person in the US every day! With solar energy and other renewable energy sources, we are temporarily diverting a tiny fraction of the sun's energy to power our cars, refrigerators, air conditioners, stereos, and whatever you like. After it does our chores, the energy ends back in the environment as it should….not one bit more or less.

July 3 – The First Drive

Posted on **July 5, 2012**

We had a smooth flight into LaGuardia airport in New York City, and were picked up by Deb's sister Wendy. After a great lunch on Freeport's Nautical Mile (excellent seafood on the water), we headed to Hassett Ford in Wantagh (along the south shore of Long Island….next to Massapequa where Jerry Seinfeld grew up) to pick up the car.

Here we are on the jet to NY. The guy behind us doesn't see too amused.

The Sun Catcher was all set to go, and after some instructions from Tom Cinelli (along with a few dozen signatures and handing over a check), we were on our way to eastern Long Island for our first trip (55 miles).

We will give you more specific information on the car's performance as we log more miles. At this point, as seen on Deb's face, we're very pleased with the Sun Catcher's performance. Great acceleration at any speed….essential for New York driving.

After arriving on eastern Long Island, we put the Sun Catcher to bed with the charging cord plugged in, and enjoyed a beautiful sunset over Long Island Sound.

July 4 A Real Independence Day

Posted on **July 5, 2012**

Independence from oil and other fossil fuels is essential to our future. And EVs such as the Ford Focus Electric are a key piece to that puzzle. We spend 2 billion dollars per day on oil, and more than half flowing out of the country, making us poorer and less independent every day.

We woke up and christened the Sun Catcher with magnetic door signs, and prepared to drive back to Massapequa for a 4th of July dinner with relatives.

Of course, brother-in-law, John, and I couldn't resist looking under the hood. Not much there. Clean and quiet. No car exhaust or mufflers to replace. No oil changes or drips on the floor. No noise.

Removing a foam cover reveals the electric motor. Just a few wires and a lot of torque.

On the way to Massapequa, we stopped in Melville at Leviton Corp, which manufactures EV charging stations. We didn't need a charge, but wanted to try out the stop as we will use it as one of our charge points as we head out on our trip on Sunday. Free charging! Thanks, Leviton!


If you look close in the picture above, you can see Deb and I charging the car.

Tomorrow is a big day as we explore some sites in Brooklyn and Manhattan. This will be an important test as we are counting on finding a parking lot with an EV charger…otherwise, we won't make it back to Massapequa. Check in and see where we go!

July 5; Brooklyn, The Big Apple, and "Be Good or Be Gone"

Posted on **July 7, 2012**

EVing into the heart New York City from Long Island was a good test for The Sun Catcher. We are about 50 miles outside of Manhattan, and a trip into the city meant we had to have a charge to make it back. Launching off from Massapequa to the Big Apple was similar to Columbus reaching the point of no return as he headed across the Atlantic Ocean, but on a somewhat smaller scale. Ok, the scale difference between these events is not even close to being compared together. But our trip was one that could have been fraught with danger due to my Tigers ballcap. We were headed into the heart of Yankee territory.
To officially start Roy Chapin's journey, we wanted to drive into the heart of New York City. Our trip into the city was spent visiting a number of sites with an emphasis on ones that relate to the development of our modern technology world and ones that reflect the importance of maintaining our liberty and independence.

Brooklyn
Our first stop was "Cooper Park" near Newtown Creek in Brooklyn. Today, the park is a tranquil oasis that is only a block from the never ending movement of trucks, cars and people on Metropolitan Ave. In the 1800′s, this neighborhood was the heart of industrial growth. Cooper Park is named after Peter Cooper. Near this site was Peter Cooper's Glue Factory, the pre-eminent glue of its time. His factory employed hundreds of people, rendering the carcasses of deceased animals (at least I assume deceased…but remember, this was a time when horsepower really meant the number of horses) into glue.
Cooper was one of the wealthiest people in the country in the mid-1800s, and he had a near monopoly in glue due to his chemical processing breakthroughs in glue chemistry. Two of his inventions from these efforts continue today: jello and the double boiler. Cooper invented the double boiler as a method to safely control the temperature of his glue vats. Jello is really a type of glue that he found tasted pretty good with the addition of a little sugar and fruit. He located his factory on Newtown Creek for the same reason other companies located here. Manhattan was getting more crowded and the creek offered a way to get rid of waste, or so it seemed. The creek still suffers from its industrial history, and the cost to revive it is one that we and future generations must shoulder.
Many companies today find that they can turn their wastes into products that make money by reducing waste cost and possibly finding markets for their scrap material, but it takes time and a continued, never-ending conscientious effort to eliminate waste and pollution. Many companies, such as Ford, have zero waste goals, and are reaching this goal in profitable manners. We are going to come back to Peter Cooper because he was a good person who worked hard to benefit others throughout his long life.

Cooper Park in Brooklyn and a bridge over Newtown Creek (see link for more on its pollution.

In addition to Peter Cooper's Glue Factory, the Newtown Creek area of Greenpoint was the site where the Monitor iron ships were built during the civil war. How could the construction of a war ship relate to solar powered vehicles? The Monitor ships were designed by DeLamater's Iron Works engineering genius, John Ericsson. A Swedish immigrant, Ericsson was a fountain of ideas that became reality. He was one of the early inventors of the "screw propeller", an important component of ship and airplane propulsion, as well as wind turbines and water turbines. The partnership of Cornelius DeLamater and John Ericsson was that combination of the business acumen of Cornelius coupled with John's problem solving talents.
While the Monitor was a ship of war, Ericsson was just as driven to create solar powered heat engines during the mid-1800′s. It was clear to Ericsson that unsustainable resources would not last forever. The "Ericsson cycle" is recognized by engineers as a heat engine capable of achieving Nature's maximum allowable limit for converting heat into mechanical work.
John Ericsson was known to be quite intolerant and unfriendly toward most people, but somehow the relation with Cornelius was as strong as a friendship can be, with Ericsson dying one month after his business partner, Cornelius, died in 1889.

Our third reason for this stop in Brooklyn is a historic building at 1013 Grand St, just a short 2 block walk from Cooper Park. The building below is the first air conditioned building in the world. A young engineer, Willis Carrier, designed the system in 1902. It was not for human comfort, but instead, to dry ink during the humid summers at the Sackett-Wilhelms Lithographing and Publishing Company. Of course, it would not be long before humans discovered that they enjoyed the comfort of climate control spaces, with the New York Stock Exchange just across the East River being the first building air conditioned for human comfort.

After a nice pastrami hero from a deli a short distance along Grand St ($4…who says New York is expensive?), we got back in the car and headed into Manhattan.

The BIG Apple

There's no place in the world quite like downtown New York City. We used our GPS in the Focus EV to locate parking places with EV charging stations. We wanted something near City Hall Park, 1 World Trade Center, Wall St, and other lower Manhattan sites.

As we crossed the Williamsburg Bridge into the city, we could see the Empire State Building, which is the former site of the old Waldorf-Astoria where Roy Chapin's journey ended. The Empire State Building was recently remodeled, with energy efficiency as a centerpiece of its redevelopment. The project was part of the Clinton Climate Initiative with the Rocky Mountain Institute and Johnson Controls as partners in the project activities. New windows, improved insulation, smarter building controls, increased efficiency of the comfort conditioning system all combined into turning the Empire State Building energy performance within the top 10% of large scale buildings in the world. Only 2/3rds of the building had been air conditioned prior to the project. With the improvements made to the building, the existing equipment now provides air conditioning to the whole building. It was a great demonstration of how energy efficiency improvements make money and jobs.



Crossing the Willamsburg Bridge into Manhattan and a picture of the Empire State Building from the bridge.

We located an "Edison Parkfast" near Canal and Centre Streets in Chinatown. The pace of Manhattan makes Brooklyn seem quite relaxing. They advertised a "fast" 240 volt EV charger, which was located next to the parking office booth. Of course a number of cars in the lot were blocking access to the EV charger. The parking attendants were racing here and then, continuously shuffling their puzzle board of cars. An attendant seemed initially dismayed when I told him we needed a charge, but told us he would move some cars to put ours in the charging spot. We left the keys in exchange for a receipt, and watched from across the street under the beautifully decorated Chinatown building shown in the picture below to see that they would move our car…which they did. We left to continue our trek, somewhat feeling that our car would be charged, but not fully expecting that to be the case.



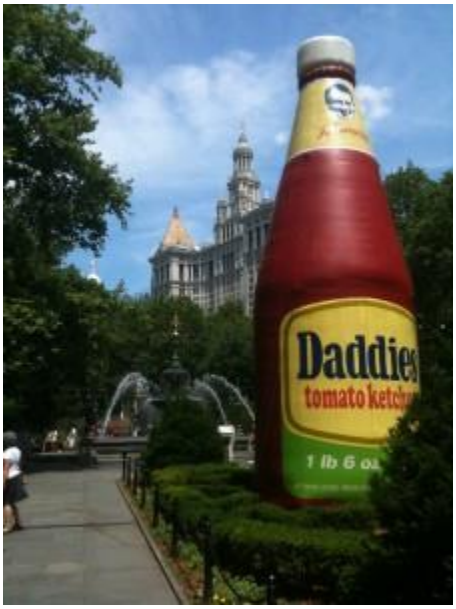
Edison Parkfast and decorated building in Chinatown near Canal and Centre Streets.

