

Volume 20.2
Summer 2010
Second Quarter

PSF NEWS

Planetary Studies Foundation

Midwest Meteor Lights Up PSF Sky

On the evening of Wednesday, April 21, the skies of Minnesota, Wisconsin, Illinois, and Iowa lit up with what would be called **The Great Wisconsin Fireball**. It was approximately 10:03 p.m. CST, when people who were enjoying an exceptionally warm spring evening saw a great ball of light rippling and breaking apart. Caught on various police car dashboard cameras it showed the nighttime lit up as though it was daylight. These rural skies looked magnificent due to this mystery fireball.

Diane Sipiera was up the next morning around 4 a.m. checking emails and watching the early morning news when she noticed she had received numerous emails from people all over the United States confirming that what they saw that night was a meteor stretching across the Midwest sky. Immediately, she kicked into research mode gathering as many facts as possible. She started by calling law enforcement agencies in each state to find out what contact had been made with witnesses calling in with reports of the fireball. These officials confirmed that a meteor exploded over acres of farmlands, but exact details were still in the making. All

the major television networks were working with the same snippet of news but channels everywhere were reporting something spectacular had happened over the southwestern part of Wisconsin. Immediately she knew this event was very special. How perfect that PSF is located in the far northwest of Illinois only 30 miles from the presumed area of the meteor shower!

Diane called Paul, who was in Chicago at the time, and told him the news. He was ecstatic about the news but knew he was too far to get there in a timely manner. Calls began to pour into the PSF and the Sipiera's personal home with questions, reports and people looking for a professional take on what just occurred.



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Moroccan Impressions



Read Herbert Windolf's Moroccan travelogue featured in a two-part series.



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The Elizabeth Chamber of Commerce and the Planetary Studies Foundation are very proud to announce that 14 year old, Kelley Koester of Elizabeth is their first Daffodil Queen.



2010 Daffodil Queen

PRESIDENT'S MESSAGE

The first half of 2010 has been a very exciting time for the Planetary Studies Foundation with all the activities at the **Banwarth House** in Elizabeth, Illinois and the April 14th fall of the **Great Wisconsin Fireball** meteorite. Last August, at our Annual Member's Meeting, it was decided that the PSF would expand its mission statement to place a greater emphasis on the environmental sciences and the natural history of northwestern Illinois. Traditionally, the PSF has built its reputation within the fields of astronomy and meteorite research. In that respect, nothing has changed. The Wisconsin fireball propelled PSF back into the international spotlight with all our efforts in the recovery of meteorites and the determination of the strewn field distribution pattern. PSF member **Terry Boudreaux** and his two teenage sons **Evan** and **Chris** were among the first to enter the meteorite strewn field and recovery specimens. It was through Terry's efforts that the Field Museum was able to obtain a specimen from this fall and initiate time-sensitive research that will help scientifically characterize this meteorite. As an added benefit from this meteorite fall, PSF has entered into a partnership with the Platteville, Wisconsin Chamber of Commerce to promote "meteorite awareness" and science education. PSF representatives have been holding bi-monthly information sessions at the Platteville Chamber of Commerce office. We have met scores of people with potential meteorites and have heard many interesting stories about what they saw that night when the meteorite fell. The "Great Wisconsin Fireball" T-Shirt is the most obvious aspect of this exciting partnership. Proceeds from the sale of this T-Shirt will go to the PSF student scholarship fund.

Our first three monthly (April – October) astronomy observing sessions, that are held at the Apple River Fort, have been very popular. Our audience generally contains a mixture of local residents and tourists, with a typical attendance ranging from between 40 – 80 people. The very dark sky in Elizabeth, Illinois has provided our instructors with an ideal "outdoor planetarium" to introduce the seasonal constellations, view the Moon and to observe the planets with some very enthusiastic sky-watchers. Many thanks to our dedicated instructors **Diane Sipiera**, **Dan Wenny** and his son **Jack**, and **Chris Zirtzman** for making these exceptionally interesting evenings for our audiences. PSF also appreciates the assistance and cooperation of **Dan Tindell**, site manager of the Apple River Fort, for his enthusiastic support and assistance. Public visits to our historic **Banwarth House** have also been on the increase, and our special lecture programs have received good reviews from those in attendance. Our staff of interpreters: **Jolene Foat**, **Elizabeth Myelle**, and **Grace Tindell** provide our visitors with a warm welcome and a very informative one hour tour. Finally, work has begun on the remodeling of the upper level of our garage in Elizabeth. Once completed, this space will serve as our business office and reference library for our scientific books and journals. We have an anticipated completion date of August 15th, just in time for the Annual Member's Meeting that will be held on August 21st at our headquarters in Elizabeth, Illinois. We have planned several member's events to coincide with the meeting, and I would like to encourage everyone to attend and enjoy our new facilities.

