

EEVC NEWSLETTER

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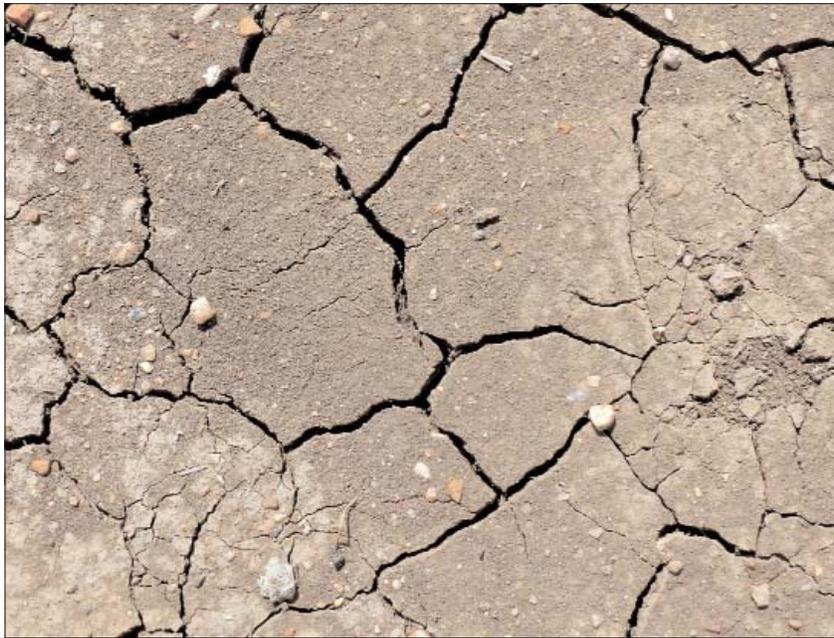
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CLIMATE CHANGE: MAN-MADE OR NOT? TWO VIEWS

We have been beating the drums recently about climate change and humanity's part in causing it. But, as with most topics, there is some division of opinion as to whether it's real and whether it's caused by human activities. Here are some words on both sides, the first by EEVC President Oliver Perry, the second provided by Alan Arrison.



Is this our future? Are we causing it?

Claims that imply that man is the primary cause of climate change demand questioning.

By O.H.Perry

The Year Without a Summer - 1816 by William Cormier

“Global Warming or not continues to be a con-

troversy. However, 200 years ago, in 1816, the northern hemisphere, including Salem, New York, had no summer, resulting in crop failure and major food shortages.”

The above quote is the first line in an article placed in my old hometown local weekly. The author

cites dozens of headlines and comments taken from newsletters and personal letters around the country and northern world regarding the summer that was not. The harsh cooling period, once attributed to sun spots, has now been attributed to the volcanic explosions of Mt. Tambora in the Dutch East Indies in 1815. Volcanic ash circles the northern hemisphere and caused the cooling in the summer of 1816. Ice and frozen ground formed in mid-Atlantic

states as late as June. Frosts began as early as mid-August in places where they normally did not appear until late fall.

This drastic change in climate occurred because of a natural disaster, not man-made CO₂ or man-made dust particles.

In my opinion trouble has been stirred up by those who keep implying that we are quickly destroying our planet and causing all of the weather related problems. They fail to make clear the slowness of these changes and they fail to point out how greater forces in nature have played much more significant roles in climate change.

We need more focus on just how slow climate change is and the truth that our climate on planet earth has been changing constantly, due to factors outside of human activity, for essentially all of its existence.

I would like to prevent our good minds from being misled by the constant hype of alarmists who promote articles like the one below which I will take quotes from, an article which tries to make us feel upset for the loss of an island off the coast of Virginia. Many would like us to believe that we can help prevent the loss of such islands by driving electric cars. Far, far from the truth.

The fact is that many writers are trying to persuade us that we ought to vote for candidates that advocate spending billions of dollars in fruitless efforts to slow down climate change. These people neglect to inform us that if mankind is playing a factor in climate change that factor is much smaller than implied. They tend to downplay the much larger role that nature is playing.

The following items are selected from a recent article passed on to our EEVC chat line. Jim Natale was first to respond by questioning how responsible mankind is for creating the problem of rising sea levels through climate change.

