EEVC NEWSLETTER

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STEVE PERRY GETS TO HELP NOBEL PEACE PRIZE WINNER DR. JOHN AGARD IN GLOBAL WARMING RESEARCH

Oliver Perry

For those of you who do not know it, my son Steve is an environmental engineer, who earned his degree from Rutgers University. Steve fell into the air quality segment of the industry even before he matriculated from Rutgers.

Steve Perry, owner and operator of the FTIR equipment, standing next to two colleagues of Dr. Agard's from the University of the West Indies. Steve is showing Dr. Agard's team how to set a baseline for the instrument on a shoreline where levels of carbon dioxide and methane are normal. The equipment will be moved to measure the amounts of greenhouse gases emitted from a swamp in real time. Dr. Agard was one of the group from IPCC (Intergovernmental Panel on Climate Change) that shared the Nobel Peace Prize with Al Gore. (Photo: Dr. John Agard)

Through a progressive series of struggles Steve managed to form a company that has acquired the license to service, maintain, upgrade, and sell expensive but state of the art FTIR (Fourier Transformation Infrared) remote air sensing equipment. (pictured: Taking a background reading)

The equipment sends a beam of infrared light through the air and bounces it back from a mirror where the light is spectrally analyzed for compounds that were removed by gas molecules present in the air.

Dr. John Agard wishes to continue scientific studies related to greenhouse gas emissions and is using Steve's equipment to monitor quantities of carbon dioxide and methane gas released naturally from a swamp in Trinidad.

When Steve was called to Trinidad to teach Agard's team how to properly set up and use the equipment, he had no idea who Dr. Agard was. That Agard was one of the group that shared the Nobel Peace Prize

with Al Gore came as complete surprise.

Steve found Dr. Agard to be an outstanding humble person. Once a missionary to an impoverished third world country, Agard has slept in hammocks suspended over dirt floors. He drives an old car with screeching belts, clearly one the oldest car in the prestigious university parking lot. To Agard, a car is only transportation.

Dr. Agard shared some of his insights regarding the work being done by IPCC (Intergovernmental Panel on Climate Change) which is funded by the World Bank. This group of scientists is purely a consensus group. No single person on it can weigh heavily on other people's opinions.

Clearly tremendous amounts of money are being poured into organizations world wide in search of a better understanding of the science behind climate change Climate research is the hot topic, and researchers like Dr. Agard agree that we must balance of resources problems for the more immediate needs related to war, poverty, disease, famine, and human epidemics. People in Africa who are starving today cannot wait for us to complete our climate research before we address political unrest, food, and energy shortages.

The analysis that world wide ocean levels in the 20th century have risen only 1.7 ±0.3 mm/yr may temper the predictions of immediate major costal flooding due to global warming. And if natural causes could contribute as much, or maybe even more to global warming than man-made causes, we must be careful to think before we spend billions of dollars in needless efforts to curtail carbon dioxide emissions. It is encouraging that scientists like Dr. John Agard are at work monitoring carbon dioxide and methane swamp emission. We need more factual information.

THE ADVENTURES OF "BIG AL" ON A DARK PHILADELPHIA COBBLE-STONE STREET

Oliver Perry

Alan Arrison dwarfs his electric converted VW pickup truck. And his attempt to prove to us that electric transportation should be used by members when they attend EEVC meetings dwarfs all of our efforts combined. For months Alan has been planning on driving his electric pickup from Glassboro, New Jersey, to our meeting place in Plymouth Whitemarsh High School, near Plymouth Meeting, Pennsylvania. The trip is approximately 35 miles but varies depending upon the choice of route. Opportunities for expressway speeds exist as well as for slower winding street speeds.

When I called Alan the second Wednesday last October, to see if he wanted to ride to the meeting with me, "Big Al" informed me that the time had come for real men to drive their electrics. He had purchased a new charger, one that operated on a standard 110 volt three-prong outlet. That charger plugged via a long extension cord into the wall of room 49 would recharge the VW during our meeting. Alan intended to arrive early at about 6:00 PM and leave at 10:00 PM, allowing himself a four hour charge time. Al was not interested in having me follow him to the meeting; he said that he would meet me there.

True to his hopes, Alan arrived early and plugged in, running the lead cord out the window and across the driveway to a parking spot. He easily made the trip to our meeting place with some energy to spare. I found him hunched over his charger next to his pickup when I arrived at 6:30 PM. "Wow Alan, you made it okay!" I yelled as I approached him from across the lot.

