A Heartfelt Goodbye to Fr. Coyne and a Warm Welcome to Fr. DiUlio

On January 1, 2012 Father Albert J. DiUlio, S.J., will become the next President of the Vatican Observatory Foundation. Father George V. Coyne, S.J., will be leaving the Vatican Observatory after 45 years, including 25 as President of the Foundation.

Hailing from the Wisconsin Province of Jesuits, the President-Elect comes with impressive credentials that will serve the foundation well! Fr. DiUlio entered the Society of Jesus in 1964 and was ordained in 1974. He holds a Masters in Finance and a Ph.D. in Education and Policy Analysis, both from Stanford University. He served as President of Marquette University in Milwaukee and Xavier University in Cincinnati. While serving on numerous boards and receiving many honors, Fr. DiUlio also led the development of the East African Catholic University of Ethiopia. His experience includes these positions and others in the Midwest, several in California and most recently as the Secretary for Finance and Higher Education at the USA Jesuit Conference in Washington, D.C.

Whether you call him “Father Coyne”, “George”, “Padre Giorgio” or “Capo”, for most of you reading this newsletter George Coyne, S.J., needs no introduction, but he does deserve a few words. From Baltimore, Maryland he entered the Society of Jesus at the age of 18. He then obtained a bachelor’s degree in mathematics and his licentiate in philosophy at Fordham University in 1958. He followed this by earning his licentiate in sacred theology at Woodstock College and doctorate in astronomy from Georgetown University.

In 1965 he was ordained, and began what would become a long-lasting and important collaboration with the University of Arizona. Fr. Coyne joined the Vatican Observatory as an astronomer in 1969 and was appointed Director by Pope John Paul I in 1978. As Director he was a driving force in several new educational and research initiatives, including the Vatican Observatory Summer Schools and the Vatican Observatory Research Group in Tucson, Arizona. He retired as Director in August 2006 but remained President of the Foundation. Fr. Coyne has embodied the scientific and educational mission of the Vatican Observatory Foundation since its inception in 1986, working with colleagues and benefactors to build the Vatican Advanced Technology Telescope and ensure the Church’s presence in scientific research of the universe.

After almost five decades at “La Specola” in Castel Gandolfo and in Tucson, Padre Giorgio is moving to a much colder climate at LeMoyne College in Syracuse, New York. Surely his work teaching astronomy and developing a lecture series regarding the science and religion dialogue will help keep him warm! Father Coyne, we wish you well. You will be missed.

We also wish Father DiUlio a very warm welcome to Tucson (no pun intended) and a rewarding and enjoyable future with the Vatican Observatory Foundation!

Should you wish to offer your own words of farewell to Fr. Coyne and welcome to Fr. DiUlio, please send an email or note to the attention of Katie Steinke, in preparation for the official transition at the Annual Meeting in February 2012. katie@vaticanobservatory.org; 2017 E. Lee Street, Tucson, AZ 85719

Founded in 1891, the Vatican Observatory demonstrates the Church’s desire to embrace, encourage and promote scientific study, on the basis of her conviction that ‘faith and reason are like two wings on which the human spirit rises to the contemplation of truth’ (Fides et Ratio, Proemium). For more information, email (info@vaticanobservatory.org) or call (+1 (520) 795-1694).
Order Your 2012 Calendar Today!

Strikingly beautiful images permeate the 2012 edition of the Official Calendar of the Vatican Observatory! “Life of a Star” is this year’s theme, with calendar images capturing stars in different stages. As Bro. Guy Consolmagno, S.J. writes, “Clouds of gas and dust, like the Eagle Nebula, are where stars are formed. Clusters of young stars, like the Pleiades, are still draped with the last wisps of those clouds.”

Calendars are $25 each and include an annual membership in the Vatican Observatory Guild. For orders of four or more, a discounted rate of $20 per calendar is available. Proceeds support the ongoing work of the Observatory. Purchase online at www.vofoundation.org or mail a check with your order today, payable to Vatican Observatory Foundation. Please indicate “calendar” in the memo line.

Welcoming Visitors

Brother Guy Consolmagno, S.J., and Fr. Paul Mueller, S.J. took time out of their busy schedules to show visiting benefactors around the Vatican Observatory headquarters in Castel Gandolfo outside Rome.
California Province Installs 21st Leader

On July 31, the Feast of St. Ignatius, Fr. Michael Weiler, S.J., began his tenure as Provincial of the California Province of the Society of Jesus. Jesuits, friends, and colleagues gathered on a beautiful Sunday morning for Mass and celebration in the courtyard of the Sacred Heart Jesuit Center in Los Gatos.