My editorial comments indicate my personal point of view. Obviously others feel differently. Hopefully we will not begin to shoot each other. Let me begin with the slogan "ALL minds matter," not just mine.

From an article by Jon Gertner in *The New York Times* for July 6: "It was a few minutes before noon on Tangier Island in Virginia, just about high tide, when David Schulte pushed the toe of his red sneaker into

Marilyn Pruitt's soggy backyard. Schulte, a marine biologist with the United States Army Corps of Engineers, frowned, withdrew his foot, found another spot nearby and pressed his toe down again. His sneaker sank into the ground, and water pooled around it. "It's like that all the time," Pruitt called out from her back porch. "It doesn't dry out anymore."

(comment by OHP) I believe that the pathetic complaints of those suffering from the dust storms in our southwestern countries, resulting from the loss of sod that had been plowed up not too many years ago, were far more serious than these observations from someone who chose to build on a swamp. Why wouldn't it get wetter and wetter? Yes, it is surprising that the oceans are rising? As Jim as pointed out this earth has been constantly changing from the time of its creation. Adapt with change or die. Please stop implying that we puny men are obligated to stop the inevitable.

I feel that it is worthwhile to do environmental studies that can help us stop polluters, prevent the slaughtering of valuable plants and animals, and warn us of things we are doing that clearly are affecting our welfare NOW... not possibly 100 years from now or never because the causes have more to do with forces outside our control.

How many more studies do we need to find that CO₂ is the cause of a SLOW climate change? How many more studies do we need to convince us that we can save the planet when most evidence indicates otherwise?

"As I followed Schulte, it felt as if we were walking on a sponge. Every step squished and slurped. 'This isn't even a yard anymore,' Schulte told me. 'I mean, it's technically more like a marsh, a wetland.'"

So what? Would anybody care if I told you that one of my brother's fields has become more like a marsh or wetland over the past twenty years? The whole northeast is different than it was 50 years ago... primarily more trees and less open farm land... what happened to cause that?

"Sometimes I think we were crazy to build a house out here"

Amen! Go with your sensible observations. Stop trying to make the rest of us feel sorry for you.

But it was also the case that she built the

house in a place where the bay was steadily advancing on her backyard every year, usually by about a dozen feet. In bad times — when a nor'easter stormed through, say — great chunks of Tangier were torn off. But even in calmer conditions, the losses were steady and seemingly unstoppable. Week by week, wave by wave, grain by grain, Tangier was washing away.

Yes... that is what happens on earth. Some places build up and others disappear.

“The low elevations and the quiet, bird-filled wetlands and tidal creeks produce a sense of living with the water, rather than beside it. Schulte has returned to Tangier several times over the past decade to track its health. Last year, when some money became available at the Corps to research the impact of climate change on coastal areas, he and a couple of colleagues began a study on Tangier, believing that this tiny island might also yield insights into the vulnerability of cities and towns all along the Eastern Seaboard. They concluded that Tangier had lost two-thirds of its landmass since 1850. To scientists who study the Chesapeake, this was not surprising: Over the past four centuries, Schulte estimates, more than 500 islands have disappeared from the bay, about 40 of them once inhabited. The most striking aspect of the Tangier research, however, was how bleak the island’s future looked.”

I notice that these changes didn't happen overnight. They are no different than noting that grandpa is slowly losing his hearing. And yes, someday grandpa will not be around anymore.

Let nature take its course and be reasonable in our approach to preventing change.

I used to be able to ski New York and Vermont regularly. Not so anymore. Any fool thinking that snow is guaranteed every year should think twice about investing in a ski resort. Hey... maybe somebody can run for president that can guarantee us rain when we want it as well a snow... and good weather.

I question those who think our problems are all because of fossil fuels. They certainly do not know the facts regarding science, weather, climate, and past earth history.... And have forgotten how small men are in the scope of things.

Don't ask me to donate to any cause that

wants to save tangier island. How about saving us from nuclear war and racial blood baths that have little to do with climate control?

Yes, reduce pollution, famine, and disease... but don't waste billions claiming that we can do these things by naming CO₂ as a pollutant, and famine and disease caused by the fossil fuels... go develop vaccines, plow land that will be fertile for the next century with tractors that can do the job running on diesel.