There was no excited, "Yes" in return from "Big Al," nor a victorious grin.

Alan was not in the best of moods. He complained that for some unexpected reason his charger was only putting out 1 amp. It was supposed to supply 10 amps of current to the battery pack. It didn't take a rocket scientist to quickly figure out how late Alan would have to remain at the high school to get a complete charge when putting out only one amp. He would have to stay much later than planned.

At approximately 10:30 PM, (we held an extended meeting) I followed Alan off of the high school grounds with my car. Big Al, in his mind, had stayed long enough and was ready to chance making it back to New Jersey. He called his mother and asked her to drive his Ford pickup truck to a point on the Jersey side of the Walt Whitman Bridge and meet us there. Before we closed our car windows I yelled at Alan to take his time, to proceed slowly and conserve energy. He informed me that he had visualized in his mind what he

thought would be the shortest straight run for this return trip, one that would take us through Philadelphia and onto the Schuylkill Expressway using the least amount of energy.

Off we raced. I had all I could do to keep close to the electric pickup as we headed east on Germantown Pike. I had been instructed by Al that he would find a "turn off" to the Schuylkill Expressway when get got to that point, and he seemed to want to get to that point in a hurry. The heck with conservation.

Soon the road we were traveling turned to cobblestone and included a set of trolley tracks running down the middle. It was probably my imagination, but it seemed to me that the rougher the road got and the more the front end of my car shook, the faster Alan moved! The next thing I knew I had to run yellow lights to keep from losing him. Deeper and deeper into the poor section of Philadelphia we raced. Out of my periphery vision I noticed more trash and broken windows covered with bars. The night seemed darker and the pedestrians more foreboding. But onward we moved, my teeth rattling inside my head. I was sick of the trolley tracks throwing me from side to side, and the cobblestones shaking my car to pieces. Over and over I yelled for Alan to slow down, but I was only talking to myself. In the middle of this wild ride my cell phone rang. It was Dave Goldstein, president of the EVA-DC. He asked if I had time to talk. So block after block I talked to Dave, appreciating the stop lights, but struggling between them to keep up with Alan. At one point in the phone conversation, Dave calmly said, "It sounds to me, Ollie, that you need some help!"

Suddenly, in the middle of a very dark and scary section of Philadelphia, Alan's truck stopped in the middle of the street. Alan got out of his VW and quickly walked back to me. Amidst yelling something about the stupid fools that picked cobblestones for paving streets I sensed that Alan's truck had ceased to operate. What a sickening feeling!

I suggested that I push him the rest of the way out of Philadelphia. But, Alan, yelling things that were sort of hard to understand, comments that sounded like they might hurt the feelings of street makers in Philadelphia, lined my car up to push him off to the side of the street, and not any further toward brighter living. It turned out that his battery pack still had juice in it but the front axle had fallen off.

Too be continued next issue...

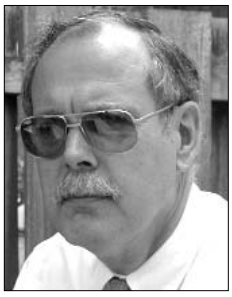
Find out what happened to "Big Al" in the next thrilling episode entitled, "Interesting characters surround Big Al and Little Ollie on the dark cobblestone streets somewhere in Philly." And, "Feel secure with Big Al anywhere!"

Sponsored by "Lester the Molester," "Chargers that work!"

21ST CENTURY AUTOMOTIVE CHALLENGE 2008

The 21st Century Automotive Challenge went so well we've decided to do it again on June 7-8, 2008. The location will be the same as this year, the Burlington County Institute of Technology and the Historic Smithville Park in Burlington County, NJ. For information contact Oliver Perry.

WEST COAST ALTERNATE ENERGY CONTINUES TO HEAT UP
By California Pete



Alternate energy moves ahead

Californians seem pretty well sold on alternate energy, what with the new laws to restrict carbon dioxide emissions, and the lawsuit attempting to force the EPA to allow the state to impose new mileage standards on motor vehicles. Utility-scale alternate energy goes hand in hand with that, and efforts to harness our abundant sunshine and geothermal energy are moving ahead rapidly.