We walked toward City Hall Park, where the Declaration of Independence was publicly read to the American troops on July 8, 1776 in the presence of George Washington. On the way, we passed through Thomas Paine Park, author of "Common Sense", and considered to be an inspiration to the development of the Declaration of Independence.

We headed south along Centre Street toward City Hall Park and the Brooklyn Bridge. The Brooklyn Bridge is pedestrian friendly with wonderful views of the city and East River. The BB was built in 1874, with engineering breakthroughs paving the way for modern bridge building construction. As we walked to the first bridge support where a viewing station was located, I could image Peter Cooper, John Ericsson, and Thomas Edison crossing the bridge in its early days.

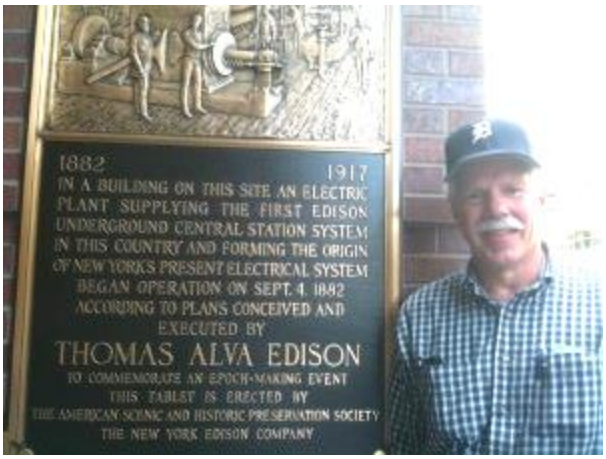
Beautiful views from the Brooklyn Bridge looking up at the support, down the East River (note the "Tall Ship" near the water), and a great view of the new tower at the World Trade Center.

We continued to City Hall Park, on our quest to see the spot where the Declaration of Independence was read. We found the spot, with some modern art added to the location near the Croton Fountain (the Westchester County reservoirs near Croton NY have fed NYC's thirst for decades). Freedom can be trying, but it is worth it. Nathan Hale's statue ("I regret I have but one life to give…") was behind protective barriers so we were unable to see it.



I know the next stops on our walking tour will be as thrilling and exciting to you as they were to Deb. How many times have you wondered where the first electric power plant was located? And, who received the very first power bill? The first power bill was for $50.44, dated January 18, 1883. Ansonia Brass and Copper Company was the recipient of that bill (I suspect, but have no proof, that Edison purchased copper for his dynamos and wiring from Ansonia). In today's money, that bill would be about two billion dollars (just kidding….$50 in 1883 would be about $1200 today). The picture below shows the address today is a parking lot.

We worked our way to Pearl Street, near the intersection with Fulton St (named for Robert Fulton of Fulton's Folly fame….more about that later). Thomas Edison built his plant at 255-257 Pearl St. His investors included JP Morgan and the Vanderbilts. No noticeable trace remains of the plant which burned down in 1890, but in our stumbling around the area, we saw this plaque commemorating the plant. We also saw this huge Rapala fishing lure.



From Pearl St, we walked west along Fulton St to the World Trade Center site. One World Trade Center, to be 1776 feet tall when crowned with its tower, is a beautiful site as one approaches the WTC site. Tickets to visit the 9/11 memorial must be purchased ahead of time, so we were unable to visit, but the site was swirling with human activity which was great to see so many people wanting to remember that freedom is not free.


….stay tuned as we continue through the city and learn more about trains, liberty and whether our car was charged when we return to the parking lot…..

July 6&7 Mooching

Posted on **July 8, 2012**
1

We spent two days visiting our Long Island relatives, eating way too much, and continued preparation for launching off. Among our preparation was purchasing two “folding” bikes that tuck into our car and will allow us to site see while charging along the way.

So far, we have logged 300 miles on The Sun Catcher, and we discovered that we can make EVing incredibly inexpensive by mooching a charge off our relatives. I estimate we have used 100kWh of electricity, which is about $10 for the 300 miles. $7.50 from our relatives and $2.50 thanks to Leviton's charger at their headquarters in Melville. I'll provide more information on the cost for EVing as we travel along and increase our mileage.

We will be doing this (see picture) along the way…..passing a lot of gas stations.

Posted in **Uncategorized** | **1 Reply**

July 8 On Our Way: Thank you Family and Long Island!

Posted on **July 9, 2012**

We've been tooling around Long Island since last Tuesday when we picked up the Sun Catcher, and today we leave for Detroit. We want to thank our Long Island family for all their help, encouragement, and allowing us to freeload on them over the past week. We love you very much and look forward to you visiting us…maybe in an EV?…..in the future.




You fed us way too much food, and now we'll need to use our bikes extra on the trip!
Posted in **Uncategorized** | **Leave a reply**

Posted in **Uncategorized** | **10 Replies**

July 8 Melville, White Plains, and Holmes NY

Posted on **July 9, 2012**

The first day's journey starts with 130 to 140 miles ahead of us. Not all that much mileage-wise, but a lot to see. Our first stop as we drove from the eastern end of Long Island was Leviton Corp's charging station in Melville, NY, that we had already used a couple times while on Long Island. An engineer with Leviton's charging station group stopped by to ask about the car, and as you know, Deb had to intervene to keep my discourse to less than an hour.

We plugged in, unfolded our bikes, and got a little exercise.

I have already been informed by one of my daughters that I look like a clod, so there is no need for additional comments to that effect.

After the Melville charge, it was on to White Plains New York, where I lived during my high school years. We found a "ChargePoint" station near the White Plains train station. Using "Plugshare.com" and Triple A's EV station locators, charging stations such as this are listed around the country. For the most part, it looks like there is a charging station almost every 60 miles, but a few places look a bit sparse…..and if a reported station doesn't exist?…..I don't want to think about that….think positive!

The ChargePoint station was easy to use. If you sign up, they send a card for an account that can be charged directly at the EV charging station. You swipe a card by the charging station and it releases the charge plug from a locked receptacle. We don't have a card, so the ChargePoint number is called, and they ask for the station number (on the display of the unit), and of course, your credit card number. You specify either a 120volt or 240volt charge, and then the charging begins. The Sun Catcher told us it would take 2 hours, which was just the amount of time we needed to have lunch, visit some old haunts, and return for the final leg of the trip.
The charge cost is $2.50 per hour at the ChargePoint station, so the overall cost $5 for 50 miles, or about 10 cents per mile. This is similar to gasoline, which for a 30 to 40 mpg car with $3 to $4 per gallon gasoline, is also about 10 cents per mile. But, if you need a reminder as to the real difference between renewable energy supplied electricity (which we already produced back home in Illinois for the trip) and gasoline, take a look at our July 5 New York City trip blog with our visits to the site where our Declaration of Independence was first read to General Washington and

his troops in New York City (on July 8, 1776) and our visit to the World Trade Center. I gladly pay for ChargePoint's service!

I worked two high school summers as a church custodian in White Plains as a very old church.

Having a father who was a preacher (read about "Jumping Jack Flash") helps when it comes to learning about church jobs. I spent about half the week outdoors working on the grounds that included a cemetery dating from the early 1700′s. I wanted to introduce you to "Phoebe", who was born in the 1600′s and lived in White Plains in the early 1700′s. Unfortunately, her red sandstone marking appears to have finally given into the ravages of time. Here is a picture of a gravestone for Margaret Horton who was almost 79 years old when she died in 1787. I imagine she knew Phoebe.

Posted in **Uncategorized** | **4 Replies**

July 8 “Camp” and She Said Yes

Posted on **July 10, 2012**

10

We walked back to the White Plains train station, and passed by another old haunt of mine, the White Plains Sears store. I worked another couple of high school summers as a busboy and dishwasher there (I started out on the grill, but my perfuse perspiration over the grill tended to create an unappetizing atmosphere….they tried me in the ice cream section, unfortunately, that did not stem the salty effluent, and so I was relegated to the hinterlands). As one of the few cafeteria employees with a reasonable level of spelling skills, one of my assignments was posting the “daily special” on the menu board. That activity was curtailed when I thought it would be amusing to post “Corned Beef and Garbage” on the board. I was correct that cafeteria customers were highly amused, however, I did misjudge my boss’ potential enjoyment.

The car was fully charged as we returned from my memory stroll, and Deb’s tolerance at listening to these stories for the 300th time.

Our next destination was another one of historic importance to us, “Camp” (or, the Holmes Presbyterian Camp and Conference Center) where Deb and I met as camp staffers some 40 years ago. Camp was another 50 miles north of White Plains, and the perfect distance to finish our first day of driving. We always talked about being married at Camp, and even that morning as we were leaving our sister and brother-in-law’s house, Deb was telling Wendy how we would have liked to have been married there.

We arrived at Camp and drove into the office lot where some old friends were gathered. Paul, my successor as the camp maintenance guy, Fred a fellow camp staffer from our time who lives in the area (Fred sang at our wedding with his two brothers, Dave and Peter), and some current camp friends.