The Jesuits of the Vatican Observatory come from many different provinces and, strictly speaking, belong to a community of the Roman Inter-provincial Delegation. However, the house in Tucson falls within the confines of the California Province and welcomes interaction with the province whenever possible.

Bro. Guy Consolmagno Publishes Updated "Turn Left at Orion" Book!

"It’s funny how the people who think there’s a contradiction between science and religion generally really don’t know what science is or they don’t know what religion is. Or both. Now within the universe there are laws; there are effects, energy and matter and we can study how energy and matter interact. But there are truths, about life; about the universe that science will never approach: the truths of love, the truths of beauty. We can describe but we can never explain why beauty exists or why love exists, and yet life without love and beauty is clearly incomplete. So I think you need this wide range of understanding: this wide range of saying, ‘My religion tells me that God made the universe, but my science can tell me how it is done.’"

— Bro. Guy Consolmagno, S.J. via desertmanian

We extend our gratitude to David A. Harvey—a professional photographer based in Tucson, Arizona—for donating his time and talent to take photos at the Vatican Observatory Foundation’s annual meeting, published in the last newsletter. Mr. Harvey is also an engineer with the University of Arizona Steward Observatory and, as such, programs the control system for the VATT.

To read media coverage or watch video clips featuring Vatican Observatory astronomers, visit www.vofoundation.org. Bro. Guy Consolmagno’s book Turn Left at Orion has been revised, updated and expanded for its new publication, and is receiving much praise! To purchase a copy of what "Sky and Telescope" calls ‘quite possibly the most inviting guidebook ever written to help people with binoculars and small telescopes find, view, understand, and, most of all, enjoy everything in the night sky’, visit www.vofoundation.org.
When I arrived in Tucson on January 5, 2011, I was 41 years old—and about to start the first long-term job in my life. I felt that it was high time: 33 years of attending school was finally over. This was all the more true because I came to Tucson not only as a priest with a Ph.D. in astrophysics, but also as a full-fledged Jesuit having pronounced my solemn vows in Rome into the hands of Fr. General Adolfo Nicolás on December 8, 2010. I finally had all the paperwork to prove I was an "adult," no longer a trainee.

When I took a few quiet days to prepare for my vows, I realized that I did not need to make any decisions about my vocation to the Society of Jesus. I have been quite secure in my vocation since I joined in 1995. You see, I was born in 1969 in Košice, Czechoslovakia, where I received a good secondary education. By the time I was 17, I knew I should become a priest but decided to give it more time. Since this was in 1987, I used the abnormal situation of the Church in Czechoslovakia as an excuse. So I went to study particle physics instead.

My time at Charles University Prague was a wonderful experience not only because the Communist regime collapsed during my second year but also because I was truly blessed with marvelous teachers and supervisors. They sent me to CERN, the European Laboratory for Particle Physics in Geneva, Switzerland, and then to Grenoble, France. I participated in the development of the ATLAS detector for the Large Hadron Collider.

Throughout my seven years of particle physics, I felt growing unease. By 1995 it was so bad that everywhere I turned, I perceived signs urging me to stop procrastinating and join the Jesuits. I felt "haunted" by God. At the same time, I just knew religious life would be perfectly awful! When the haunting became worse than even my nightmarish visions of religious life, I gave up and joined. The haunting disappeared the moment I entered the novitiate, and I felt at peace. Instead of the deep unease, my heart was at peace. All the unpleasantness was like waves on the surface that cannot perturb the calm of the deeper layers. On joining the Jesuits, I knew I found my place.

"I have found that there is a genuine need among Christians, and others, with extensive training in science to integrate their life of prayer with their scientific mind."

—Fr. Paul Gabor, S.J.

My doctorate in astrophysics is in instrumentation. The Vatican Observatory Research Group in Tucson offers many exciting opportunities to develop astronomical instruments, including nulling interferometers: one is planned for the LBT on Mt. Graham. I am also looking forward to teaching a course in the field of history and philosophy of astronomy.