Much of this is driven by The entrepreneurial folks in Silicon Valley, and one of the largest is taking a leading role: On November 27 Google announced a strategic initiative to develop electricity from renewable energy sources that will be cheaper than electricity produced from coal. The initiative, known as RE<C, will focus initially on advanced solar thermal power, wind power technologies and enhanced geothermal sys-

tems, among other things. RE<C is hiring engineers and energy experts to lead its research and development work, which will begin with a significant effort on solar thermal technology, and will also investigate enhanced geothermal systems and other areas. In 2008, Google expects to spend tens of millions on research and development and related investments in renewable energy. As part of its capital planning process, the company also anticipates investing hundreds of millions of dollars in breakthrough renewable energy projects which generate positive returns.

Google is working with a number of companies. eSolar Inc., (Pasadena, CA) specializes in solar thermal power. For more information, please visit www.google.com/corporate /green/energy/esolar.pdf. Makani Power Inc., (Alameda, CA) is working on high-altitude wind energy extraction technologies. While winds at ground level are erratic, at high altitudes they are quite predictable. For more information see www.google.com/corporate /green/energy/makani.pdf.

Other companies are hard at work as well. The *San Francisco Chronicle* for December 2 reports that CalEnergy Operating Corp. is developing geothermal energy in the desert surrounding the Salton Sea in Southern California's Imperial Valley, with ten generating plants on line and more proposed. Present nominal capacity is 327 net MW.

In addition, the number of solar plants in the desert keeps increasing; an installation in northern San Bernardino County, has been here since 1986. Along with a companion solar farm several miles to the east, it produces about 310 megawatts of power, and the U.S. Bureau of Land Management has received land-use requests for 34 more.

Much of the push behind all this is a law requiring utilities to obtain 20 percent of the power they sell by the end of 2010 from renewable resources, and solar is still several times the cost of a gas-fired plant, but geothermal is cheaper. We'll watch developments with interest.

Buy your biodiesel from the city?

The city of San Francisco, according to the *Chronicle* for November 20, is embarking on a program to collect used cooking oil from from local restaurants, hotels and other commercial food preparation establishments and turn it into biodiesel to power city-owned vehicles.

While this may help to keep waste oil from being dumped down sewers, it also directly competes with several private companies that have been picking up used oil from area restaurants for several years. One can't help but feel that the bright lights in charge of city government just can't stand the idea of someone making money; many San Franciscans consider the term "obscene profit" to be redundant. Oh, well.

JESSE'S PRIUS KEEPS ROLLING

Jesse Rudavsky, whose Prius was covered in our July/August issue, reports that he has added still more miles to the car's odometer.

Jesse brought the car, shown here with President Oliver Perry, to a recent meeting from the Boston area, becoming probably the person who has driven the farthest to attend a meeting.

NEW THREE-WHEELER LAUNCHES

The California-based startup company Aptera (www.aptera.com) has officially launched a three-wheel vehicle that claims superior safety. It's called the Typ 1, and to be available in electric and plug-in series hybrid versions,

The vehicle partakes of some of the "squashed tadpole" look once ascribed to the original GM SunRaycer, and claims a drag coefficient of about 0.11. Predicted weight for the two-seat vehicle is 850 lb

The prototype vehicle used a small diesel

engine and reportedly got 230 mpg, but plans for the diesel had to be shelved, according to the company, when it was discovered that the emissions for diesels are calculated in a way that would have been unfavorable.

A 3-phase motor drives the single rear wheel through a toothed belt. Claimed top speed is in excess of 85 mph, with 0-60 mph time of less than 10 seconds.

The electric version is supposed to use a 10 kWh battery pack, although details on that are sketchy. Production is expected to begin in 2008, with prices of $26,900 for the EV version and $29,900 for the PHEV.

NEWS UPDATE

Going with the wind

Calgary Transit (Calgary, Alberta) has entered into a partnership with ENMAX and Vision Quest Windelectric Inc. to develop a program called Ride the Wind that uses wind-generated electricity to power local commuter trains. Twelve windmills located in Southern Alberta generate the power and reduce CO_2 emissions by 26,000 tonnes annually. There are plans for expansion, but there has been opposition from a number of quarters, including the local electric utility, which says it is concerned about the inherent variability of the wind.,

CO_2 sequestration takes a hit

With the world in danger of overheating due to the greenhouse effect and the economies of the world still based on the burning of carbon, the idea of finding a way to get rid of carbon dioxide is attractive, and any number of methods have been proposed. One of the latest comes from the University of Leeds in the UK, where researchers are studying the use of porous sandstone; petroleum in the earth is often found in such deposits, and they have found that injected CO_2 will chemically bind to the stone, preventing it from leaking out.