Deb and I took a drive through Camp to the spot where we had our first date on Denton Lake. The picture below shows Deb and me next to the lake.

Unbeknownst to Deb, I had a few things planned for this evening, and the casual gathering of our friends was not quite the "happenstance" that it seemed. I proposed again to Deb at Denton, asking her, in spite of living with someone who thinks it would be great to drive a car that gets plugged in every 60 miles, to marry me again. And wouldn't it be great to be married at the place where we always imagined? She didn't quite get it yet, but as I began explaining that our friends' appearance was more than a coincidence, and that the camp director, Peter, is a minister, that everything was arranged for a ceremony.

I was a little worried at Deb's stunned look, but that subsided and she said, "Yes". We went back to the main building to announce that Deb had said yes for a second time….she had her chance….and that we would have the ceremony after dinner.

Those of you who know me, know that detailed planning is not a characteristic one associates with me, which is why EVing our way to Illinois should be something Las Vegas can make some money on. But I did plan this event over the past two months, and our Camp friends made this a wonderful time for us. I even had a ring. Our fellow camp staffers David and Linda (also a camp romance) attended; along with Peter and Susan; Fred, Cathy and daughter Elizabeth; and Paul and Brenda (another camp romance). Peter and David performed a wonderful ceremony, Deb and I cried like babies, and Fred, as he did nearly 40 years ago, brought his guitar and sang at our wedding.

Paul and David “broke in” to the summer home of another fellow camp staffer that is adjacent to the camp, and took a bottle of champagne from his refrigerator for us to celebrate. Great friends, lots of memories and beautiful weather….nothing more needed for a perfect evening.

Now, before those of you on the female side of things start thinking how sweet and romantic I am…..and before those of you on the male side of things start thinking about what a jerk I am (and yes, that’s probably a fair assessment, but not necessarily for this); you should know that it was only two years ago when I completely forgot Deb’s birthday (which happens to fall on the birthday of one of our daughters, whose birthday I didn’t forget), and then a mere month later, I completely forgot our wedding anniversary. I am still amazed that I am here and lived to tell about it. But as you should have surmised from this story, Deb is a very forgiving person.

This has little relevance to EVing, so we’ll get back to that tomorrow. We put the Sun Catcher to bed with a 120 volt plug-in provided by Paul and looked forward to the next leg of our journey.

Posted in **Uncategorized** | **1 Reply**

July 9 Just Married, Sybil & Wedgies, No Charge, Blogging, Pineapple

Posted on **July 12, 2012**

4

Of course, as newlyweds, we needed to announce it to the world. Perhaps we are the first EVing honeymooners?

Our goal this day was to make two “fast charge” stops with one at Rhinebeck, NY and the other in Albany on the way to Canajoharie New York, a small town on the Erie Canal along the Mohawk River. This is the pattern we hope to follow most of the way with two to three fast charges giving us 50 to 60 miles per charge, followed by an overnight with a “slow” 120 volt charge.

Our “MyFordMobile” cellular connection began to activate (it takes a couple of days for it to link your cell

phone to the car, requiring you to "permit" the car to link in. This connection provides different metrics related to your driving, charging, and various vehicle diagnostics. For example, a map in the app shows EV charging stations and your likelihood of making it ("green" stations=easily make it; "yellow" stations=reasonable chance with good driving; "red"=ha..ha…ha!…don't even think about it).

As we left camp, we stopped at a CSA (Community Supported Agriculture) our friend Dave (Fred's brother, who was unable to be at camp) has established for the camp and local residents. We did get to meet Jeremy, Dave's son, who is a better looking version of Dave (just kidding, Dave). CSAs are catching on around the country, and provide many beneficial things to a community. The opportunity for one to work on something where you reap the benefits directly. Energy savings through reduction of food transportation. Local employment within one's community. And great, wholesome food!

We stopped at a couple of historic site visits as we left Camp. This was an area with a lot of Revolutionary War activity. Colonel Ludington gathered his militia to fight against the British advance from Danbury. His daughter, Sybil, was the "female" Paul Revere. Or, should we say Paul was the "male" Sybil Ludington, as Sybil rode twice as far as Paul to gather her father's troops. In either case, being captured by unfriendly folks would not have ended well.

In an amazing coincidence of historical events, at the very same site of Sybil's marker, almost 200 years later another occurrence happened that changed the course of our lives. In the summer of 1971 when Deb and I first met at Camp, the "staffers" headed to "Eddies" (now called "Gappys"), our favorite (ie, the only one for miles) tavern. It was tradition for the staffers to "super wedgie" the new guy. Fortunately for me, I had not updated my underwear for many years, resulting in a clean break (ok,

maybe not so clean). With a half dozen people lifting me off the ground by my garment waistband, the under apparel broke and was removed over my head, and then tied to the light fixture above the pool table where it remains today (just kidding, although it did stay there for the whole summer). You can in the Gappy's picture where I sub-conscientiously hold my waist, how this traumatic event left an indelible stain on my memory and on Eddie's pool table light.

From Gappy's, we had a comfortable drive to the Hudson River near Poughkeepsie where we picked up Roy Chapin's route along the old Albany Post Rd (Rt 9). Our first stop was a brief one at Locust Grove, the home of Samuel Morse (dot-dash-dot fame). The home site is beautifully placed above the Hudson River. Equally interesting is the art gallery as Morse was very famous as a painter as well as an inventor. Morse' technological advancement was a breathtaking achievement, moving information near the speed of light rather than the speed of a horse or the wind.

We continued along the Hudson to our first intended charge stop. Plugshare.com showed EV charging stations at the Zen Dog Cafe in Rhinebeck, which would provide the needed charge on the way to Albany. Unfortunately, Plugshare did not show that Zen Dog Cafe has passed on to the metaphysical plane of defunct eating establishments. Their chargers were still there, but in calling ChargePoint (they are ChargePoint units like the ones in White Plains), the ChargePoint people were unable to activate the units for us. This was quite a bummer, because we now had to go to Plan B, which if that failed, would have been a big problem as there was no Plan C.
It was also a bummer because Rhinebeck is a cute little town with lots of interesting things to see and do while charging. I was looking forward to seeing the house where Cornelius DeLamater grew up (who?….see blog on New York City and information on him and John Ericsson). The Zen Dog folks had the right idea….providing EVers with an interesting location for charging….just a bit ahead of their time.

Plan B was to call the Nissan dealer in Kingston NY across the river, to see if they would allow us to charge. Most Nissan dealers have EV chargers, and they are listed on the AAA and Plugshare EV charging maps. But, would they welcome a Ford? The answer is yes, and it appears that Nissan is making an organized effort to establish the EV market, regardless of the EV brand. The Kingston Nissan dealer is relegated to the outskirts of town, as dealers typically are these days, so we waited for charging at a diner across a busy street at a NY State Thruway intersection. We appreciate the Kingston Nissan's help very much!

We stayed on the west side of the Hudson River on Rt 9W going north to Albany, which was a beautiful drive. EV's, as do other cars, get their best mileage performance in the 30 to 55mph range. As speeds exceed 55mph, aerodynamic drag reduces mileage significantly. The Focus EV's GPS system computes routes based on "fastest", "shortest" and "eco", and so far we have kept to "eco" as it does stretch the mileage range quite a bit and seems to take very pleasant routes. The hot weather had broken on Monday, so we kept the AC off, which further stretches the mileage range (and provided fresh country air into the car as we cruised on a fun and winding road through towns and villages along the river.

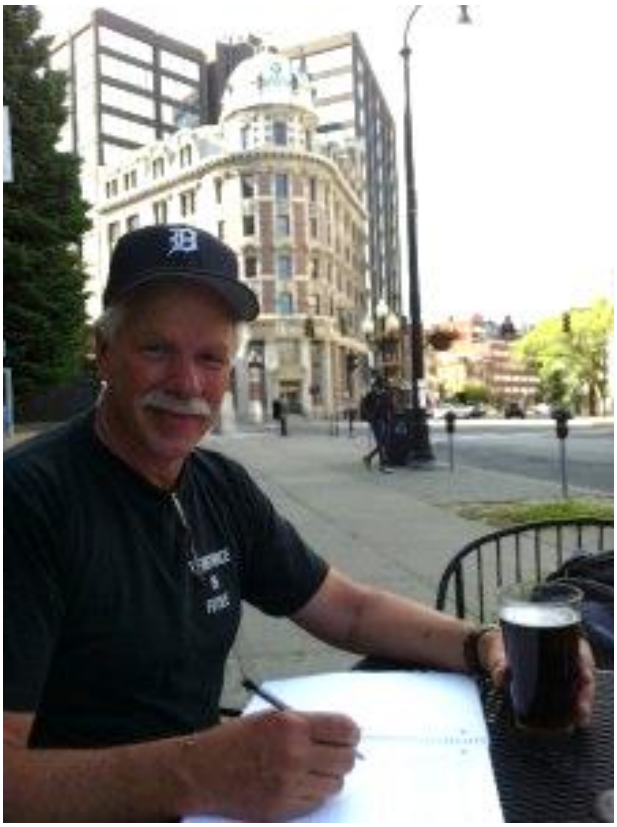
In Albany, the Downtown Holiday Inn Express has a public charging station. We headed to it, and asked for permission at the desk to charge up, which they cheerily agreed to. They told me they have about 1 request per month for a charge, so not too busy yet. The station is a ChargePoint station, but the desk person brought out their magnetic card to activate the station directly. From my discussions with the staff, it didn't seem like an organized

effort on the part of Holiday Inn to place charge stations at their sites, but rather an ambitious person with foresight to enable the future.

