



VATICAN OBSERVATORY NEWSLETTER

embracing, encouraging and promoting scientific study

Tucson's Bishop Kicanas Gives Keynote Address at Awards Dinner

✦ by Fr. George V. Coyne, S.J. ✦

The Foundation welcomed Bishop Gerald Kicanas of Tucson to our festive events on the evening of Friday, February 25. Bishop Kicanas has always shown a vivid interest in the work of the Vatican Observatory and, in particular in the fact that the Observatory has a research institute in his diocese in collaboration with the University of Arizona. Early in his bishopric in Tucson, he visited the Vatican Advanced Technology Telescope (VATT) at the Mt. Graham International Observatory located within his diocese. This year marked the first time in his busy pastoral ministry that he has been able to join us for our annual Awards Dinner (see pages 4 and 5).

Bishop Kicanas gave the keynote address at the dinner. He took the occasion to recall two events in the history of Tucson: one long ago and to the joyful remembrance of a great hero; the other quite recent, but to the sad remembrance of several murdered and wounded heroes.

This year marks the 300th anniversary of the death of the great pioneer of Sonora — today Southern Arizona and Northwestern Mexico — Father Eusebio Kino. An Italian Jesuit priest who traveled on voyages of discovery throughout Sonora, Father Kino established mission Churches, developed agriculture and provided for the needs of the indigenous peoples. The bishop expressed his pride in the voyages of discovery being carried out in modern times by the Jesuit brothers of Father Kino who are exploring the universe at the Vatican Observatory.

The bishop then shared his views of the tragic shootings in Tucson of January 8 this year where several people were killed, including 9-year-old Christina Green, and where many were injured, including Representative Gabriele Giffords of the US Congress. This senseless tragedy, remarked the bishop, can only be approached through the eyes of faith and in the knowledge that God's ways are not our ways. The bishop noted that in the eyes of the whole world the entire

Tucson community united in a truly amazing way to face this immense tragedy. Church services, marches, and spontaneous memorial gardens sprung up all over the city in solidarity with the victims and their families. Bishop Kicanas expressed his pride in the fact that the Catholic community spontaneously joined with so many others to express their faith in God's mysterious way of working in our lives.



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).

Father José Funes, S.J.
Director, Vatican Observatory

Father George Coyne, S.J.
President, Vatican Observatory Foundation



VATICAN OBSERVATORY NEWS

Houston Gathering

On November 9, 2010, His Eminence Daniel Cardinal DiNardo of the Archdiocese of Galveston-Houston participated in an evening at the Co-Cathedral organized and hosted by Mr. and Mrs. Jeb Bashaw to introduce the Vatican Observatory to an interested group of local residents.

Father George Coyne, S.J., gave a presentation to the group after being introduced by Cardinal DiNardo. In his address His Eminence reiterated the fact that the very existence of the Vatican Observatory lends credence to the importance of the dialogue on science and religion in today's world. He also highlighted the importance of the generosity of individuals and organizations on which the observatory relies to carry out its mission.

Vatican Observatory Foundation board member June Scobee Rodgers came from her hometown of Chattanooga to attend the event. Dr. Scobee Rodgers has a close relationship with the Houston community, being the widow of Challenger Commander Dick Scobee. She added an important dimension to the evening, sharing with all those present her enthusiasm and belief in the organization.

Mr. and Mrs. Jeb Bashaw are to be thanked for their kind generosity and June Scobee Rodgers for her continued loyalty, while Cardinal DiNardo's presence highlighted the respect the Church has for the observatory and its work.



Exploring the Skies and Sands of Arizona October 4-9, 2011

The Vatican Observatory Foundation is offering a five-day tour in and around Tucson for a limited number of participants. Join us to:

- Become an astronomer for the evening at the Mt. Lemmon SkyCenter.
- See how the VATT and the LBT really work in the dark.
- Tour several of the many different types of observatories on Kitt Peak.
- Relax and enjoy a day at the Desert Museum.
- Visit San Xavier del Bac and Tumicacori, two of the most important missions built by Fr. Eusebio Kino, Arizona missionary, Jesuit explorer and astronomer.
- Lunch and shop in Tubac, a desert artist colony.
- See how the mirrors are made under the football stadium at the University of Arizona.
- View images coming from Mars.