Paul P. Sipiera

MEMBER'S SPOTLIGHT

NEW MEMBERS

Frank Neri

Helen Kilgore

Patricia Tierney

RENEWING MEMBERS

Supporting Member

Steve Koppes

Regular

Marilyn Quas

- Our sincere condolences to **Blaine Reed** and his brother **Blake** on the death of their mother.
- Wishing a speedy recovery to **Walt Cunningham** from his recent surgery. Can't keep a good Marine and astronaut grounded for long!
- The **Baranski family Jim, Beth and Alex** spent most of June traveling throughout Europe. Upon their return, Alex was presented with the opportunity to join close friends in Australia. In less than week Alex was in Poland and then off to Australia. What a wonderful experience!
- **Joan Hammel** invites other PSF members to join her for a private observing session at the Yerkes Observatory in William's Bay, Wisconsin this summer. Details will be available in a soon to be issued "PSF Blast" notice.
- **Richard and Ellie Leary** recently enjoyed a two week Russian cruise that took them from St. Petersburg to Moscow . They were also able to visit Russia famed Star City, the once secret training location for cosmonauts preparing for space. They were fortunate enough to spend some time with cosmonaut Roman Romanenko who has served on the International Space Station.
- **Sindy Main**, veteran of the 2008 Tawani International Antarctic Expedition, has been stricken with "the polar bug" and now looks toward the North for new adventure. Sindy participate in an Earthwatch project collecting various data to determine the effects of global warming on the environment around Churchill, Canada.
- Executive Board Member **Jennifer Schwartz** attend the annual open house at the Jet Propulsion Laboratory in Pasadena and sent us some very interesting NASA-related items. She has also been whale-watching in Hawaii and along the Santa Monica coast, and fossil-hunting in the Mohave Desert.
- **Dan** and his son **Jack Wenny** attended Astronomy Camp in Tucson, Arizona. They made the journey by train and had a wonderful time together learning about the wonders of astronomy. Jack is becoming quite the astronomer helping out with our public observing sessions at the Apple River Fort.
- Congratulations to some of our younger members on their graduation from high school: **Elizabeth Myelle**, one of our interpreters at our historic Banwarth House in Elizabeth, Illinois; **Andrew Pritzker**, an excellent water polo athlete, will continue his education this fall at Tulane University in New Orleans; and **Grace Tindell**, another of our Banwarth staff, who will be attending college in Georgia. Saturdays at the Banwarth House will not be the same without her. Congratulations also go out to **Madeline Noel Havlik** on her graduation from the 8th grade. We wish her much success in high school. To **Caroline A. Sipiera** for achieving a fourth quarter 3.50-3.99 GPA in the 7th grade at River Ridge School in Hanover, Illinois.

PLANETARY STUDIES FOUNDATION HARPER COLLEGE SCHOLARSHIP AWARD

Over the past twenty years the Planetary Studies Foundation has been a proud supporter of the science programs at William Rainey Harper College in Palatine, Illinois. All of PSF's founding members were at one time employees of Harper College, and our organization has maintained throughout the years its special relationship with the college. Ten years ago PSF choose to participate in the Harper College Educational Foundation's program to name a building. The obvious building of choice was the Astronomical Observatory that PSF helped build in 1990. As for a name, PSF choose to honor one of its members astronaut/astronomer **Karl G. Henize** who died in his attempt to reach the summit of Mt. Everest.

Karl had visited the observatory in 1991 and gave a truly inspirational presentation to Harper's astronomy students. The new name became official at the Observatory's re-dedication in August, 1990 when fellow astronaut and astronomer **Loren W. Acton** spoke of Karl Henize and his dedication to science and education. It was a very moving presentation and a bronze plaque was unveiled proudly displaying the name **Karl G. Henize Astronomical Observatory**. PSF members should note that there will be a 20th Anniversary celebration honoring the **Karl G. Henize Astronomical Observatory** on Saturday, August 28th. Please come with your family and friends to enjoy this wonderful event.

One of the added benefits of participating in this building naming opportunity was having the privilege to designate how our \$27,000.00 donation would be used. It was decided that a smaller percentage of the donation would be used to support a Harper College faculty member's participation in a biological research project in Slavbard, Spitzbergen, Norway. The greater amount would serve as an endowment to generate income that would provide funds for student scholarships in the Physical Sciences. After five years of accumulating interest the fund reached a point where it could award a \$1,000.00 scholarship in the 2009-2010 academic year. The task of choosing a winner from among many good candidates fell upon the faculty members in Harper's Physical Science Department. After much deliberation they choose **Nathan Rapp** as the first recipient of the Planetary Studies Foundation Scholarship. On the following page is the content of Nathan's acceptance letter and we are certain that Karl Henize would have been very proud of him.