The do gooders have got to find something other than whining about climate change and using our tax funds for their research. My answer to their findings is, So what?

Preach it, brother Jim! Planet Earth will continue to change because most forces that determine climate change remain outside man's control. (We are becoming better at predicting and foretelling the future.)

Let us use our time and talents in projects that make a difference in real ways. And let us not mislead or be misled. Let us keep seeking for the truth.

"A Contrasting View"

Alan Arrison provides the following from Daily Kos:

Alan, climate change presents the United States and the world with an unprecedented challenge and poses a threat to future life on this planet.

Now more than ever, it is imperative that our political leaders take swift action to keep the vast majority of fossil fuels in the ground by banning fracking for oil and gas, and other extreme energy extraction methods. Our leaders must commit to swiftly attaining a full and just transition to renewable energy.

The nation's spotlight will shine on Philadelphia during the Democratic National Convention in July 2016. We'll take our demands directly to Democratic leadership from across the country.

Daily Kos has joined a large coalition of climate activists who are marching for a clean energy future in Philadelphia before the Democratic National Convention at the March for a Clean Energy Revolution. Interested in joining the March? Click to sign up

for more information.

Here are the details:

What: The March for a Clean Energy Revolution

When: Sunday, July 24th, 2016 at noon

Where: Philadelphia City Hall, 1401 John F. Kennedy Blvd, Philadelphia, PA 19102

Together, we will march to call for:

A ban on fracking and other unconventional extreme fossil fuel extraction methods,

A halt to the rapid and reckless expansion of fossil fuel infrastructure, A ban on the export of liquefied natural gas (LNG), a halt to the approval of export facilities, and a continuation of the ban on crude oil exports,

A stop to other dirty energy sources including incineration, nuclear power, and biomass,

Environmental justice for all to end the disproportionate impacts on low-income communities and communities of color,

Swift action to invest in solar, wind and other clean energy power sources and energy efficiency measures across the United States so that we can transition quickly to a 100% renewable energy economy,

A just transition for workers who are employed by the fossil fuel industry, and policies to ensure that the new renewable energy economy provides living wage jobs and benefits communities across the country.

Renewables and efficiency are the clean energy solutions we need to combat climate change and create millions of new jobs that will strengthen our economy. With the eyes of the world on Philadelphia, now is the time for us to come together as a united national movement.

GET READY FOR THE MUSHROOM FESTIVAL

Per Jim Natale: The EEVC will have a presence at the Mushroom Festival's Antique, Classic Car Show & EV Display on Saturday, September 10 as part of Drive Electric Week. Sign up early and if we arrive as a group we'll be able to display as a group.

EV & e-motorcycle owners will be returning to Kennett Square on the first day of National Drive Electric Week to display their

vehicles at the 2016 Antique and Classic Car Show at the 31st Annual Mushroom Festival in Kennett Square, PA. The location will be 303 S Broad St., between Juniper St. and Mulberry St.

NEWS UPDATE

Utility increasing its stake in alternate energy

As the national energy supply moves inexorably towards renewable and non-carbon sources, the electric utilities have decided that it's better to climb aboard the bandwagon than be run over by it. Major utilities are buying up solar energy firms at a steady rate; The Southern Company, for example, has purchased all or portions of the Henrietta Solar Project and the Campo Verde Solar Project in California, the Macho Springs Solar Facility and the Cimarron Solar Plant in New Mexico, the Roserock and East Pecos Solar Facilities in Texas, the Butler solar facility in Georgia, the Granville Solar Facility in North Carolina and the Apex and Spectrum Solar Facilities in Nevada.

The company is also moving ahead with its Kemper plant, which is supposed to use lignite for fuel and capture at least 65 percent of the resulting CO₂ for sale or injection into depleted oil fields. The latest word is that the project has been able to produce syngas for the first time.

Along the same lines, according to an article by Katie Fehrenbacher in *The New York Times* for July 11, the lithium battery industry has shown enough promise to interest some big-money investors. While such companies as Tesla, GE, Southern California Edison, Wal-Mart and several Silicon Valley startups are already investing in lithium-ion batteries, according to the article, now "traditional financiers are getting into the mix." As a recent example, "a San Francisco-based startup called Advanced Microgrid Solutions, which builds battery farms, [has] announced that Australian banking powerhouse Macquarie Group plans to fund \$200 million worth of its battery projects." Other startups have been finding their own investors.