The downtown area of Albany is really nice. Streetside cafes, interesting architecture and a nice river walk area along the Hudson.

In case you're wondering after seeing me in the "same" tee shirt in many days of pictures, I have 5 of these teeshirts from the 1997 University of Illinois Sunrayce team's Photon Torpedo. At some point along the trip, I will start wearing the other 4 teeshirts.

After our Albany charge, we headed to The Pineapple House, a bed and breakfast in Canajoharie. We made it there as the sun went down, and our hosts, Bill and Janine helped us get The Sun Catcher plugged into an outlet. And that's how our day ended.



July 10 – Canajoharie, Rome, Auburn, Rochester

Posted on **July 14, 2012**

First, I have to apologize for not keeping this up in a timely manner. I'm finding that if I do too much writing/blogging, it cuts into time where we are doing things, and if we do too much, then there is no time for blogging. A lot of interesting things have been happening, and I'm anxious to jump ahead, but won't. You will just have to wait to read about the most recent happenings as I get them out.

July 10 was a "routine" day of driving a bit, charging/sightseeing. We started off with a great breakfast at The Pineapple House B&B where Janine and Bill, retired middle school teachers, were our hosts. We were just a day or two ahead of 500 bicyclists coming through town for an Erie Canal tour. Here's a picture of Bill as we finished packing and charging for the start of the day.

We headed for Rome, New York, which for unknown reasons, has a plethora of EV charging stations. Rome is an old site where a number of battles took place during the French-Indian War and Revolutionary War. This region was a strategic position as it was the portage from the Great Lakes to the Mohawk River (interior of New York). Rome is also the site where the initial Erie Canal construction took place.
We selected a ChargePoint station near a nice city park and unfolded our bicycles and ourselves for a ride to a recreated Erie Canal village. Luckily, the village was closed so that we could view the canal and sites without having a number of people from long ago following us around.

The Erie Canal significantly improved the efficiency of movement of goods between eastern locations and the expanding western boundaries of the US. Similar to the telegraph increasing the speed of communication and decimating the Pony Express, the Erie Canal's days were numbered almost as soon as it began with the rapid development of the rail system. Our old friends Robert Fulton (on the Erie Canal board) and Peter Cooper (builder of the first American locomotive, named the Tom Thumb) were actively involved in these changes.

The ride to the canal in Rome was rather pleasant 4 mile ride, however it was mostly downhill, which means returning would be more of a chore…..and it was. This was the first real workout for our folding Dahon bikes and us. Based on passerby reactions, 9 out of 10 people thought the bikes are hilarious, and 10% thought they were cool. But as you already know, seeking to look or be cool doesn't really register with me.
From Rome, we had two possible paths for reaching Rochester. Each path had only one potential EV charger, and the overall distance to Rochester, our end-of-the-day goal, made a charge stop essential. One path went north of Lake Oneida to a town, aptly named "Fulton", where a Nissan dealer was listed on the PlugShare site. The second choice was to Auburn, just west of Syracuse, where another Nissan dealer was listed.

I called the dealer in Fulton, and based on his rudeness and hanging up on me when I asked about their EV charger availability, I decided to try LeBrun Nissan in Auburn. Their response was much more pleasant, and so we headed to Auburn. The LeBrun Nissan folks were great. They helped us get the charge set up, and provided us with lots of information on Auburn. We needed to return by 6:30pm for closing, which we did….barely. Mike, the Service Advisor, gave us a map of downtown Auburn and some suggestions for eating.

Deb and I unfolded our bikes and ourselves again, and headed about 4 miles over some rolling hills into downtown Auburn. Auburn is a pretty town with interesting architecture, a cascading river (the Owasco River), and nice bistros and cafes along its main street. It was also the boyhood homes of William Seward (Secretary of State and of "Seward's Folly" fame), and John Foster Dulles (another Secretary of State). I'm beginning to think that anytime pundits of whatever era label something as a "folly", that it is an indication of something successful. After a nice meal, we headed back to LeBrun Nissan, and plotted our route to Rochester. Thank you for the charge, LeBrun Nissan! Zeid Nasser, "TheCollegeDriver.com" website host, had contacted us about our trip, and as he lives near Rochester (he is an automotive engineer who works in the Rochester area), he told us of a free charging station at the

Penfield Recreation Center and Library on the east side of Rochester. We were hoping to meet with Zeid, but our delayed arrival unfortunately didn't allow for it. We charged for a bit at the library while making a hotel reservation at a nearby Hampton Inn, just to be sure the charging station was working, and figured we would return in the morning for a full charge.At the Hampton Inn in Webster, we found that many of the light posts in the parking lot had 120 volt receptacles. That was a nice perk! After unpacking, we connected the 120 volt charger for an additional energy boost.
And that was the end to a nice day with some fairly sore rear-ends from 16 miles of bike riding and site seeing.

Posted in **Uncategorized** | **2 Replies**

July 11 FedEx'd, Rochester, Buffalo and The Honeymooners

Posted on **July 14, 2012**
2

This is the longest we have been away from our grandbaby, Blaire. We asked Lauryl and Neal to FedEx her to us for the remainder of the trip. We decided to send her 5 day ground rather overnight in order to save a few bucks.
The charge at the Hampton Inn was not crucial as we had more than enough "miles" shown on our dash indicator to make it back to the Penfield charger, but the overnight charging gave us an extra boost and reduced the charge time needed at the library. For any of you thinking of EVing, and I recommend that you do, I think most motels have some type of receptacle that can be used for overnight charging. You can call ahead and ask, and simply state that other hotels provide receptacles if the desk person seems unsure.
Back at the Penfield library, we had a comfortable, relaxing place to work on blogs and reading (remember that Deb has 40 books to review). From Penfield, our goal was to reach a AAA Car Care center on the north side of Buffalo. This would be our last charge before diving into the unknown of the Canadian wilderness.

While Deb was driving to Buffalo, I was fiddling with the navigation system in the car. There is a lot to learn. There are three ways to activate the system (touch screen, steering wheel and voice). As I punched, poked and spoked, a screen came up that tells us the local price of gasoline at nearby stations. I guess that is just for our amusement. The AAA Car Care center is a nice EV charging oasis that has an "internet cafe" with free coffee and tea, allowing us to further catch up on e-mail and blogging. The calm pace of the center was broken when Deb knocked a 3 foot tall stack of plastic cups over the floor, sending her and a couple of the staff into a frenzy. I was sitting in a nice lounge chair to the side, sipping my coffee, and enjoying their slapstick routine.

We finished charging and left for Niagara Falls. After all, it is our "honeymoon". I made a reservation at a Hampton Inn at Niagara Falls on the Canadian side, and asked about plugging the car in. They checked with the engineering staff, who said they would find some way to accommodate us. We arrived in the late afternoon, and plugged in for the evening at a prime spot next to the building. We unloaded our things in the room, and went to the Rainbow Room restaurant on top of the Crowne Plaza for a gorgeous view of Niagara Falls. I informed our waitress, Lindsey, that this was our honeymoon. I also told Lindsey it was the second marriage for both of us, to which Deb quickly corrected that we had renewed our vows. It was a wonderful dinner as the sun went down with colored lights illuminating the falls, and the flashing glare of casinos lining the gorge.

Posted in **Uncategorized** | **Leave a reply**

July 12 – The Longest Day and the Canadian Wilderness

Posted on **July 16, 2012**

2

Originally, we planned to make it part way across southern Canada, a distance of about 200 miles from Niagara Falls to Port Huron Michigan. Now that we are getting a feel for the car's mileage capability, we decided to go the distance in a single day. This would put us in reasonable proximity for an easy drive to Ford's Michigan Assembly Plant, The Sun Catcher's birthplace, and the official end of our Roy Chapin journey. We wanted to reach the plant on Friday so that we could tour and meet some of the Ford people involved in the production of this spectacular car.

Now, if you do a Google Maps distance from Niagara Falls, NY to Port Huron, MI, it will come out to about 190 miles. EVing, similar to stepping on stones across a river, is not a straightline process of going from here to there. Today's journey, as dictated by potential EV stations listed on Plugshare.com, would take us to Burlington Ontario, Waterloo Ontario, and London Ontario for a record breaking 220 mile 3 charge day.

Our first stop was at the Mapleview Mall in Burlington ON. We arrived about 9:15am after a short 50 mile drive from Niagara Falls. One of the benefits of EVing is that we have had no arguments about bathroom stops. My enjoyment of watching Deb squirm for an additional exit or two of driving has been reduced, however.

To use the EV charge station at Mapleview Mall, you have to get permission from the Guest Services office inside the mall, which opened at 9:30am, so our timing was just right. The mall had me sign a waiver, releasing them of any liability associated with me whipping gasoline powered vehicles with the charging plug, and gave me their magnetic card for charging. The photos below show the charging station and magnetic card. ChargePoint seems to be in the lead as far as charge station placement along our trip's path.

