

April 23, 2016

This Week
Adrian Ponce, JPL Chemical and Biological Detectors he developed and His Startup Company
Program Host: David P. Smith
 Dr. Adrian Ponce — born in Berlin Germany — is the Deputy Section Manager for the Planetary Science and Life Detection Section at NASA's Jet Propulsion Laboratory (JPL), heads up the Ponce Research Group, an interdisciplinary team made up of researchers from JPL and California Institute of Technology, and is also a visiting faculty member at Caltech.
 Ponce invented the Anthrax Smoke Detector, a device capable of detecting the presence of anthrax in less than fifteen minutes. He recently developed a new technology called Germinable Endospore Biosimetry, which not only rapidly detects the presence of bacterial spores on spacecraft but also determines whether they are alive or dead.
 Ponce has been with NASA since 2000 when he started as a postdoc after his graduate work at Caltech. He has always been interested in, and fascinated by, space exploration. ○



REFLECTIONS
 by Hal Yorke, President
REFLECTIONS?

on . . . Friction

Last week's *Reflections...* article explained how coffee mug convection cells were related to earthquakes. The Earth's crust, floating on the top of convective molten material of the Earth's interior, is pushed around laterally. Actually, this is only a partial explanation of earthquakes. To understand why pieces of the Earth's crust suddenly jolt into a new position, we need to understand friction.
 It is a well-known fact that the friction between two surfaces is highest, when the surfaces do not move against each other. This is called static friction. As soon as the two surfaces begin to slide against each other, the coefficient of friction is reduced. Using a car's brakes wisely, to just avoid locking the wheels and creating a skid, decreases the car's stopping distance with respect to a skidding car. Once you go into a skid the car's wheels slide against the pavement, friction is reduced and the braking distance increases. You also reduce your ability to control the car's steering.
 This property of friction also operates on a continental scale. Pieces of the

Earth's crust would like to slide against each other or one over the top of the other because of the lateral forces of the molten convective cells beneath the crust, but friction keeps them in place. Once the forces build up to an extent to overcome the static friction, however, these pieces of the Earth's crust begin to slide, friction is reduced significantly, and the sliding increases until the built-up pressures are reduced, allowing sliding friction to then stop the motion. We recognize these movements as earthquakes. Whereas, the sudden release of these pent up forces can then reduce the tendency of the original two pieces of crust to slide along their mutual surface, the same movement can increase the forces at other surfaces. Thus,
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Greeters
 April 16
Ray Carlson
 April 23
John Casci
 April 29
Gary Clark

Program Review

Was there ever Life on Mars?



That's the question our speaker, Louise Jandura, seeks to answer with *Curiosity*, the rover now driving on Mars. Loaded

with scientific instruments, mechanical arms, cameras, and analytical capabilities, *Curiosity* is now going deeper into Mars history than anything that has previously existed.

Jandura is a mechanical and structur-

al engineer who has worked at JPL for over 25 years. A resident of Altadena, she received her degree at MIT, and was captivated by the idea of the adventures she would participate in at JPL. She loves the fact that she designs hardware that goes to other planets.

Curiosity's scientific goal is to explore a local region of Mars surface as a potential habitat for life. The primary component for doing this is the sampling system, on which Jandura was the Chief Engineer. This is primarily a geological issue, and the goal of *Curiosity* is to give geologists the same tools as they would have here on Earth, except that instead of bringing their



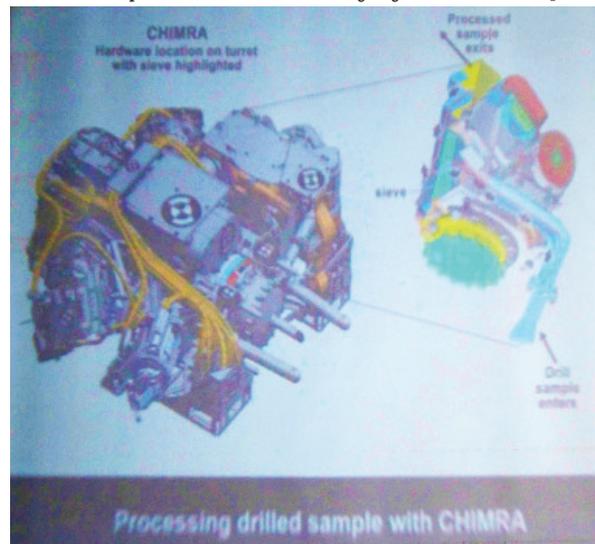
samples back to their laboratory, they

perform their analysis using the instruments on *Curiosity*. These instruments analyze chemistry, mineralogy, imagery, and other aspects of the samples collected.