Solar increases its contribution

A pair of articles on solar power — one in

the *San Francisco Chronicle*, the other by Reuters, take decidedly different positions on the future with respect to large solar plants and distributed (rooftop) solar.

The *Chronicle* piece, by Carolyn Lochhead, dated July 22 and entitled “Mojave Desert at stake in far-reaching federal energy plan,” holds that large commercial solar plants not only endanger a fragile desert ecosystem but can actually exacerbate global warming.

The parts about damaging the ecosystem is obvious: large areas that were home to creatures like the desert tortoise, have been disrupted by plants already built, like BrightSource Energy’s solar-power farm at Ivanpah and had to be cleared of the creatures that turned out to be more numerous than estimated, adding to costs. In addition, the plant, which uses acres of mirrors to redirect sunlight to a tower-mounted boiler, has been a damaging disappointment: “thousands of birds have been incinerated in the light beams that reflected off the plant’s nearly 350,000 mirrors to three 45-story-tall towers. The plant has burned so much natural gas that it has needed to buy carbon credits to comply with the state’s greenhouse gas emissions program.” Not to worry, says the owner: “BrightSource, an Oakland firm, says the plant has vastly improved its solar power output this year.”

The other environmental problem, the article says, comes from the roots of desert plants. Despite their vacant appearance, most deserts are not simple expanses of sand, like parts of the Sahara, but scrubland. And those scrubby plants depend for survival on vast root systems. “Scientists have come to understand that the desert is a major carbon sink, whose ancient, deeply rooted plants are a slow-motion machine for drawing carbon from the air and burying large stores of it underground in stable form,” the article says. “They have shown that deeply rooted desert plants suck huge amounts of carbon from the air and bury it in the earth, where it interacts with soil calcium to form the white desert crusts known as caliche. When these soils and plants are disturbed, this natural process of carbon sequestration is disrupted.” And in fact, it continues, “‘Globally there’s probably about as much carbon bound up in (desert soil) as there is in the atmosphere,’ said soil biologist Michael Allen, director of UC Riverside’s Center for

Conservation Biology and a pioneer in studying desert carbon sequestration. ‘It’s a very large pool.’”

The July 5 Reuters piece, by Nichola Groom and titled “Big solar is leaving rooftop systems in the dust,” says that “Solar power is on pace for the first time this year to contribute more new electricity to the grid than will any other form of energy — a feat driven more by economics than green mandates.” The is because, the article continues, “The cost of electricity from large-scale solar installations now is comparable to and sometimes cheaper than natural gas-fired power, even without incentives aimed at promoting environmentally friendly power, according to industry players and outside cost studies.”

“Today, large systems that sell directly to utilities dominate. They are expected to account for more than 70 percent of new solar added to the grid this year, according to industry research firm GTM Research.

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“Unsubsidized utility-scale solar power costs \$50 to \$70 per megawatt-hour (or 5 to 7 cents a kilowatt hour), compared with \$52 to \$78 for the most efficient type of gas plant, according to a 2015 study by investment bank Lazard.

“Generating power from residential rooftop panels is far more expensive, ranging from \$184 to \$300 a MWh before subsidies, the report said.”

What makes rooftop solar attractive is net metering, which requires utilities to pay high rates for customer-generated electricity; in previous issues we have mentioned that some states (Nevada in particular) are doing their best to discourage rooftop solar. But it is here, and in areas like California that it is contributing considerably to efforts to reach the goal of 50 percent renewable power.

While some rooftop solar companies are having difficulty, the article continues, others

are hedging their bets by working with the utilities, instead of against them: “In a bid to stay relevant, some rooftop solar companies are expanding their repertoire. In May, for instance, SolarCity introduced a set of services for utilities, including development of solar power plants, battery storage and other grid planning resources.”

And with utilities increasingly demanding payment for use of the grid, there is a temptation to install battery systems and unplug completely. But the article points out a middle way: “SunPower said in June it would offer solar systems with battery storage to 300 New York homeowners in what would serve as a ‘virtual power plant’ to utility Con Edison.”