I have found that there is a genuine need among Christians, and others, with extensive training in science to integrate their life of prayer with their scientific mind. In fact, I was quite surprised by how many active scientists took time off their busy schedules at short notice in order to participate in a three-day program I gave just outside of Prague in November, aiming to get in touch with the joy—and wisdom perhaps—that science brings them. It took me many years of training to overcome various difficulties in this regard, and I feel I should accompany others who may be struggling along similar paths.
I would describe the last five years of my life in one word: school. It was indeed a school of patience, hope and discovery. My project was on meteors. I had to observe them myself, in an effort to model their physical behaviour, particularly their bulk density, to infer the structure and composition of their parent bodies. Besides making sure that the instruments performed efficiently to guarantee good data, I had to count on good weather. Unfortunately, London, Ontario, where the University of Western Ontario is located, deserves very well its name because it is always as cloudy as London in England! When it is not raining, it is snowing. This weather situation forced me to learn patience. When going out for observing, I spent all night waiting for the sky to clear up—and it did not happen. I had to say to myself: “Tomorrow, the weather will improve. I have to keep hope.” One year, two years, three years passed—and not a single meteor recorded from London, Ontario. So I organized a campaign in 2006 in Tucson, Arizona, where I was able, in ten nights, to gather my first meteors.

Retaining hope that I would indeed get data in London, Ontario, I learned to avoid becoming discouraged. Finally, it paid off. The last two summers I collected as much data as one could gather in more than five years, thanks to the automated system of gathering meteors we (Western Ontario meteor group) were able to put in place. Everytime the weather was good and the moon was at the right position, the roof would open, and the automated observation would start. This system allowed me to reach the number of meteors that was statistically significant for my project.

Among a significant number of results I achieved in my work, the most important was the evidence of early radial transportation of material in the solar system. Divided roughly in two regions (a hot region with formation of rocky material and an icy region with formation of icy grains), the early solar system experienced chaos. Consequently, rocky materials transported into the cold region constituted building blocks of icy bodies like comets. This theory, which had been modeled for years, was first proved by the analysis and results of the returned samples of the Stardust mission in 2006. My work gave stronger evidence of the reality of this mixing of materials while the solar system was still at the stage of protosun.

Beside this scientific discovery, I experienced the influence of human character on the way science is conducted. Sometimes, the human character is a help, but sometimes it pulls one back. What kept me going during all these years was not really my determination to accomplish the mission given to me, but knowing I was surrounded by strong support from the Vatican Observatory, from the Jesuit community, from my family and friends. I learned to build the kind of character that would not take me away from this support, and I learned that with patience and hope, discovery is possible.

Padre Eusebio Kino, originally Chini, was born in 1645 in Austrian Italy. He was a Jesuit missionary who had hoped to be assigned to China but instead found himself in the Arizona and Mexican desert. A builder, agriculturist, cartographer, and peacemaker Father Kino founded 24 missions including beautiful Mission San Xavier del Bac outside of Tucson, introduced horses and cattle to Arizona, and proved that Baja California was not an island. The year 2011 commemorates the 300th anniversary of Fr. Kino’s death. Among other events, liturgical ceremonies at the San Xavier del Bac and Tumacacori Missions were organized by the Kino Heritage Society. Coming to Tucson all the way from Trento, Italy, his hometown, for these ceremonies were a group of official dignitaries, the Archbishop and several members of the Chini/Kino family. A concert by the Southern Arizona Symphony Orchestra was held at the Tucson Cathedral where a Jesuit “descendent” of Padre Kino, Fr. Chris Corbally, Vice Director of the Vatican Observatory Research Group and Vice President of the Vatican Observatory Foundation participated as choral president. One of the more interesting honors bestowed upon Padre Kino was his designation as Grand Marshall of the Tucson St. Patrick’s Day Parade. In 1965, Padre Kino was honored by the State of Arizona as its heroic representative to the American people and its preeminent pioneer by the dedication of his statue in the U.S. Capitol Building. A few years ago his petition for sainthood was accepted and is under consideration by the Holy See. Padre Kino believed that evangelization begins with respect for the Native People. He had great faith; he was intelligent, charismatic and courageous and worked to better the lives of his fellow human beings. For us, it is fitting that Eusebio Kino was also an astronomer!

Padre Kino, the Astronomer
by Fr. Chris Corbally, S.J.

Every year as Christmas approaches in Tucson watchers of the statue of Padre Kino on Kino Boulevard will be looking for the red earmuffs. These have been appearing annually on the horse’s ears as a kindly seasonal gesture against the desert night’s cold. Further, along the left side of the horse, resting on Kino’s saddlebag, you will notice a round instrument with what looks like a cross spanning its diameter. This is an astrolabe, or an earlier version of a sextant, and it was used for measuring the positions of celestial objects. Kino’s astrolabe is at the ready. On his travels he would use it to sight the Sun at noon, determining its height above the horizon. With the help of correction tables for each day of the year, he would then calculate his geographical latitude.