The tour package includes lodging, local transportation and several meals. Travel to and from Tucson is not included. Please note that the elevation of Mt. Graham is almost 12,000 feet and may cause health problems for those with certain difficulties. The tour is limited to approximately 20 persons. The cost is estimated at \$2,500 per person, a portion of which will be a tax-deductible contribution to the Vatican Observatory Foundation.

For details and information please contact Katie Steinke, Director of Development at katie@vaticanobservatory.org or (805) 901-6591.



Science and Religion: Exploring God's Universe with the VOF

✦ by Dr. June Scobee Rodgers ✦

Serving on the Vatican Observatory Foundation Board of Directors is tremendously rewarding, not only for the opportunity to advance the technology of our space telescopes, but also for the personal rewards of discovering more about God's mighty universe. Anyone who has looked to the night sky or studied the stars knows the universe is vast and intimidating. The more I learn about the universe and contemplate its creation, the more I marvel at the Creator and of the love that motivates God. I believe God invites us to discover and to learn about our place among the stars to help us begin to grasp His mighty universe.

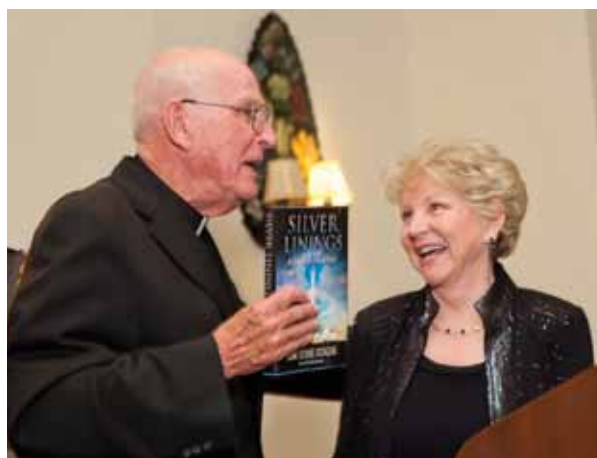
Astronomy has had a huge impact on our culture. For those of us who are believers, astronomy opens our minds and hearts to the Creator. Perhaps even for non-believers, astronomy helps realize the magnificence and beauty of the universe of which we are a small part.

The year 2009 was the International Year of Astronomy, commemorating the 400th anniversary of Italian astronomer Galileo's first use of a telescope to observe the cosmos, which forever changed our view of the universe and ourselves. Pope Benedict XVI marked this occasion in an address to internationally renowned astronomers, saying,

"This celebration...invites us to consider the immense progress of scientific knowledge in the modern age and, in a particular way, to turn our gaze anew to the heavens in a spirit of wonder, contemplation and commitment to the pursuit of truth, wherever it is to be found."

I am particularly grateful to the staff of the Observatory for their efforts to promote research, educational opportunities, and dialogue between the Church and the world of science..."

The Vatican Observatory serves as a bridge over time and



space, drawing together a rich history and a current engagement in the search for greater understanding. Members of the Observatory come from four continents, speak nine languages, and work in almost every field of modern astronomy: Big Bang cosmology and string theory, galaxy formation and evolution, stellar spectroscopy, meteors and meteorites. Over the years, imagery with

the Vatican Advanced Technology Telescope (VATT) has amazed people around the world, helped scientists determine the process of how planets are born, and assisted in the rewriting of astronomy textbooks.

Since my childhood when I wished upon the first star and looked to the heavens to find comfort in God's presence, I have seen beauty, elegance, and joy in the cosmos. If God is love, then love is the master key that opens the door to discovery, and exploring space allows us to quench our thirst for knowledge and belonging. It's a glorious calling to look beyond the confines of our limited life span and location in the cosmos. It's our destiny. God is bigger than the universe, and science and faith are not only compatible, but wondrously complementary.