The Mapleview Mall was very nice with a huge number of stores for you shopaholics, however, we needed to stretch and get some exercise, so we unfolded our bikes and ourselves, and rode to the Burlington waterfront. Kudos to the city of Burlington for being a very bike friendly place. Nice wide bike paths line the main drag to the water

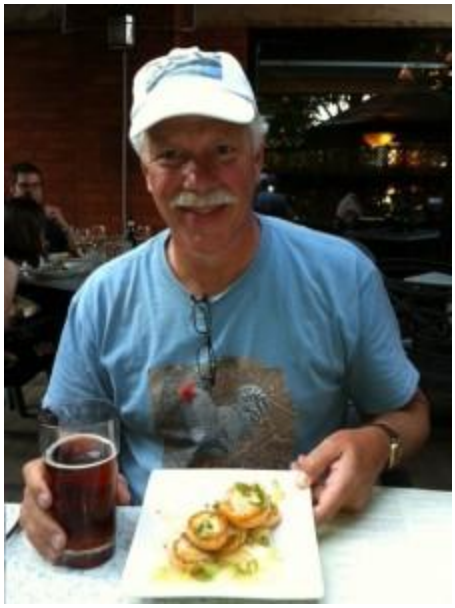
front. Another nice feature is that the land is a gentle slope rather than a steep decline to the water, which meant riding back to the car would be a relaxing ride.

I have to admit to never hearing of Burlington, but it is a very attractive city with a wonderful Lake Ontario setting. The beautiful blue water of the great lakes mixed with a clean waterfront dotted with cafes and green space is something most of us miss on treks across this part of Canada.

After our Burlington charge, we hopped another 50 miles to Waterloo and the Conestoga Mall. Similar to Mapleview Mall, the Guest Services desk gives you a charge card for initiating the ChargePoint station. No waiver signatures were needed here, so I proceeded to damage as many petrol fueled cars as I could within the reach of the charge plug cord. We didn't venture into Waterloo but I can tell you that it has an excellent university (Univ of Waterloo) that has long been a leader in solar and renewable energy technologies. We ate lunch at the mall's food court that was a carbon copy of every mall food court ever built.

Our third charge was 65 miles away in London Ontario on the Thames River. We charged at London Hydro's charge station. London Hydro is the local utility and has two large solar tracking systems at the site. They are adjacent to a large Labatts brewery which added the delicious aroma of malt and yeast to the air. This location was a block from the main drag through London which has a nice, fairly large downtown that stretches along Richmond St. I had to call the ChargePoint phone number to initiate the charge, and since we didn't arrange for international phone service, I tried to make the call quickly as international phone service charges are usually outrageous. As soon as I activated my cellphone, several dozen messages were pushed through. We are now dreading a bizillion dollar phone bill.

We walked down the street looking for a place to eat, and as in other large cities, it is difficult to tell the respectable places from the not-so ones. Deb is better than me at determining potentially sane people to question on the street. She zeroed in on one young couple approaching us. We were given directions to a place called the Church Key about two blocks down the street. The interesting thing was that after receiving their recommendation to go down the street a few blocks, they immediately went into the nice looking Bistro we were standing next to.



The Church Key is an excellent restaurant, so whatever their reason for guiding us far away from themselves, we had a wonderful dinner in their outdoor area adjacent to the cathedral. I had a "Ploughman's dinner" with cold slices of duck, pickled quail eggs, pâté, assorted cheeses, enough bread to stuff a turkey, and a nice Barking Squirrel ale. We shared scallops wrapped in smoked salmon strips and an excellent chocolate-stout cake with cream cheese frosting. I apologize for describing our meal in such detail, but it really was a wonderful dinner in nice surroundings. The only hitch was that in the cathedral grounds on the other side of the wood lattice fence against Deb's back was a somewhat angry and delusional person. He mostly slept on a bench, but would stir now and then. As he would stir, and begin increasing the volume of his rantings (which were similar to my daily solar energy rantings), the waitress would head toward the kitchen to alert the staff. She told us that he had come over to the fence earlier, yelled at a customer, and then punched her through the wood trellis fence. Above Deb's left shoulder was a fist sized hole in the fence, which I pointed out to her. I assured Deb that I would try to give her sufficient warning to duck, because I'm that kind of guy.
We finished dinner as our last charge of the day was complete, and waddled back to the car for a 65 mile trek to Port Huron Michigan.

As much as I was hoping to be strip searched at the border crossing, the customs folks were very nice, and mainly asked about the car and how it performed. With my usual zeal, I proceeded to provide much more information than they cared for, resulting in them telling us to pass through.

We made it to the local Comfort Inn as the Hampton Inn was booked with activities for the Port Huron to Mackinaw sailboat race. The Comfort Inn also had electric receptacles on their parking lot light posts. We pulled up to one and hooked up for the night after a long and interesting day!

Ahead of us tomorrow is one charge and then completion of Roy Chapin's journey as we head to Ford's Michigan Assembly Plant.

Posted in **Uncategorized** | **2 Replies**

July 13 – Part 1- Beautiful EV Charge Setting & Hostility

Posted on **July 18, 2012**

We left the Port Huron Comfort Inn and headed for St Clair Michigan, about 15 miles south of Port Huron on the St Clair River. Our goal today is Ford's Michigan Assembly Plant where The Sun Catcher was made, and for us, the completion of our re-creation of Roy Chapin's journey.

Port Huron to Wayne Michigan where the factory is located, is a bit of a stretch on a single charge. As we loaded up the car, we also found out that the car did not get fully charged overnight. It turns out that the parking lot electrical receptacle is only on when the parking lot lights are on.

We have now traveled over 1100 miles in The Sun Catcher. The car's information system is telling us we have achieved "Zen" driving status (the other end of the driver rating spectrum is "Zippy"). We are using about 200 W-h (Watt-hours) per mile. 1000W-h (or 1 kWh…kiloWatt-hour) of energy costs about 12.5 cents with our solar energy system in Illinois that has already fed energy into the electric grid for our trip. This is an energy cost of $28 for 1100 miles of travel, but remember, we have been mooching extensively along the way from Deb's relatives on Long Island to several others who have allowed us to charge for free. Before long, the novelty of EVing will wear off, and with it the gravy train of free charges. But that's ok, as 1100 miles of driving in a fossil fueled vehicle would be in the range of $80 to $160 (based on 25 to 50 miles per gallon with gas costing $3.50 per gallon).

St Clair has a few chargers around town as shown on the Plugshare map. As we arrived, we pulled into a small city parking lot adjacent to a marina on an inlet connected to the St Clair River. This has to be one of the most beautiful charging sites anywhere. I called Chargepoint, spoke with Steven (we are now on a first name basis), and got the charge started.

An older fella about my age, dressed in a Burger King uniform, walked by the car as I was setting up the charge. He made a remark to the effect that electric vehicles were stupid, to which I replied quite strongly that I am finished sending money overseas for oil to people who hate us and use our money to kill us. I also told him I would pay a lot more for any car that saves the life of one of our service personnel. I think he was expecting a somewhat wimpier, green, liberal, vegan type of response, so he was somewhat taken aback. Deb was busy texting Dana that Dad and The Sun Catcher might be on the receiving end of a few punches. In a sudden turn of events, the man thought about my response, and apparently had a soft spot for our vets, too, and he told me he had been a longtime employee of Chrysler. We talked cars for a while. His favorite was a 1957 Plymouth, which was a sharp car, and I told him about my 1962 Imperials. We parted amicably with Deb in disbelief at the turnabout in conversation and mood. I understood his anger, as is the mood with so many. Our elderly are fearful about the cost to maintain their health and angry that their long sought retirements are turning into shifts at Burger King, while our youth are rightfully worried about their future with a rapidly increasing debt, decreasing resources, and increasing wastes.

We'll leave the heavy stuff behind for the time being, as Deb and I went to a nice riverside restaurant for lunch while charging. For those of you who have not seen one of the rivers draining the Great Lakes like the St Clair River, the Detroit River, or the Niagara River, these are beautiful, blue, roiling rivers of immense size. Our restaurant overlooked the river with large ships moving up and down.



We received a call from media folks at Ford who were arranging a welcoming for us at the plant. We told them we would arrive at two, however, the lower than expected overnight charge at the motel put us in a pinch for fully charging in St Clair so that we could comfortably arrive on time at the plant. Deb and I finished lunch, walked past the Burger King to the car lot without further incident, and disconnected The Sun Catcher with enough charge to make it to the plant…….or so we hoped!