Kino knew his astronomy well, and he put it to good use in making the best map of this area, “Passo por Tierra a la California.” Drawn in 1707, it served even for a couple of centuries. On it were placed the missions and, most significantly, it showed that California, and so Baja California, was not an island but reachable across the Colorado River. Perhaps Kino had used that very astrolabe to observe a Christmas comet which appeared in late 1680 and was visible both in Cádiz, where Kino was awaiting a ship, and Mexico, where he was bound. It was a prominent comet and caused a stir.

Now, the stir was not just because the comet was a beautiful object but because, since at least Roman times, they were taken as a sign of ill-omen. Misfortune was about to happen to someone prominent. That was why Kino, when urged to write a book about this comet once he got to Mexico City, started with the wish that the comet would be to the viceroy there “the happy messenger of your good fortune.” The cover of Kino’s little book, “Exposición Astronómica de el Cometa,” showed the image of Our Lady of Guadalupe, whose protection no doubt would ensure these good wishes to his patrons.

Comet-watchers are well known around Southern Arizona, thanks to those same clear desert skies which enabled Kino to record at least two others during his travels. If they too see a Christmas comet, they can count it a blessing. Just don’t forget those earmuffs against the cold.
Interview with Dr. Eiichi Egami of Steward Observatory at the University of Arizona by Fr. Paul Gabor, S.J., of the Vatican Observatory

Fr. Gabor: Dr. Egami, congratulations on your fascinating discovery. Using the Hubble and Spitzer Space Telescopes, as well as the Keck telescope in Hawaii, you and your colleagues observed light coming from a time less than a billion years after the Big Bang. And you found a galaxy that seemed already 750 million years old at the time, which means that it formed perhaps as early as 250 million years after the Big Bang. Could this mean that there is something wrong with our understanding of the age of the Universe?

No, the age of the Universe is not based on the observations of galaxies. It is determined in a number of different ways, and it is quite well established. Our data do not challenge that. I believe, however, that they indicate that the time scale for galaxy formation in the early Universe needs to be re-examined. It seems that galaxies may have formed as early as 200 million years after the Big Bang.

Fr. Gabor: And speaking of ancient history, I know that you are an alumnus of the Vatican Observatory Summer School 1990. How do you remember that experience?

I have vivid memories of VOSS 1990. I still have the picture of myself shaking hands with John Paul II. It was one of the best summers I have ever had in my life. Many of the participants are eminent astronomers today, and I am still in contact with a number of them. This is something I could not have appreciated at the time: VOSS allowed me to have a personal connection with excellent people who have become lifetime friends. Also professionally, I have benefited from these connections. I am really grateful to Fr. George Coyne for this wonderful experience.

Notes: This unique galaxy is incredibly far at 13.5 billion light years or 1.6x10^23 miles away. The young galaxy was observed only due to the good fortune of how nature positioned closer massive galaxies with powerful gravitational pull, thus, allowing for lensing—or as Dr. Egami called it “a huge magnifying glass floating in space.”
Monsignor J. Terrence Fitzgerald, Retired Vicar General of the Diocese of Salt Lake City, has been a dedicated supporter of the Vatican Observatory Foundation. In June of this year Monsignor Fitzgerald presided over the commencement ceremony at Judge Memorial Catholic High School, his 1954 alma mater in Salt Lake City. In his congratulatory remarks, Msgr. Fitzgerald mentioned a visit he made last October to the Vatican Observatory outside Rome, with its 100-year-old telescopes that “pierced the heavens and the beauty of God’s creation.”

Addressing the graduating students, Msgr. Fitzgerald recalled, “It was amazing to me to look and see how vast is this universe, how limitless the possibilities of what God has entrusted to our care. And I think, you graduates, if there’s anything you take from Judge, it should be that ability to see a world bigger than yourselves, a world bigger than your own life experiences, a world that is massive in terms of its challenges and possibilities, sufferings and changes. And I would ask that you remember . . . to whom a lot is given, from them a great deal is expected.”

Congratulations to the Class of 2011 and thanks to Msgr. Fitzgerald for his support of the Vatican Observatory Foundation!