DON'T MAKE SUCH A TSIMMES **By California Pete**



Back in my engineering days my credo was, “it’s easy to make something work if you put in enough microprocessors. What takes real engineering is doing it with one large rock and one small rock.” A more common way of putting it is KISS — Keep

It Simple, Stupid.

Yet today we seem to have surrendered to feature creep, the addition of more and more bells and whistles that have no real purpose other than to make our competition’s product, or the previous version of our own, seem outmoded. The idea, like the planned obsolescence that Detroit used for so many decades, is to juice revenue, but it can go only so far. Look what happened to desktop computers: For a long time every year meant a new model with lots of enhancements, but eventually businesses, which these days are the main buyers of desktop computers, realized that the machines they already owned had all the functionality they needed. They no longer bought new computers just to keep up with the “absolutely essential” new features, sales fell off, and companies like Microsoft and chip maker Intel took a hit.

Similarly, today’s phones have so many features that most people will never use even a fraction of them — and will then replace

them with phones with still more features, simply to avoid being seen with last year’s (or last month’s) model. Eventually people may realize they’re chasing a phantom, and will stop.

Now let’s look at cars. Do our cars really have to have video screens visible to the driver? What’s coming next? Automatic nose pickers? Enough! There comes a time when the extra features get in the way of the essential function of the vehicle.

By the way, the last word of the headline does not mean a fruit and/or vegetable stew, but a fuss, something that has gotten blown out of proportion and turned into a very big deal (from the amount of effort it takes to make the recipe well).

Increasing fire danger



The drought that has gripped California and much of the West has had a scary result: millions of dead trees filling the forests. These are torches waiting to be lighted when fire season comes. Crews are hard at work cutting down and stacking them, but what should be done with them then? Trees killed by the rapidly-spreading bark beetles make poor lumber, and there are not that many power plants set up to burn wood. According to a June 21 Associated Press story, “One solution is to fire up a fleet of 10 large, mechanized incinerators the state recently purchased. Promoters say they burn so hot that they spew little if any smoke, making them environmentally friendly.”

But they still release tons of CO₂ into the atmosphere, making matters worse in the future. It might, however, help mitigate the inevitable wildfires.

These people who say that we can’t do anything about global warming (which, unlike

previous climate changes, is happening in just a few decades — less than an instant in geologic time) remind me of the joke about the man who retreated to his roof as flood waters rose. A boat came to rescue him but he waved it away, saying, “God will save me.” The water had risen to the edge of the roof when another boat came along, but the man sent it away too, saying, “God will save me.”

Soon the man was standing in water up to his waist; a helicopter appeared, but he refused it, declaring, “God will save me.”

In short order the man appeared at the Pearly Gates. He asked God, “why didn’t you save me?”

“What do you mean?” was the reply. “I sent you two boats and a helicopter.”

Toyota pushing FCV in CA

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LEARN MORE ABOUT THE 2016 MIRAI AT TOYOTA.COM/MIRAI

TOYOTA Let's Go Places

Toyota Motor Co. has begun a print (above) and TV advertising campaign in the Bay Area for its Mirai hydrogen fuel cell car, which was introduced about a year ago. Inducements include three years of complimentary fuel

(which would otherwise cost about \$75 a fill-up), the possibility of a \$5,000 CA rebate (contingent on the California Air Resources Board receiving more funding for the Clean Vehicle Rebate Project), and five minutes refueling time — assuming a 20 °C ambient temperature and a final pressure of 70 Mpa (10,000 psi). MSRP is \$57,500.

Other specifications include a 312-mile range, 0-60 mph time of 9.4 seconds, a top speed of 108 mph, and the ability to travel in the high-occupancy lane.

It does, however, have a few drawbacks, as pointed out by Jim Natale:

1. The main way to make hydrogen right now involves lots of natural gas. Not green at all.

2. There are only a handful of stations in CA only that can fuel the car. Most can only fill the car to half a tank because the fuel cell if very high pressure 10,000 psi. A Lot of stations are not working at all.

3. You can't fill it up at home overnight like we do.

4. Hydrogen is \$15 a gallon equivalent not \$2 like gasoline.

5. Most are saying the range of the Mirai is less than 309 miles. Maybe 200-250.

6. Sure the tailpipe only emits water but producing the hydrogen is very dirty and also wastes a lot of power. Electricity that could be put directly into the battery of an electric car. Instead of being used to refine hydrogen.