There are many cameras on *Curiosity*, some for the geologists and some for the drivers. The original landing site selected for *Curiosity* was Gale Crater. This was selected for its interesting sedimentary geology, which would allow

geologists to peel back the layers to reveal

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Tom McCurry Asst. Vocational
Craig Cox Membership
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Photography Jacque Foreman

April Magazine Month

Program Chair, David Smith

April 23 - Adrian Ponce, JPL - Chemical and biological detectors he developed and his startup company

April 30 - PCC Scholarship Awards - Dennis Merhinger, Guest Program Host

May No Designation

Program Chair, Ed Jasnow

Congratulations



Birthdays



04/13 - Alice Hudson

04/18 - John Frykenberg

04/29 - Mike Noll

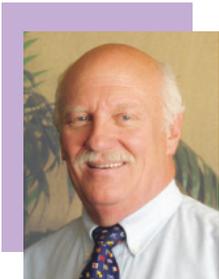


Anniversaries



04/27 - Sterling & Olga Louviere

Attack on Christians in the Middle East and What We can Do about It!



The following article was written by Father Robert Barron, Rector of Mundelein Seminary,

and is brought to us by John Frykenberg, International Chair.

Though you would never guess it from the coverage in the major news media, there is a fierce persecution of Christians going on in the Middle East. In Egypt, convents and churches are being burned to the ground and Copts, members of one of the most ancient Christian communities, are being routinely harassed, tortured, and arrested.

In Iraq, the ISIS group, hoping to re-establish a *caliphate* across the northern sector of the Middle East, is brutally persecuting Christians. Just recently, an ultimatum was issued in Mosul, where Christians have been living for over 1,600 years, that believers in Jesus have to pay a stiff fine (Jizya tax just for being a Christian), leave the country, or be put to death. And the sheer shock of these extreme instances can allow us to overlook the fact that, in Saudi Arabia, Christians are not permitted to build churches or to practice their faith publicly in any way.

Persecution of Christianity is not limited to the Middle East. Islamist radicals have been attacking Christians in Indonesia, India, and Philippines for quite some time. And perhaps the most extreme examples of this persecution are the attacks launched by the Islamist group

Boko Haram in Nigeria. The terrorist sect has burned churches, wantonly killed innocent Christians at worship, and kidnapped hundreds of Christian girls whose crime was attending school.

It is easy enough to condemn these actions as deeply inhumane. Drawing attention to the work of Pope Francis and his immediate predecessors; Pope John Paul II was the most vocal defender of human rights in the 20th century. Across the world and in hundreds of different venues, he insisted that the respect for fundamental human rights must be the key to a just political order. And of all the human rights — to life, liberty, a just wage, access to the ballot — the most basic, he taught, was the right to religious freedom. This is because the spiritual aspiration of the human heart is what defines us as human beings.

The violation of sacred *spaces* is, therefore, the most offensive, the most heinous and de-humanizing of atrocities. To use the threat of force to compel someone to change his religious beliefs — which we are regularly seeing in the Middle East — is not only criminal but wicked. It is also deeply irrational — a point made by Pope Benedict XVI. In his speech, Pope Benedict drew attention to a little-known dialogue between the 14th-century Byzantine emperor Manuel II Paleologus and a Muslim interlocutor. The Emperor pointed out that the idea of spreading the faith through violent conquest, which is recommended in the

Qur'an, is supremely irrational, and the reasons he gives anticipate John Paul II by six centuries.

Faith is a function, not of the body, but of the soul, and therefore coercion through bodily persecution cannot even in principle awaken authentic faith. One must, instead, be skilled in arguments that would appeal to the mind: "to convince a reasonable soul, one does not need a strong arm, or weapons of any kind, or any other means of threatening a person with death." In a word, the idea of the holy war is not *syn logon*.

What is unreasonable is out of step with God's own nature, since God, on the Christian reading, is identified with Logos: "In the beginning was the Word, and the Word was with God, and the Word was God."

Allah's nature in contrast is so transcendent that it goes beyond any and all categories, including that of reason. Pope Benedict cites the noted French Islamic scholar R. Arnaldez, who points out that Allah is not even bound by his own word, so that, if he so chose, he could recommend idolatry as morally praiseworthy.