Posted in **Uncategorized** | **Leave a reply**

July 13 – Part 2 – The Homecoming

Posted on **July 18, 2012**

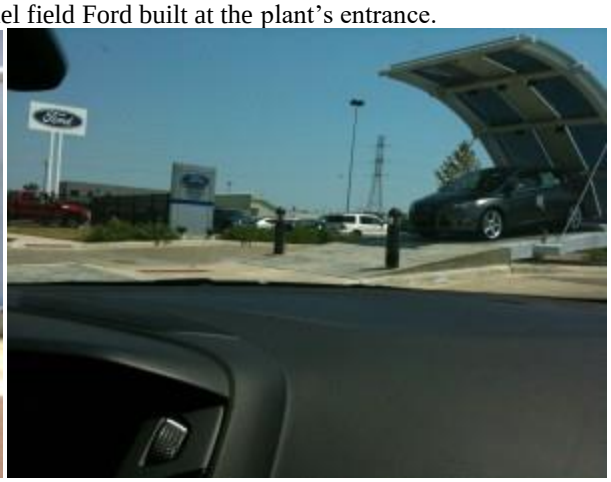
2

We headed to the Ford MAP (Michigan Assembly Plant), which would mark the completion of our re-creation of Roy Chapin's journey. The toils and tribulations of our trip were nothing compared to Roy's. We had a gps that marked any and everything coming up. Our anxiety over charging stations only meant that if a "fast" charger was not available, we would need to "slow" charge for a few more hours at someone's wall receptacle. Roy was continually repairing tires, hand pumping them up every few miles (for four tires, that amounted to about 2000 tires he had to pump), and repairing his transmission and suspension. There were no road maps as there were no roads outside of the towns. When he arrived in a nick of time at the Waldorf-Astoria Hotel for the New York Auto Show, he wasn't allowed in due to his mud-covered state.

So, as we worried that we might runout of energy on our way to the MAP, we also realized that we would be able to text our contacts if any problems were to occur.

Our energy gauge showed that we had no extra miles for reaching the plant. We turned off the air conditioning which gave us a 6 mile margin for reaching our destination. Construction delayed us for a half hour, but we finally

made it, driving pass the immense 500kilowatt solar panel field Ford built at the plant's entrance.



A number of surprises met us when we pulled up. First, our reception committee applauded us as we emerged from the car. Ford MAP's senior supervision greeted us. A television camera from Detroit's WXYZ station (channel 7) started filming, and then……our biggest surprise….. we were introduced to Bill Chapin, President of the Automotive Hall of Fame and a grandson of Roy Chapin!
Bill and I spoke on camera as he interviewed me and asked about our trip. I told him that my grandfather worked for his grandfather at Hudson, and that we were really pleased to re-create his grandfather's journey. Our journey now, as his was then, has been meant to be a demonstration of what is possible and necessary for the future of our country.

We thanked our Ford hosts for building a wonderful car, and I asked if I could get a commission for each one that I help sell. Ford gave us an excellent tour of their modern, clean, solar powered factory. The Michigan Assembly Plant is an amazing factory for many reasons. Its production lines are flexible, allowing various car models (conventional gas, hybrid and electric) to be built on the same production line. This allows the plant to shift production as the market dictates to emphasize whichever model is in most demand without re-tooling. We only caused three line shutdowns (just kidding…..anyone familiar with production lines knows this is a big,big no no). MAP is a clean, neat factory, as it needs to be. The mood was nice with a number of people saying hi while working hard at their stations. The plant was humming with hustle and bustle, as it will for many years to come.

We were brought to the area where finished cars are ready to exit the plant, and The Sun Catcher was sitting there at a charging station. It looked cool seeing our car in the place of its origin. We couldn't take pictures in the plant, but I thought I detected a look of satisfaction on our car, knowing it had done something very special.

We want to thank Colleen and Amanda for their efforts in coordinating all of these activities. Also, we want to thank the Ford personnel who greeted us and took us on the plant tour. We appreciate your taking time out of your busy day!

Posted in **Uncategorized** | **Leave a reply**

July 13 – Part 3 – End of a Long Day

Posted on **July 18, 2012**

Although our driving distance and charging time was not very much today, it was an exciting and exhausting day. We decided to stay at the historic Dearborn Inn, a hotel built by Henry Ford for visitors. The Inn is lovely with lots of automobile pictures, of course. Our stay coincided with a large car festival being held in the area, and several luxurious Dusenbergs, Pierce Arrows, Packards and multitudes of other cars were parked around the hotel. We met a

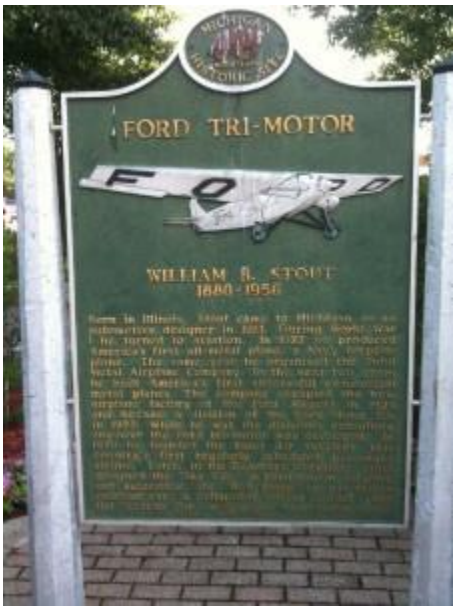
former graduate student of mine, Mark, and his son Eli, for dinner. Mark is the person who helped us on the engineering side of things to make contacts for our visit. He's been with Ford for 20 years…..it seems like yesterday we were working on his master's research project. I didn't explain how Bill Chapin learned about our trip, which is one of those coincidences that makes you wonder about how the world operates. When I contacted Mark a couple months ago to tell him about my idea for this trip, he contacted Bill Ford's office with the information instead of calling up the local insane asylum. A senior adviser to Bill Ford received Mark's note, and as it turns out, he is also a grandson of Roy Chapin, and a first cousin of Bill Chapin. He passed the information on to Bill.

Our day ended with dinner with Mark and Eli. Unfortunately, the Dearborn Inn did not have any outdoor receptacles as I scoured the grounds, which meant we would start the next day charging at a nearby Meijer grocery store that has an EV charge station.

Posted in **Uncategorized**

July 14 – Southern Michigan Tour – EV Station Nirvana

Posted on **July 20, 2012**



We left the Dearborn Inn first thing in the morning on July 14, and headed to the nearby Meijer grocery store where an EV charger was located. We were meeting our daughter, Dana, in Ann Arbor for dinner, and as her birthday was rapidly approaching, we did some gift shopping while charging. As we left the Dearborn Inn, we passed by a historic marker that brought my Ford Tri-motor airplane ride full circle (see an earlier blog post of my flight on a 1929 Tri-motor). You're probably unable to read the sign due to my poor photographic skills. Basically, it tells the story of William Stout who was behind the development of this fantastic plane built nearby. We drove along Michigan Avenue west out of Dearborn. People lined the streets for several miles in what we thought was an additional celebration for our travel feat, however it turned out that a large automobile parade was scheduled to pass through later in the morning. Lots of hot rods, classic autos, and antique cars were driving along Michigan Ave as well as parked along the street. One of the cars driving ahead of us was this Pinto. EVs have been described as dangerous because of the electrical energy, however, there are very few things scarier than driving behind a Pinto. The actual energy content of an EV's battery pack is much less than the energy in a tank of gas.

Ypsilanti, which sounds like it's spelled, is adjacent to Ann Arbor. We went to the Ypsilanti

Automotive Heritage Museum, which was originally a Hudson dealership. Jack Miller is the museum curator and former Hudson dealer. Bill Chapin had recommended that I speak with Jack about any questions regarding my family's Hudson history. Jack is a real pleasure to meet, and he dug out some old brochures for the Hudson "Twenty" club, made up of employees with more than 20 years service. My grandfather's name was listed until his death in 1945. Here's a picture of Jack and me. Some really nice cars are in the museum. A really cool feature is that the dealership office, parts counter, and repair shop are exactly as they were when the dealership closed. I think they simply dropped what they were doing, and Jack hasn't touched the items since.

Ann Arbor is just a few miles down the road. The University of Michigan is my alma mater (I can already hear the booing from many of you!). Regardless of our various sports rivalries, our universities are the best in the world, and they are essential for creating a sustainable future. A stable future for our children, grandchildren and beyond rely on the continuing development of new technologies that utilize our resources more efficiently. A sustainable future also depends on an education system that transmits knowledge to future generations. And, while we're accomplishing these things, yelling at each others' schools in a maniacal manner during some sporting contest is a lot of fun.

We charged up at DTE's free ChargePoint station, and for the first time, we had some company with a Chevy Volt parked in the other charge spot. We celebrated Dana's birthday and gave her a birthday gift consisting of fishing

gear she had requested, proving that she is indeed related to my side of the family. We had a full charge from the DTE station, and headed to a Super 8 motel Jackson Michigan, a quick 50 miles drive on interstate 94. For those of you contemplating EVing in the Michigan region, do it! Southern Michigan from Detroit to Benton Harbor and beyond is EV charge station Nirvana. St Clair, Detroit (and suburbs), Ann Arbor, Saline, Jackson, Marshall, Coldwater, Battle Creek, Kalamazoo, Michigan City, Benton Harbor and many more locations within comfortable EV driving ranges have charge stations. It will be great when the stations allow one to circumnavigate the Great Lakes magnificent coastlines!

Posted in **Uncategorized** | **1 Reply**

July 15 – Homeward Bound!

Posted on **July 22, 2012**

We're leaving Jackson Michigan with a full charge and an easy trek to Kalamazoo for a double charge…..some energy for the Sun Catcher and a nice brew for Deb and me at The Olde Peninsula. I'm not sure why I have this look on my face. Maybe it's because I know our trip is coming to an end soon, and that means a lot of exercising to work off all the food I've been storing around my beltline.