20th Anniversary Celebration
Karl G. Henize Astronomical Observatory
Saturday, August 28th
Palatine, Illinois

April 1, 2010



To the Educational Foundation Board Members:

I am writing to thank you for selecting me as the recipient of the generous Planetary Studies (Foundation) Scholarship for the 2010 spring semester. I was extremely excited to open the letter from Harper College and learn that I had won the award. I wish to express to the donors and to the Harper faculty my gratefulness for this educational assistance!

Because of this award, my educational plans can now move forward faster. This spring, I am taking classes such as Calculus III, Physics II, and Computer programming—all of which apply to my engineering major. I enjoy the challenge of difficult courses, and I look forward to the challenges ahead. After completing a degree in electrical/computer engineering, I hope to pursue a job with the Department of Defense or the FBI. If employed by the either organization, I would like to design weapons and defense systems for our American war fighters abroad. This scholarship is a huge step in helping me reach these goals.

Once again, I extend my deepest gratitude to the Harper Board members and to the donors for being given the chance to excel.

Sincerely,

Nathan Rapp

Continued from front page

Midwest Meteor Lights Up PSF Sky

The first PSF and Field Museum member to arrive on-site in Wisconsin was **Terry Boudreaux**. He called Paul to inform him of his exact location. Terry stated that he and his two sons along with meteorite hunter, **Mike Farmer**, were working the various locations and talking with farmers. The Boudreaux family did an excellent job orchestrating the very first search. Terry, Paul, and Diane felt it was important to tap into their strengths, so Paul would manage the media for the Field Museum and PSF, Terry would continue to make contacts with local farmers and homeowners all while continuing the search for meteorites, and Diane would handle the phone calls and emails that were steadily streaming in. As a team they worked effectively. As most of our members may recall, this story seems very similar to what the PSF went through only 7 years ago at the **2003 Park Forest Meteorite** fall. This previous experi-

ence helped tremendously. By that Friday, Terry had already completed some of his major tasks. The Sipiera Family joined Mike Farmer and the Boudreaux family in Wisconsin and once again the meteorite search began. They were living on adrenalin.

Only a couple of days had passed and meteorite hunters and collectors were flying in from around the country and around the world. PSF and the Field Museum had the advantage of a prime location to the proximity of the site. European dealers and collectors were having a difficult time flying in because of the flight delays and cancellations due to Iceland's volcanic eruptions. The major local universities jumped into the research especially the University of Wisconsin-Platteville and the University of Wisconsin-Madison.

A lot of meteorites were recovered by Wisconsin farmers but they were not interested in selling them. These meteorites held more of a sentimental value. They did however let individuals walk their property with their permission and whatever these hunters found they would have to buy at a certain percentage from the farmers.

PSF Life Member, **Jim Schwade** also traveled to Wisconsin in search of meteorites. By the time he arrived, he had no luck in finding any. It was extremely difficult to search, because many of the farmers had just tilled their land for spring planting. Searching for blackened meteorites on rich black soil was very difficult. With the help of PSF members

Chris Zirtzman and Kyle Thorsen, we were able to hand out flyers throughout the community.

Paul and Diane are still following up on various leads and the Platteville Chamber of Commerce is working along with the PSF to help the Wisconsin public identify their specimens. Local people are able to bring in their specimens to the Platteville Chamber of Commerce building twice a month and PSF will come in to identify them. We are planning to keep this schedule through fall 2010.

For more information please contact Diane Sipiera at (815) 858-2014 or dsipiera@planets.org.



Highlights from Spring's Lecture Series

Perfect weather came to the Midwest early. Trees and flowers were blooming much earlier than expected and warm weather made the days and nights ideal for a public gathering. Each lecture thrived upon an eagerness to learn and a general passion for science.

Auctions: Going Once, Going Twice, Fair Warning



The first program was titled Auctions: Going Once, Going Twice, Fair Warning and was presented by PSF members, **Wulf Clifton and Tina Hollis** of Dr. Woodchuck's Auction Service. Participants learned about the history of auctions and the different types of auctions there can be. Wulf and Tina brought in various recordings of auctions so that the audience could hear the various types of auctioneers chants.

They also explained how a typical auction works by explaining how the monies are distributed at the end of the auction. They demonstrated how to bid and the importance of watching the auctioneer. One of the most interesting topics of the lecture was how to select which auctions to attend and how to prepare prior to attending an auction.

Telescopes for Sky Watching

The second program was presented by PSF member, **Chris Zirtzman**, and was titled Telescopes for Sky Watching. Chris has been a PSF member for almost 10 years. In his presentation, novice learners were taught how to use, care for, and get the most out of their telescope when viewing objects in the night sky. They also gathered tips and techniques on what to look for if they were interested in buying a telescope. Chris had the participants practice using their telescopes outside during daylight hours before trying them that evening at the Apple River Fort Astronomy event. Overall, this program was a blast!