The elevation of the divine will over the divine mind, called *voluntarism* in the West, is, for Benedict, the source of enormous confusion and mischief. Most notably and dangerously, it opens the door to the idea of divinely sanctioned violence. While many Christians over the centuries have done terrible things in the

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Program

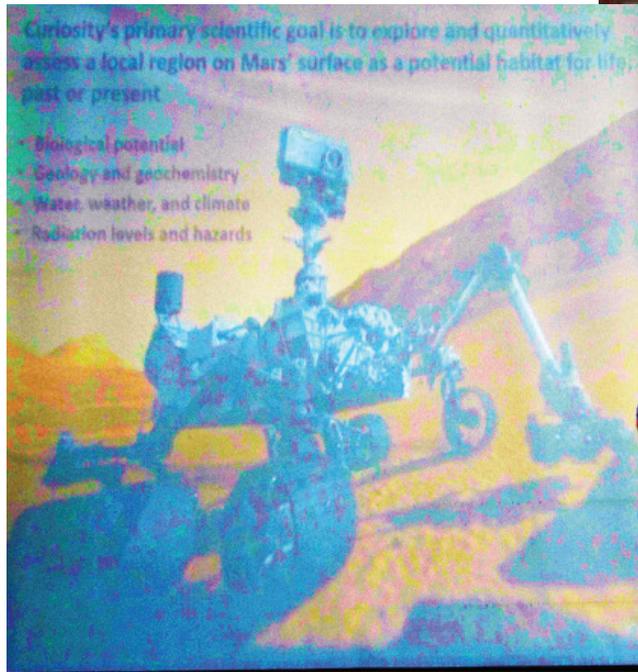
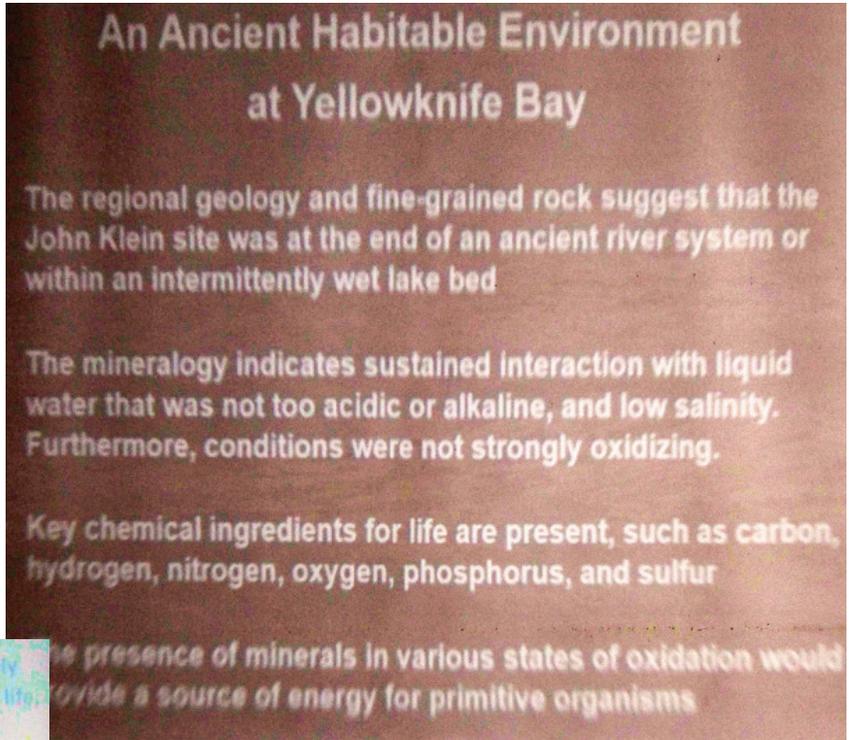
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the history of Mars.

The progress of *Curiosity* is tracked from above by the Mars Reconnaissance Orbiter (MRO), which also lets scientists determine the future route of *Curiosity*. *Curiosity* has an arm that is used to scoop material and move it around. The instrument known as CHIMRA separates large material from small. The samples that are dropped in the funnel for analysis are the size of an aspirin. They are maneuvered using both gravity and vibrations.

A 1.8 cm drill cut the first hole ever on the surface of Mars. The test hole was 6.8 cm deep, and the mineralogy was performed by the use of lasers.

Yellowknife Bay appears to be an ancient habitable environment based on evidence



indicating the presence of past water. A sample from this site is the first ever organic sample from Mars. The *Curiosity* Mission has now been extended to explore Mt. Sharp.