This is the final stretch on the way home. Two simple EV stops at Kalamazoo and South Bend Indiana, and an overnight in Rochester Indiana. And then, a simple drive home through Lafayette to home…..or would it be so simple? Deb is really starting to get on my nerves after being in such close quarters over the past two weeks. I know the opposite isn't true. Deb, as far as I know, hasn't been reading the blog, and I would appreciate your not encouraging her to do so.

Kudos to the city of Kalamazoo for having more EV charging stations per capita of any city I know. Between the city and Western Michigan University, there are plenty of charge locations as seen in my charge map from the MyFordMobile site. And, what can you do in Kalamazoo? If you are a beer aficionado, head to Bells Brewery to pick up something to take home, and have a nice meal at The Olde Peninsula Brewery. The Waterhouse Coffee Shop is also a nice place to relax and use their wireless. The EV charge station in South Bend, a 65 mile drive from Kalamazoo, is located at a shopping mall. Shopping malls are nice locations for EV chargers for people shopping, and make sense for the initial EV charge stations in a community. Placing EV stations around a community's other assets such as historical sites, downtown areas, and parks will allow EVers passing through to charge up while enjoying a community's interesting sites and while also leaving some money behind.

From South Bend, it was an easy drive on US highway 31 to Rochester Indiana where we were staying for the night. Our plan was to charge overnight on a 120 volt receptacle. Lafayette was only 65 miles away, and then home after charging at one of Lafayette's EV stations.

Unfortunately, we had some receptacle/charge problems (our 120V charger burned up!), preventing us from charging overnight. So, on to Plan B. But, we didn't have a Plan B, and Indiana is a virtual EV charging station desert. Our mileage gage showed that we had a nominal 50 miles of distance left, and that meant even with our Zenniest driving

skills, Lafayette was too distant. Well, I needed to go back to the motel room and do some EV charging station research to see if a reasonable alternative path was available….something within 50 miles.

July 15 – July 5 NYC Trip Completion

Posted on **July 22, 2012**

Of course, we made it home, but not in an easy manner. In fact, it was a real nail biter, with quite a bit of drama (at least, we felt quite stressed). I'll tell you about it in the last segment of this blog, and about our amazing encounter with some special folks, but before doing so, I remembered that my New York City trip blog from July 5 wasn't completed.

Upon our return home to Urbana, Deb and I were watching the "CBS This Morning" show, and of all things, they did a story on Willis Carrier, the "King of cool", and the 110th birthday of the very first air conditioned building, located in Brooklyn. Take a look at our July 5 blog to read about this milestone. Barely a century ago, automobiles, airplanes, air conditioned buildings, light speed communication systems, power plants, electric motors, light bulbs…..breathtaking technological advancements were becoming reality in the lives of everyday people.

I'll summarize the previous July 5 blog here so you don't have to return to it…..Deb and Ty visit sites 99.9% of the population (which includes Deb) would only visit at gunpoint…..in Greenpoint/Maspeth area of Brooklyn we walk around the site of Peter Cooper's glue factory, the first air conditioned building in the world, and the construction site of the iron Monitor ships. From there, Ty forced Deb to continue this strange sightseeing venture with stops at a giant, inflated ketchup bottle located at the site where the Declaration of Independence was read to General Washington and his troops in New York City, a walk on the Brooklyn Bridge (Deb liked this), a search for the site of the first electric power plant, the address where the first utility bill was delivered (one block away from the power plant), and then a walk to the World Trade Center site. And while this was going on, a bit of praying on our parts that our car would be charged up enough to reach home.

We left the World Trade Center site and walked through the financial district on our way to the subway. On the way we stopped at the Trinity Church cemetery where we found the grave of Robert Fulton. Robert Fulton, of "Fulton's Folly" fame, developed one of the first steam ships in the US. With his business partner, Robert Livingston (one of the "Committee of Five" Continental Congressional members that drafted the Declaration of Independence as well as a signer of the Declaration of Independence, and the person who negotiated the Louisiana Purchase deal), a very successful transport company was founded that cut the time from one week to one day for transit up the Hudson River from New York City to Albany. The naysayers, pessimists and pundits of his day were silenced as it became clear that a new generation of transportation technology had arrived. Coincidently, adjacent to Fulton's grave is Alexander Hamilton's, of $10 bill and poor dueling skill fame.

Deb and I made it to the subway, and went uptown a bit to Astor Place where we could walk a brief distance to The Cooper Union, Peter Cooper's remarkable educational institution. Deb is telling me to quit taking pictures and to

get on the train before the door closes. We reached The Cooper Union, which is a historical building for many reasons. It has a large auditorium which was the largest at its time (built in the 1850′s) for many years. Abraham Lincoln, Booker T Washington, Susan B Anthony, Mark Twain and many others including President Obama have spoken here. A large, imposing sculpture of Peter Cooper is in the small park adjacent to the building where Peter gazes on a somewhat rough looking crowd in the park. I had previously described Peter Cooper's business success in glue, and his associated developments of jello and the double boiler. He's most lasting fame, however, was for building the "Tom Thumb", the first steam locomotive built in the US. He also owned iron ore mines and steel making plants. Overall, he was a very, very successful business person with an eye toward key technological solutions for the needs of those times.

The thing I find most remarkable about Peter Cooper was his drive to provide opportunity for others. The Cooper Union has no tuition. It has also been open to all regardless of gender, culture, race, religion or whatever means used to discriminate. If you are qualified and granted admission, there is no tuition. Our great land grant institutions and many other schools were formed with similar intentions, but have lost their way and thereby limiting our ability to provide education and opportunity throughout our population.

Enough of this soap box. Here's where I'll try to tie these things together. At a young age, Peter Cooper had the opportunity to demonstrate a tidal power driven ferry to the mayor of New York City. Robert Fulton was asked by the mayor to observe the demonstration, and in a haughty manner, denigrated Cooper's ferry. Regardless of whether or not Cooper's device made economic and technical sense, Cooper felt insulted and vowed to never treat others in the manner he had been treated. And so it seems, he stayed true to his word, forming The Cooper Union, an institution that embodies this ideal.

Remember our visit to Thomas Edison's first power plant? Thomas Edison, prior to any of his successes, attended lectures at the Cooper Union and also used its laboratories to conduct experiments on his first successful invention, a ticker tape machine. And, of course, it was Thomas Edison's kindly words of support to Henry Ford, an employee of Edison's Detroit Illuminating Company, that helped encourage Henry. What would have happened if Fulton had responded in a kinder manner to Peter Cooper? Or, if Peter Cooper's reaction to Fulton's diss would have been to act in a similar manner to others as Cooper's fame and fortune increased? Maybe the impact is not so earth shaking, but the air currents from a butterfly's wings may be all it takes to set earth shaking events in motion, and kind words are every bit as powerful.

Nearby The Cooper Union is New York City's oldest bar, McSorley's Old Ale House, where our friend, Peter Cooper, and many others would frequent. For those who have trouble ordering from multi-tap establishments, it's

very easy in McSorley's. You can order either light ale or dark ale. Five bucks gets you two very cold 12 ounce mugs of ale (who says NY is expensive?), and another three bucks a large plate of cheese and crackers with a spicy mustard that will clear your nose for a decade.

Located above the bar is the chair used by Peter Cooper on his regular trips to McSorleys. McSorleys is a great place to stop, with an atmosphere similar to English pubs with lots of people engaged in conversation, saw dust covered floor, and overall comfortable surroundings. Next to Peter Cooper's chair above the bar is the tavern's motto: "Be good or be gone!".

A short subway ride back to Chinatown to meet up with The Sun Catcher, and then back to Long Island. We were happy to find the car had been fully charged at the parking lot, dispelling whatever notion we had that it wouldn't be so. And so our trip into the "City" ended, but was really the official start of our oil-free journey home.

Posted in **Uncategorized** | **Leave a reply**

July 16 – Zero Charge, Boiler UP, Gang Activity, Grandbaby & Home!

Posted on **July 30, 2012**

After finding that we were unable to charge overnight in Rochester Indiana, I scanned internet EV charge station websites, and found that Plugshare.com showed one site that was 50 miles away in Kokomo Indiana at Delphi's headquarters for electronics and safety. And, we had 50 miles showing on our mileage gauge. The Delphi EV charge station did not show up on my other charge station sites (ChargePoint, AAA and MyFordMobile). So, did it really exist? Anyone can list a charge site on Plugshare. For example, if you check around Urbana Illinois, you will find our house listed as a site.

As we started driving, the mileage gauge made adjustments to our estimated distance, and to our unhappy surprise, we started seeing unfavorable adjustments that indicated that 50 miles was too far, and then 49 miles was too far, and then 48 miles was too far, and that this trend would continue without some adjustment on our part. We turned the air conditioning off, and fortunately it was rather pleasant, but the sun was shining brightly and that wouldn't last. The mileage gauge increased our distance back to 50 miles, but it started creeping down again as the car felt its way along. Possibly the direction of the wind was against us? Perhaps the road was a little bit rougher? Or maybe we were increasing slightly in elevation? Whatever the reason, we needed some additional corrective action.