Rare Books



The final program turned out to be a real treat. PSF members and the general public were treated to a special program called Rare Books by **Bill Butts**, Owner of Main Street Fine Books in Galena. Since garage sale season is in full swing due to summer, Bill taught his audience special things to look for in rare or unusual books and the authenticity of autographs. He also explained which books should be avoided so as to prevent damage to other books in your collections.

*PSF would like to thank these individuals or their generous time and dedication to educate the public.
For the **PSF Fall Lecture Series** schedule please check out the www.planets.org in the beginning of August.
The schedule is almost complete for publishing.*

Member Spotlight: *Alicia Anzaldo*

Alicia was introduced to the Planetary Studies Foundation in 2008 when she applied to accompany Tawani Enterprises and the PSF during an Antarctic expedition for meteorites. Alicia was born and raised in Chicago. Early on, she developed a passion for animals and nature, these passions would lead her to her current career path and shaped her as an individual.

PSF: Where did you attend college?

University of Illinois at Urbana-Champaign

PSF: When and how did you get involved with biology?

I have always loved animals. I knew I wanted to study them and to have a career where I could continue to learn about them and be exposed to them.

PSF: What did you do after graduation?

Following graduate school, I began my first full-time job teaching at Wilbur Wright College. I am still here 16 years later and now serve as department chairperson.

PSF: What other interests do you have?

I love visiting National Park sites, American & Chicago history, going to the movies and baseball.

PSF: How did you become involved with the PSF?

I first became involved with PSF when I applied for the Antarctic expedition. I was then lucky enough to be asked to help with the meteorite collection.



PSF: You were selected to be one of the teachers to go to Antarctica a couple of years ago, what did you learn from it? What was your most memorable experience?

My most memorable experience was being one of six sets of eyes to see the red cyanobacteria brought out of Lake Untersee for the first time in history.

I learned many things about research, team work, the science. But mostly, I learned a lot about myself and my ability to survive such a rigorous expedition.

PSF: You have traveled quite a bit, where was your favorite place to visit and why? Any future adventures on your horizon?

US National Parks are still my favorite places (Badlands NP, Mammoth Cave NP, Bandelier, Everglades NP). I love the fact that these places are part of American history and are still preserved today for future generations to enjoy. In July, I will be traveling to Isle Royale NP to study moose & wolf populations.

PSF: Being a college professor, what do you think about “today’s student”?

Community College students of today have to contend with many factors that I did not worry about when I went

to school. Many are enrolled part-time, work full-time, and have family obligations. Classes cannot always be the priority for many of them. Yet despite the many obstacles they are faced with, I am happy with the levels of success and determination I have witnessed in my students.

PSF: Do you have any advice to our younger readers?

1) Always pursue what you love. You may spend a lifetime doing it. 2) Network and make friends. Those relationships can lead to unimaginable opportunities. 3) Volunteer your time. Not only will you help a good cause but you cannot imagine how wonderful you will feel knowing you made a difference.



SAVE THE DATE

Annual Members' Meeting

The time is here for the Planetary Studies Foundation
Annual Members' Meeting!

The meeting will be held at the Banwarth House in Elizabeth, IL. The date is set for Saturday, August 21 at 1:00 p.m. It is open to all PSF members to have the ability to learn about what was done in the fiscal year of 2009, what our goals and accomplishments are for 2010 and our future plans for 2011. Our election for board members will also be decided. If you are in the area or would like to plan a mini-vacation, we'd love to have you participate! It's so nice to have the PSF family come together! If you have any questions, please do not hesitate to email Andrea at andrea2986@aol.com or Diane at dsipiera@planets.org.

Daffodil Queen Contest

Kelley Koester is ECC Daffodil Queen



Clockwise from the top left: Kelley Koester, Bridget Knasiak, Jenna Diestelmeier and Lexi Parr

The Elizabeth Chamber of Commerce and the Planetary Studies Foundation are very proud to announce that 14 year old, **Kelley Koester** of Elizabeth is their first Daffodil Queen. This event was open to all Jo Daviess County young ladies ages 14-18. Miss Koester presented an interpretive dance in tribute to her late father and spoke about her future interest in the nursing field. Second Place winner was **Lexi Parr**, 15 from Galena, IL. Lexi presented her essay about her future goal of being a plastic surgeon and her impressive talent for singing. There

was a tie for Third Place and that was **Jenna Diestelmeier**, 17 from Elizabeth who will be pursuing her degree in Civil Engineering. Miss Dieselmeir has been accepted to the University of Illinois in Champaign-Urbana for this fall. Jenna played a wonderful classical solo piece on her clarinet. Finally, **Bridget Knasiak**, 18 from Hanover, IL displayed her talent of artistic graphic designed and hand drawn portraits. Her artwork showed great detail and imagination.