Yet despite this and other promising research, the whole idea of carbon sequestration has suffered a significant setback, as Reuters reported on November 14 that Southern Co. and its partner had canceled construction on an advanced clean-coal power facility planned for the Orlando, FL area, just two months after breaking ground on the project.

The problem, it seems, is that the company was concerned about "the possibility of an executive order from Florida Gov. Charlie Crist that would require power plants to capture and store carbon dioxide emissions."

UPS to Use ZAP Electrics

The UPS branch in Petaluma, California has leased an initial fleet of 42 ZAP Xebra electric city cars and trucks for their small parcel deliveries. This is the first time that UPS has used electric city-speed vehicles for this purpose.

Small parcel deliveries are becoming more challenging for the trademark big, brown UPS delivery vans, which is why UPS is using the electric city cars and trucks to handle small parcel deliveries. The ZAP vehicles lessen fuel consumption and reduce automotive emissions produced by current delivery vehicles. Drivers will be monitoring their electrical usage to carefully analyze cost-savings and emissions reductions.

Smith Electric Vehicles to build U.S. plant

Smith Electric Vehicles, the world's largest manufacturer of road-going electric vans and trucks, is to establish a major production facility in the USA.

The factory will have the capacity to produce up to 10,000 zero emission vehicles per year, from 2010.

Smith manufactures a range of highway electric vehicles, ranging from 7000 lb vans

to 25,000 lb trucks. With a top speed of 50 mph, fast acceleration and a range on one battery charge of up to 150 miles, they are deployed largely in urban delivery applications, in sectors including mail and parcel, groceries, retail/distribution and utilities.

The company already has a 70,000 sq ft facility in Fresno, CA, which has the capacity to produce 1000 vehicles next year. It has a 250,000 sq ft facility in the UK which has headroom for 1500 vehicles in 2008, but the company is also looking for a larger UK base to take this up to 5000 vehicles per annum, for the UK and Europe.

Smith Electric launched its second generation electric vehicles, Edison and Newton (above), earlier this year and is on course to ship 250 units in 2007.

The Newton is billed as the world's largest high performance electric truck, weighing in with a gross vehicle weight of over 24,000 lbs. A rack of suitcase-sized, 278 volt batteries and a 120 kW motor propel it to a top speed of 50 mph. Fully charged, the vehicle has a range of up to 150 miles.

Ohio State U takes land speed record

At the Bonneville Salt flats in October the Ohio State Buckeye Bullet 2 recorded the fastest ever speed for a hydrogen fueled and fuel cell powered vehicle at around 224 mph, and has set the official FIA world record for Group XIV-class 3 (fuel cell engine, unlimited weight) at around 130 mph. (Subject to FIA (or ASN) recognition).

COMING EVENTS

Electric Dragin 2008
January 26-27, San Diego. For information visit the Electric Vehicle Association of San Diego at www.evaosd.com.

2008 Hybrid Vehicle Technologies Symposium
February 13-14, 2008, San Diego. Go to www.sae.org/events/training/symposia/hybrid/ or call 202-463-7319.

Motor, Drive & Automation Systems Conference
February 14-15, Atlanta. For information go to www.e-driveonline.com/motors_conf08_index.htm

2008 Clean Heavy Duty Vehicle Conference
February 20-22, San Diego. Go to www.calstart.org/programs/chdvc/ or call 626-744-5600.

WIREC 2008, Washington International Renewable Energy Conference
March 4-6, Washington, DC. For information call 202-647-6828.

2008 SAE World Congress
April 14-17, Detroit, MI. Go to www.sae.org/congress/ or call 626-744-5600.

Alternative Fuels & Vehicles National Conference & Expo 2008
May 11-14, Las Vegas. For information go to www.afvi.org/NationalConference2008/

WINDPOWER 2008
June 1-4, Houston. For information go to www.windpowerexpo.org/index.cfm.

21st Century Automotive Challenge 2008
June 7-8, Burlington County Institute of Technology and the Historic Smithville Park in Burlington County, NJ. For information contact Oliver Perry.

Convergence 2008
October 20-22, 2008, Detroit, MI. Go to www.sae.org/events/convergence/ or call 626-744-5600.

MEETING SCHEDULE

Meetings are held in Room 49, Plymouth-Whitemarsh High School, 201 East Germantown Pike in Plymouth Meeting, PA, and begin at 7:00 p.m.

January 9

February 13

March 12

April 9