A few years back when our four kids were small, we were driving home with a near empty tank in our minivan. We were quite close to home, and I knew we could make it. Deb told me it was not worth the risk and to stop for gas. I shrugged the suggestion off. My father would never allow a fuel gauge needle reading below empty to dictate a stop for gas, and as a Newell, I had this same sense of stupid determination genetically instilled in me. Let me just say that we were so very, very close. As we reached our interstate exit for Urbana, I remember how silent the car became as we glided to the interstate shoulder, quite similar to the sound of an EV. It really is surprising that Deb agreed to marry me again. I explained to the kids that I would be leaving them for a bit and clearly remember their quizzical looks as I stuck my thumb out, and climbed into the cab of a semi to head into town for a can of gas. The drive to Kokomo created the same level of tension in the car.

One of the electronic dash displays is a "cup" figure (think of a tall "U"), with a white horizontal bar that dances above and below the top edge of the cup figure. The top opening of the cup indicates your predicted driving performance, and the horizontal bar shows your instantaneous performance. When the bar is above the top opening of the cup, you are using more energy than expected, and when the bar is inside of the cup, you are doing better than predicted. This type of graphic display is called an "HMI" (Human-Machine Interface). Most people respond best to graphic or "analog" displays, such as glancing at the hands of a clock rather than reading a digital number display, and a lot of effort is put into these displays by engineers and designers. And in this case, the HMI display did an excellent job immediately conveying our dire situation.

Whatever the combination of reasons, we could see that the bar kept dancing above the top edge of the cup, indicating that our predicted range would keep being reduced. We were driving 55mph on US 31, but gradually bumped the speed control down notch-by-notch until we saw that the dancing bar was within the cup at a speed somewhat greater than 45 mph. While this may seem painfully slow, remember that we are only driving 50 miles, so it's not a long time at any reasonable speed.

We were relieved to see that we were making a dent in the mileage, and our predicted excess reached a level of 3 to 4 miles beyond our goal. You should know that the driving changes we made are not unique to EVs, but are true for any car. If your gas tank is near empty, slowing to a lower speed will increase your range because aerodynamic losses decrease, and the internal (engine-drivetrain friction) and external (road roughness) losses decrease. Speeding up to get to a service station faster is exactly the opposite of what you should do. EVs have better technology for precisely indicating your driving range.

As we hit 10 miles of charge left in the battery, the calm, blue display of the dashboard turned bright yellow. This was quite a startling change, and caught our attention as intended by the designers. We still had 3 to 4 miles of excess showing, but one or two poor braking stops or too heavy of an acceleration as we exited the highway could wipe that out. We made it to the Delphi driveway, and worked our way to the back parking lot where we were relieved to see two ChargePoint stations, but dismayed as we saw two Chevy Volts plugged into the stations. The ChargePoint stations indicated that both Volts were fully charged, so I hoped someone in the Delphi building would allow us to unplug one of the cars. I went to the reception desk to inquire, and the security person told me it would be ok to unplug one of the cars. I unplugged one of the Volts, plugged in our car, and proceeded to phone ChargePoint to initiate a charge as we had done so many times over the past week. As the ChargePoint person looked up the station to start the charge process, he came back and told me it was a private station that was not open to the public, and that I would have to find the responsible person to approve our charge.

I went back to the security person at the front desk in the reception area to ask how the person responsible for the charge stations could be contacted. Delphi's reception area is an open space with a very nice cafeteria/coffee shop and spacious, comfortable seating. Deb was making use of the space with her stack of books to review. I knew that if the reception folks could find an engineer, I could engage them in some geek-speak, and hopefully get charge approval.

An engineer with Delphi's EV development group was located after 3 or 4 contact iterations. The engineer I met was very friendly, and as I mentioned how their station showed up on our EV charge station map, that we only had a couple miles left on our charge, and that there were no other nearby chargers, he agreed that we were in a pretty desperate situation. I didn't really need confirmation of that, but it was clear that he was very familiar with EVs, and knew we were screwed without a charge. He didn't make me sweat too long before saying it was no problem. We went out to the charge station where he swiped his magnetic charge, allowing high energy electrons to move into the car.

Deb and I settled into the comfortable lounge, and a bit before noon, the engineer we met came over and asked if we would like to go to lunch with him and a couple other engineers from his group. We had a very enjoyable lunch discussing EVs and many other topics. It turns out that the folks we were eating with contributed to the development of GM's "EV1", a revolutionary electric car developed in the 1990s that demonstrated the capabilities of EVs. These guys collectively had more EV1 driving experience than anyone, and to the EV world, they are rock stars….except, large corporations don't tend to advertise the names and activities of engineers developing their new technologies.

After lunch we thanked the Delphi engineers for the charge and headed off to Lafayette Indiana for our final charge before home. The drive to Lafayette was an easy 60 miles on state highways. The tension in our car was now gone, and we enjoyed the comfortable quiet of our car. We went to the Purdue campus to charge at an EV charge station site next to their union building where it would be comfortable to hang out. The two charge stations in the parking garage both had small EVs that looked like university cars (I think they were "Thinks"…a small Norwegian EV I had seen in Trondheim 6 or 7 years ago). Apparently a Think manufacturing plant was placed in Elkhart Indiana, but has hit some tough economic times.

Lafayette and West Lafayette Indiana has an abundance of EV charge stations, and so we headed to downtown Lafayette across the Wabash River for a charge at a municipal lot. Deb and I are quite familiar with Purdue from our daughter Dana attending school there, and from a number of colleagues of mine from over the years. As an Illini, I hate to admit they are a great school, but, they are. In downtown Lafayette, we plugged into a free ChargePoint station, and head to LBC (Lafayette Brewing Company) for dinner, and beer.

We left Lafayette after the charge and headed straight west on state highways to Paxton Illinois. This is our most direct route to our grandbaby, Blaire, who we are worried had forgotten us over the past 13 days. A large wind farm greeted us as we neared Paxton. The wind farm is located on a glacial moraine that gently lifts the region to an elevation where abundant winds exist. You might interpret my gesture as a gang symbol to my homeys, but that would be wrong. I'm showing the "right hand rule", in celebration of James Clerk Maxwell and his conceptual breakthrough resulting in the basic understanding of electromagnetic waves. May the force be with you!

We enjoyed our grandbaby for a bit, and then headed to Urbana. Our trip totaled 1650 miles with 300 miles from tooling around Long Island, and the rest accumulated from our trek home.

Epilogue

Posted on **July 30, 2012**

We've now been home for two weeks, and things are starting to settle back to normal (not that we are very normal to begin with). Deb has been gliding around town in The Sun Catcher, with nearly 200 more miles added to its total. We haven't purchased a Level 2 charger (240 volt) yet, but will do so within the next couple of weeks. The 120 volt charger is more than adequate to charge overnight (usually, only a couple of hours with our current 10 to 15 miles per day average).

Here's some information related to the Ford Focus performance:

The 1650 miles for our trip required 370kWh (kiloWatt-hour) of energy. This is 4.4 miles per kWh, which is better than my estimated 3 to 4kWh, and almost all of this has been during hot weather with the air conditioner operating.

The cost for 370kWh is $46 based on our solar generated electricity costing 12.5 cents per kWh. The average car in the US achieves 30 mpg, and would have used 55 gallons of gasoline at a cost of $165 to $220 assuming $3 to $4 per gallon gasoline.

The $46 spent for solar generated electricity is a cost that went to jobs for the labor to build the solar panels and associated components, and the local labor required to install the panels (see our website: BuildEquinox.com, and read about the cost and energy production of solar energy in our publications).

Of the $165 to $220 spent that would have been spent on gasoline, more than 60% of the cost went overseas, enriching a number of people who don't like us very much.

Our current oil consumption of 20 million barrels per day is equal to a cost of $2 billion per day, with $1.2 billion leaving the US every day. Annually, the money leaving our shores is nearly $450 billion. As one thinks of deficits and trying to get our house back in order, it doesn't take a lot of math to find that the premium we pay initially for electric vehicles is being spent on jobs with the additional dual benefit of keeping more of our money in the US and keeping it from reaching hands that would use it to hurt us.

As soon as you are able, join the EV revolution and renew our independence and freedom!

About Us

Ty and Deb Newell live in Urbana Illinois in Equinox House, their 100% solar energy powered home. "The Sun Catcher", their Ford Focus EV, is solar powered, too. Deb is an elementary school librarian and is active in children's reading programs. She is a nationally board certified teacher. Deb was born on Staten Island NY and grew up in North Merrick, Long Island. She received a BA from Wagner College, an MEd in educational media from the University of Utah and an MLS from the University of Illinois.

Ty is a mechanical engineer working with his son, Ben, at their company (Build Equinox) where they are inventing technologies for designing and building healthy, sustainable lifestyle solutions. He is also an emeritus professor of mechanical engineering at the University of Illinois where his teaching and research focused on solar energy, energy efficiency, energy conversion and resource conservation. Ty retired from the University of Illinois in 2007, having advised 70 masters and doctoral graduate students. He now devotes fulltime to the continued development of sustainable living technologies.

Deb and Ty met a long time ago at a summer camp in Holmes NY where Deb was a lifeguard and Ty was the maintenance guy. They have four children and a granddaughter.