Each one of these ladies was very difficult to judge. Their essays were extremely well-written, their talents were very diversified and their interviews were outstanding. The Elizabeth Chamber of Commerce and the Planetary Studies Foundation would also like to thank the following judges who volunteered their help. They would like to thank: **Andrea Cosentino**, from Horizon Cash Management in Chicago, **Karen Kon**, Jane Adams Middle School (Mathematics) in Bolingbrook and **Dr. Christina Hollis**, retired Mechanical Engineer for

John Deere, who now resides in the city of Elizabeth and co-owner and operator of Dr. Woodchuck's Auction House in Scales Mound.

The Planetary Studies Foundation (PSF) presented these young ladies with \$500.00 EE savings bond for First Place, a \$300.00 EE savings bond for Second Place and two \$100.00 EE savings bond for the Third Place winners. The Planetary Studies Foundation is a non-for-profit organization that works in the area of various sciences. They also offer scholarships to young individuals who are worthy and to help them reach their goals and dreams. These monies come from PSF memberships and support. Their members run the full gamete from astronauts who have walked on the moon, to the average person who believes in this cause. The Planetary Studies Foundation Board and members are proud in investing in these young ladies futures.



Left to right: Dr. Christine Hollis, Karen Kon and Andrea Cosentino

Man in the Moon Has 'Graphite Whiskers'

In a new analysis of a lunar sample collected by Apollo 17, researchers have detected and dated carbon on the moon in the form of graphite -- the sooty stuff of pencil lead -- which survived from around 3.8 billion years ago, when the moon was heavily bombarded by meteorites. Up to now, scientists thought the trace amounts of carbon previously detected on the surface of the moon came from the solar wind.

Some of the graphite revealed by the new study appeared in a rare rolled form known as "graphite whiskers," which scientists believe formed in the very high-temperature reactions initiated by a meteorite impact. The discovery also means that the moon potentially holds a record of the carbon input by meteors into the Earth-moon system when life was just beginning to emerge on Earth. The research is published in the July 2 issue of the journal *Science*.

"The solar system was chaotic, with countless colliding objects 3.9 billion years ago," explained lead author Andrew Steele, based at the Carnegie Institution for Science in Washington, D.C. "Volatiles -- compounds like water and elements like carbon -- were vaporized under that heat and shock. These materials were critical to the creation of life on Earth." "Materials that fell on the early Earth fell on the moon as well, because the two bodies basically share the same gravity well," said Marc Fries, a planetary scientist who conducted the research while working at NASA's Jet Propulsion Laboratory, Pasadena, Calif., and is now based at the Planetary Science Institute in Tucson, Ariz. "This sample is like a pristine page from Earth's past, before plate tectonics and other forces erased the history of this ancient carbon ma-

terial on Earth."

While the sample from the Mare Serenitatis area came back to Earth in 1972, the research team, led by scientists at the Geophysical Laboratory of the Carnegie Institution for Science, used a new technique known as Raman spectroscopy on the sample. Previous techniques enabled scientists to get a sense of the composition, but this kind of spectroscopy is more sensitive and also allows scientists to create an image of the minerals. The graphite whiskers appeared to be a few micrometers in diameter and up to about 10 microns long. Scientists were surprised at the finding of graphite and graphite whiskers.

"It shows that modern spatially resolved techniques could be used to discover further surprises in the now 40-year-old Apollo collection," said co-author Mihaela Glamocilija, based at the Carnegie Institution. The scientists ruled out the possibility that the graphite was a result of contamination, because graphite whiskers, in particular, form under very hot conditions, between 1,830 and 6,500 degrees Fahrenheit (1,273 to 3,900 Kelvin). They also ruled out the solar wind as the source, because the graphite and graphite whiskers were much larger than carbon implanted by the solar wind, and while con-



tamination occurred throughout the sample, the graphite was restricted to a discrete blackened area of the sample.

"We believe that the carbon we detected either came from the object that made the impact basin, or it condensed from the carbon-rich gas that was released during impact," said co-author Francis McCubbin, of the Carnegie Institution.

The research was partly funded by the NASA Astrobiology, Mars Fundamental Research, and the Lunar Advanced Science and Exploration Research programs in NASA's Planetary Division in Washington. The California Institute of Technology manages JPL for NASA.

Compliments of NASA
Jet Propulsion Laboratory
(2010, July 1)

Moroccan Impressions

By Herbert Windolf

In March of 2001, together with a couple of friends, I traveled through Morocco with O.A.T., Overseas Adventure Travel. For personal reasons my wife, Ute, had decided to cancel her participation shortly before departure, but had always remained interested in experiencing Morocco and its cuisine.

So, in April of 2010, together with another couple of friends, Matt and Roseann, whom we had met on an earlier trip through New Zealand, we ventured off again with the same organization for a repeat of my earlier trip.