Louise Jandura concluded her presentation by stating that, when *Curiosity* started its exploration, she worked on Operations for the mission. In order to

coordinate with the Rover, the Operations Team worked on Martian time. As time moved, she began to start her shift at 2:00 am. Once she saw Mars in the sky, and was profoundly moved to realize that she was following a vehicle on that planet. Thank you for moving us, too. Ed Jasnow ○

Reflections

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several earthquakes can happen in series.

We generally give *friction* a bad rap. We think of it as something we could mostly do without. We design our planes and cars to minimize air resistance and our boats to minimize water resistance. We continually improve on lubricants to withstand extremes of pressure and temperature. We — as I have done here — blame earthquakes on friction.

But friction is not all that bad. Without it we would not be able to walk, talk, eat or play cards. Friction is the only way we humans have to start or stop motion. I guess an earthquake or two is a small price to pay so that life can go on. ○

Chairmen

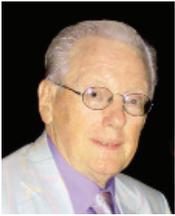
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name of God and that the overwhelming majority of Muslims are peaceful and non-violent, it is, nonetheless, clear that, when Christians act in such a way, they are unequivocally at odds with their own conception of God.

Islamist radicals today respond by killing a number of innocent Christians — certainly a curious way of refuting the

notion that divinely sanctioned violence is irrational!

All people of good will ought to pray for both the victims and their persecutors, for the best way to honor God is through an act of compassion. The same God who is identified with Logos is, according to the first letter of John, also identified with Love. ○



Job Creation & Entrepreneurship

by C. Ray Carlson, District Chair,
Job Creation

A New District Title: *Job Creation Chair*



Upon arrival at the District Assembly for 2015-2016 last week, I looked for my badge, not knowing what my title, if any, would be after five years as Chair, Vocational Service. I had chosen Denise Wadsworth of San Marino Rotary to succeed me. I found the badge and was pleasantly surprised — *Job Creation Chair!*

That is exactly what my primary focus has been for the past 25 years, ever since the Poland Project in the year that I first joined Rotary. When the Berlin Wall came down on November 9, 1989, I had proposed to the Altadena Rotary board that we could help university students in Eastern Europe to start small businesses that created jobs.

PDG Joe McMullin of our club became very supportive of my idea and arranged for a Carl Miller Discovery Grant so that I and a Polish-American lady could visit Poland and discern the new Rotary Club of Torun's reaction to my proposal. Then Joe encouraged DG Tara Kawa to support a second project in Poland at the Warsaw

Polytechnic university. Both clubs and universities were very enthusiastic, and, in the next two years I delivered computers, software, projectors, and a 12-part video series on entrepreneurship, lip-synced to Polish audio. It was an enormous project that consumed three years of my time. The Rotarian Magazine published a 2-page center-spread article on that accomplishment.

When a few years ago The Rotary Foundation added Job Creation & Entrepreneurship as part of their sixth Area of Focus, I was delighted. It indicated to me that Rotary International had come to the same conclusion as we did: Jobs needed to be created world-wide in order to eradicate poverty. And Rotary Clubs should do it by sending Vocational Training Teams to train people in impoverished lands. Just as John Frykenberg and Nigerian-American Sarah Philips are doing on a large scale in Nigeria,

Entrepreneurship is the means to the goal of Job Creation. Business Plans are the

means to becoming an Entrepreneur — at least a successful one.

I thought to myself, "I may be the first Job Creation Chair in all of Rotary." That uniqueness might attract attention, make it easier to get people to read what we are trying to achieve. Attracting attention is so difficult these days with all the social media bombarding us.

When Denise, John Frykenberg, and I were called to the platform to cover Vocational Service, we had only 10 minutes for all three of us to speak. John and I were allocated TWO minutes each!

Denise — now in charge — called on John to cover our successful program in Nigeria for two minutes, Then I spoke about the importance of getting involved with local school districts to encourage district-wide teaching of how to write business plans, as I have been doing with Pasadena Unified.

Then Denise told about our coming program to help veterans with both physical health needs and with creating a livelihood for themselves and their families, maybe through starting a business. When she announced that she had reached her goal of raising \$250,000 (\$ 5,000 from Altadena Rotary) to build two bungalows for a veterans village on the campus of Pasadena City College, the audience erupted with applause. The Veterans Administration will provide the operating costs for at least five years. This will be the only VA facility in San Gabriel Valley where 50,000 vets live. It will also provide extensive training for nursing students at PCC.