7. You will have to visit a Shell or Texaco hydrogen station and pay the going price once a week. I kinda like fueling my car at home for \$0.18/kWh or free if I add solar to my roof. I've given enough to the oil industry.

Jim's points about the energetics of hydrogen are valid; to that should be added that a fuel cell, attractive as the concept sounds, is an inefficient device in practice. While the primary reaction that turns H₂ and O₂ into electricity and H₂O is reasonably efficient (the thermodynamic maximum is 83%), the losses in pumping and cooling reduce a practical cell stack's efficiency to about 35 to 50%. And the energy cost of transporting the hydrogen to the refueling point, as well as the losses involved in compressing it, further reduce its practicality.

Some local flavor

The problems with the Oakland police

department continue. Recently a bunch of cops were accused of patronizing a local prostitute (and protecting her and her pimp from periodic crackdowns), starting, she claims, when she was underage. The scandal keeps spreading, and even the interim police chief has abruptly resigned for unstated reasons. Protesters have chained themselves to the gates of police headquarters to protest shootings around the country of unarmed black men by police. And there is a proposal to establish a “commission with broad powers to oversee the police rank and file and even fire the chief,” said the *San Francisco Chronicle*. “Three of its seven members would be appointed by the mayor. The rest would be named by a selection committee appointed by the mayor and City Council.” The police union is not amused.

Oh, and there is a move to recall the mayor, with groups of every persuasion joining in.

In San Francisco (famously called 49 square miles surrounded by reality) there is a proposal before the Board of Supervisors for “a charter amendment for the November ballot that would allow the noncitizen parents, legal guardians or caregivers of students 18 and younger who are enrolled in San Francisco public schools to vote in local school board elections, whether they have a green card or a visa or are living in the country without documentation,” according to the *Chronicle*. Donald Trump would probably not be amused.

COMING EVENTS

National Drive Electric Week and Mushroom Festival

Sept 10-18, Kennet Square, PA. For information on participating, go to <https://driveelectricweek.org/>

8th Annual IEEE Energy Conversion Congress and Exposition (ECCE 2016)

Sept 18-22, Milwaukee. Go to www.ieee-ecce.org/

SAE 1016 Convergence; Theme: Personal Mobility – Creating a Smart and Autonomous Journey

Sept 19-22. Detroit. <https://www.sae.org/events/convergence/>

SAE 2016 North American International Powertrain Conference

Sept 21-23, Chicago. Go to www.sae.org/

[events/naipc/](http://www.sae.org/events/naipc/)

SAE 2016 New Energy Vehicle Forum

Sept 21-22, Shanghai. Go to www.sae.org/events/nev

Paris Motor Show

Oct 1-16, Paris. Go to <http://www.nextgreen-car.com/event/6929/paris-motor-show/>

SAE 2016 Range Extenders for Electric Vehicles Symposium

Nov 2-3, Knoxville, TN. Go to www.sae.org/events/rex/

IEEE – ESARS ITEC 2016

Nov 2-4, Toulouse, France. Go to [stx wtx, www.esars-itec.org/](http://stx.wtx.www.esars-itec.org/)

SAE 2016 Vehicle Electrification and Connected Vehicle Technology Forum

Nov 30-Dec 1, Shanghai. Go to www.sae.org/events/vept/

SAE 2017 Hybrid and Electric Vehicle Technologies Symposium

Feb 7-9, 2017, San Diego-Mission Valley, CA.

NOTICE ON DUES

Annual dues are \$20 with electronic delivery of the Newsletter, or \$25 for a printed copy. Make checks payable to EEVC and mail to James Natale, 3307 Concord Dr, Cinnaminson NJ, 08077, or pay via PayPal to www.paypal.me/EEVC.

MEETING SCHEDULE

Meetings are held in Room 49, Plymouth-Whitmarsh High School, 201 East Germantown Pike in Plymouth Meeting, PA, and begin at 7:00 p.m. The August meeting will be at Cugini’s Pizzeria on Clemens Bridge Rd in Deptford, NJ. There is no charging available there, but there are two free J1772 stations a mile away at Ken Barbour’s charging oasis.

August 10

September 14

October 12

November 9