Royal Air Maroc took us to Casablanca, where we were met at the airport by our trip leader, Aziz Kebiri, wearing the customary jallabiyy, a frock-like garment. A faint memory of his name and appearance triggered a series of questions: "Did you, or do you live in Fez?" "Yes". "Do you have a daughter 13 or 14 years old?" "Yes." "Do you have a BA in English literature?" "Yes."

Then we hugged! Of all ten of O.A.T.'s Morocco guides, I had 'found' Aziz once more! *Kebir*, also spelled *Kabir*, in Arabic means 'large;' *al-akbar* is its superlative, the 'greatest.' This is what I called Aziz by trip's end: Aziz al-akbar!

He continued saying: "I have now two more children." Knowing that he leads ten tours each year, and takes another three exploratory trips to scout out new places to go to for 14 years now, I asked: "How do you get more children?" "By cell phone," came the response. And, yes, he was using an iPhone – but only for making trip arrangements. And mobile phones were everywhere. I saw a shepherd with his flock in the field using a phone.

Morocco is a country in transition, in social matters as well as public

works. One finds women covered in veils, and in the cities women dressed like anywhere else in the West. And teaching the young has great priority. The young Moroccan king Mohammed VI, has married a commoner with a Ph.D. in computer science. A picture of the king can be found in all public buildings, but I noticed at least six different images; on two of them he even looked pensive. This is very much different from dictatorships, where the head honcho's image is always the same, looking more or less sternly down on his subjects. Bridge and road building goes on across the country, and Moroccans, having worked or working in European countries, invest their savings by building houses across Morocco. However, since real estate taxes need only be paid once the building is finished, most don't finish it and leave an upper floor open to the elements.

In Casablanca we viewed a magnificent mosque, designed by a Christian Frenchman. The building looks more like a church than a mosque. We walked the beach promenade, had tea at a beach-front restaurant, and stopped at Sam's Cafe of Humphrey Bogart and Ingrid Bergman fame.

Then we drove on to Rabat, Morocco's capital city. We stood before the magnificent entrance gate to the royal palace, visited the *Medina*, the old center of the city with its *Souk*, the market, and the lavish mausoleum of Mohammed V, and Mohammed II's father, Hassan II. It was designed by a Vietnamese architect. A huge mosque, its construction began in the 1200s, was never finished and most of it was destroyed in the 1755 earthquake that also leveled Lisbon. Only its 145 foot tall minaret remains standing.

At Rabat's outskirts we viewed the ruins of Chellah, known to the Romans as Sala Colonia. The Almohad dynasty

used the ghost town as a necropolis. One of its leaders, Abu I-Hasan, built, among other structures, a mosque there, which include his own tomb and that of his British-born wife and daughter. These structures, too, suffered severely from the 1775 earthquake.

In a meeting room at our hotel, Aziz gave us a basic Arabic lesson. We learned, tried to remember, and later applied a few of the words, like '*Balak!*', watch out!, "*Salam alaikum*", peace to you, and its response, "*Alaikum as-salam*". Important was "*Shukran*," thank you, which we subsequently used liberally. And then there was "*Yallah!*," let's go, important to keep the 16 of us going. "*La*," no, was also important to get the many vendors to leave us be.

And, like the names of many stars in our northern skies, Western languages have adopted numerous terms from Arabic, like "*Sukar*", sugar, and *al-Kahul*, alcohol, telling that Islamic countries knew very well, despite the Qur'an's urgings, how to produce it, whether as beer, wine, or spirits.

And on we went to Volubilis, the ruins of an ancient Roman town, abandoned in 300 AD. It was the western-most Roman settlement, a military and trading post, at its height housing about 20,000 people. It features some magnificent mosaics. Its ruins were further collapsed by the 1775 earthquake, centered in the Cape Verde islands in the Atlantic ocean, that destroyed Lisbon.

About 60% of Morocco's population is Berber, with a small contingent of black people from south of the Sahara. The remainder are Arabs, who entered the country after the Berbers, who may be the descendants of Visigoths, the western Goths, a Germanic tribe. The Visigoths ventured, from what is today called Central Europe to sack Rome.



From there, they moved on to France and Spain where they established kingdoms, with some tribes possibly crossing the Straits of Gibraltar. Today, the Berbers are more 'liberal' Muslims than their Saudi Arab brethren, as is usually the case for people living at the periphery of a religious system. And while Westerners call these people 'Berbers,' they prefer to refer to themselves as 'Amazighs.'

The Moors, Amazighs, Saracens, as they are variously called, occupied Spain from the 8th to the 13th century, establishing there a vibrant, scholarly culture far beyond what Europe was producing at the time, with Muslims, Jews and Christians living peacefully side-by-side. After the remnant of the Moorish al-Andalus kingdom succumbed to the Christian onslaught in 1492, the attempt of the Spanish Crown to force the conversion of Jews to the Christian faith caused many of them to emigrate to Morocco and to Europe, contributing to the blossoming of the Renaissance. From the late 8th century to the 9th, the Saracens even occupied most of Provence all the way into Switzerland, providing a relatively more cultured environment than that of the surrounding Franks.

We entered Meknes, and its *Medina*, there visited the *Mellah*, the old Jewish quarter, and a still functioning synagogue. We entered the immense vaults of Moulay Ismail's granary, built by slaves, then stood before Ismail's mausoleum. He was a cruel warrior king, but is considered one of the greatest figures in Moroccan history,



who made Meknes his royal city and beat the advancing Turks to a standstill. He was a contemporary of Louis XVI and tried to make Meknes the Moroccan Versailles. Ruling for 65 years,

he is supposed to have fathered 889 children, 525 sons and 342 daughters, a feat that would have required a more than daily 'engagement' of his.

Meknes, and many other towns north of the Rif and Atlas mountains, are blessed by fertile soil, providing an abundance of vegetables, fruits and olives. Several rivers supply plenty of water and hydroelectric energy.

Matt and Roseann wanted to see the 'forbidden' hill town of Moulay Idriss, so Aziz took us there. It was established by Moulay Idriss I, who is buried there in a mausoleum, a major pilgrimage site. The term '*Moulay*' is roughly equivalent to 'Saint.' Idriss established the town in 787 AD, after he fled from the Middle East. He is the founder of the first Arabian dynasty and introduced Islam to Morocco. We walked the town to the mausoleum's entrance, which was barred at chest height by a 4x4 wooden beam, the limit of passage for non-Muslims. Imagine this at a European cathedral! And, for whatever reason, we saw a huge number of Mercedes taxis parked in town. They are called 'German Camels' in Morocco.

And then came Fez with its ancient warren of a *Medina* and *Souk*, housing about 600,000 people! Aziz, having grown up there, engaged a special guide, a very distinguished-looking man by the name of Hamad Ali, as a back-up to take us through this part of town. He was needed so that none of our group would get lost in its narrow crisscrossing alleyways, where only donkeys, mules and push carts are

permitted for transportation. Here is where we liberally applied the warning "Balak!, Balak!", watch out!, watch out!, and heard it from others when huge piles of materials were transported through the alleys and everyone had to step to the walls.

We visited a store where delicate scarves are woven, worn by Tuaregs on their heads to protect their faces from the sirocco-borne sands. Except for myself, everyone of our group equipped themselves with at least one. Then, along another alleyway, steep stairs led up to a leather shop. At the entrance mint leaves were handed to us to cover up the penetrating odor of the freshly tanned leather. Having been at this store before, I must say that I've never seen as many leather items as there. From a couple of windows on the upper floor one looked down on about 30 open tanning vats in different colors – a very picturesque site. In some, workmen were trampling the hides with their feet!

Despite the many rugs we were shown at a cooperative, none of us decided to purchase one. A bit later we had lunch in the *Medina*. Before all this, outside the *Medina*, we viewed the ornate entrance to another royal palace, and visited a pottery place with ceramics galore.

Aziz again showed the kindness of inviting all 16 of us to his condo, a setting not too dissimilar from Western interiors, except that a large formal room had sitting benches all around with a table in its middle. He introduced us to his wife, a teacher, his children, and live-in help. Here in Fez, we split up into three smaller groups, each being hosted one evening for dinner by a local city family. In our case, the host was a school inspector who travels the surrounding area, where he inspects every teacher for proficiency at five year intervals. We had plenty of questions for him, and he some for us, but when he mentioned that his three children attend private schools, and I asked him: "How so?,"

Continued on next page



Ready to eat from a Tajine

he being a public school inspector, jokingly embarrassed, put a catalog in front of his face.

The French occupied Morocco from 1906 to 1956. They built some infrastructure and in many cities what are nowadays called 'new towns,' as opposed to the *Medinas*, the old towns. During their 50-year occupation they never dared enter the Fez *Medina*!

After Fez, we headed south instead of east, to and through the Middle Atlas, the Rif mountains. We stopped in Ifrane, a mountain town, where Aziz was once stranded for three days by snowfalls with an O.A.T. group. We took a walk through town, which looked like a European Alpine village. It had been a summer retreat for the French from the lowland heat, but also a ski area. And there was also another royal palace and a magnificent monument commemorating the last of the Berber lions killed there.

And on it went, this becoming the longest drive of the trip – about 300 miles. It may not sound like much, but the two-lane, often winding road limited speeds to a maximum of 50 mph, and usually less. In the hills, the road was often 'lined' with jars of honey locals were selling. By arrangement, we stopped with a semi-nomadic family who served us tea in their winter residence, a dwelling made from various materials. In summer these people take their flocks of sheep - our host owned a 'small' herd of 400, as he called it – to higher elevations. At one



Baking a Berber pizza

time, we looked down onto a narrow but giant oasis about 60 miles in length. At a lookout, Ute was approached by a little Moroccan girl with a digital camera asking her to stand next to her mother for picture taking. The evening found us nearer the Sahara, in Erfoud, in the Riad Salam (Garden of Peace) hotel, a fancy-looking, cavernous place with a nice, big swimming pool. However, the rooms and their sinks did carry a peculiar odor. A cold beer by the pool side, shared with Aziz, was a

consolation.

The following day, on our way to the tent camp, we stopped at a place for an hour's prearranged camel ride across the sand dunes. Upon its conclusion, we were hosted to a good lunch in the middle of nowhere. After another short drive – from Erfoud we now traveled in four Toyota Land Cruisers – we stopped at the abode of a music and dance group, the *Gnaoua Khamlia*, the Sand Pigeons. Well, to me they truly sounded like pigeons, but then, I may not be much of a music connoisseur.

Just about all of us had stocked up on Moroccan wines in Rabat, some being very good, and most were intended to be drunk sitting around a fire the following two evenings at our tented camp at the edge of the Sahara. Well, the Sirocco was blowing. It starts in April. We spent a miserable night in our tents, the canvas flapping, with sand and dust coming in to grime our faces.

By morning the wind had lessened and we took a walk across the sandy, rocky area to some nomads' tent. In the afternoon, a cooking lesson was given in the dining tent, concentrating on the Moroccan *Tajine*, an earthenware saucer-like container with a conical hood of the same material. The *Tajine* comes in various sizes to feed

one person or an entire family. First, some rice or precooked couscous is heaped in the dish's center, then chicken, beef or lamb pieces are put on top – but no pork, a no-no in the Muslim world – to be surrounded by various vegetables, like onions, tomatoes, carrots, aubergine, zucchini, etc., with some preserved lemon topping the pile. Different spices are added, like saffron, cumin, cinnamon, salt, etc. With the hood on, the vessel is then placed on hot coals or a stove top and, voilà, after about 45 minutes a delicious, tender meal is ready to be served.

Let me describe here the food we were served at various locations, whether in private homes, restaurants along the road, or in hotels. Except for some occasions, when we received a soup first – and always good bread – a salad was never missing. It came either in individual servings or on a communal plate, where each item was placed separately. It usually consisted of tomato, cucumber, potato, aubergine, carrots and red beets. This was often followed by some shish kababs, then, in turn, came a *Tajine* with either chicken, beef, or lamb and the accompanying vegetables. Oranges, apples, and bananas made up the dessert, at times also cookies.

Later that afternoon, it was decided to return to the Riad Salam hotel in Erfoud, so as not to suffer another windy night in the tents. Nine years ago in March, in a nearby tent camp, we had fires in the evening, alas, no wine, and in the morning we climbed a giant sand dune to watch the sunrise. Not this year, though!

The second part of this travelogue will be continued in the fall issue of PSF News. Stay tuned!

Next Mars Rover Sports New Set of Wheels

The wheels and a suspension system were added recently by spacecraft technicians and engineers. These new and important touches are a key step in assembling and testing the flight system in advance of a planned 2011 launch. Curiosity, centerpiece of NASA's Mars Science Laboratory mission, is a six-wheeler and uses a rocker-bogie suspension system like its smaller predecessors: Spirit, Opportunity and Sojourner. Each wheel has its own drive motor, and the corner wheels also have independent steering motors. Unlike earlier Mars rovers, Curiosity will also use its mobility system as a landing gear when the mission's rocket-powered descent stage lowers the rover di-

rectly onto the Martian surface on a tether in August 2012.

In coming months at NASA's Jet Propulsion Laboratory, the mobility system will get functional testing and be part of environmental testing of the rover. The mobility system will now stay on Curiosity through launch unless testing identifies a need for rework that would require it to be disassembled.

The mission will launch from Florida during the period Nov. 25 to Dec. 18, 2011. Curiosity will examine an area of Mars for modern or ancient habitable environments, including any that may have also been favorable for preserving clues

about life and environment, though this mission will not seek evidence of life. It will examine rocks, soil and atmosphere with a diverse payload of tools, including a laser to vaporize patches of rock from a distance and an instrument designed to test for organic compounds.



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Important Sky Viewing Dates

July 28, 29

Southern Delta Aquarids Meteor Shower (On average, produces 20 meteors per hour at the peak)

August 12, 13

Perseids Meteor Shower (On average, produces up to 60 meteors per hour at the peak)

August 13

Triple Conjunction with the Moon (Venus, Mars and Saturn: Look to the west after sunset)

August 24

Full Moon

September 16

Final Space Shuttle Flight

September 23

Autumnal Equinox (Equal amounts of day and night, also first day of fall), Full Moon

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