God's mighty universe and wonders are almost incomprehensible to me, but just as incredible as the wonders of space is God's creation of a single human placed upon this planet orbiting around our star, the sun. For my new (Silver Linings) book, former astronaut and senator John Glenn said that, "America's space program has always been about discovery—discovery of our universe, our world, and most importantly, ourselves."

June Scobee Rodgers is an active and prominent leader in education. She is Founding Chairman of the Challenger Centers for Space Science Education. June's late husband, Astronaut Dick Scobee, commanded the Space Shuttle Challenger 25 years ago. Her new book, "Silver Linings: My Life Before and After Challenger 7," shares her story.



February Gathering

Seminar, Awards Dinner, & Tour

Each year the Vatican Observatory Foundation brings together friends, staff and colleagues in Tucson for three days of events. An afternoon seminar allows the staff to speak about their various areas of research. For the major benefactors the Circles of Giving awards dinner is offered to recognize those friends who have been so supportive and generous over time. After the annual meeting of the foundation board, a trip to see the VATT on Mt. Graham closes the gathering.



Guests talk with Fr. Jose Funes, S.J., Director of the Vatican Observatory



Board Chairman, Rich Friedrich, speaks with seminar participants



Visiting from Boston, Jesuit Bailint Nagy joins VOF board members Chris Hitchcock and Fr. Brad Schaeffer, S.J.



Bishop Kicanas and John and Marletta Wagner



Board Members Ben and Karen Dalby and Rich Friedrich with Carla Keegan and David Sirota

MGIO TOUR

Br. Guy Consolmagno, S.J. (*right*), fascinates the group braving the cold during the visit to the telescopes on Mt. Graham. VATT Astronomer, Fr. Chris Corbally, S.J., seems to enjoy the tour as much as the visitors (*far right*).





Seminar



CIRCLES OF GIVING AWARDEES *Congratulations!*

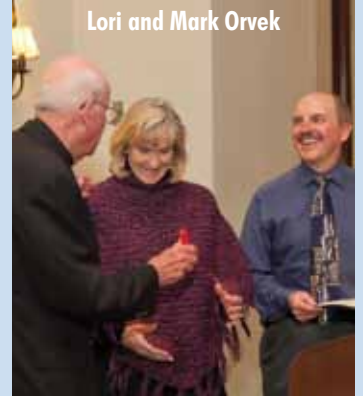
Rose Collins



Mike Figueroa



Lori and Mark Orvek



Awards Dinner



**Robert Callanan, Pam Snyder,
Barbara Callanan and Diane McGee**



Tour



Renee and Ethan Clifton





First Remote Observing with VATT from Tucson

✦ by Fr. Richard P. Boyle, S.J. ✦

Remote control of a telescope can mean the observer-operator is not present at the telescope but can accomplish a full scientific observing run safely and efficiently from elsewhere. At the Vatican Advanced Technology Telescope (VATT) observers have been operating it “remotely” to some degree from its local warm control room in the facility on Mt. Graham.

To try distant remote control of VATT for the first time on March 30, 2011, the setup was this. In room 488 of Steward Observatory, Tucson, technician Chris Johnson already had configured with an internet link to VATT three

large screen HP Thin Client monitors, compliments of Hewlett-Packard via VOF Chairman, Rich Friedrich. At nightfall technicians Ken Duffek and Dave Harvey at VATT by hands-on tasks made VATT ready for me to operate it remotely from room 488 in Tucson. This I did comfortably and successfully for a two hour test period. Having the necessary video monitoring of weather conditions, the sky, the guider camera and dome interior, I opened the dome slit, mirror cover, enabled the altitude, azimuth and derotator motor drives, set on a bright star to initialize on celestial coordinates, collimated the mirror optics, focused the telescope and made several exposures on star fields with the CCD camera.

To conclude this two-hour remote observing session I performed the normal shutdown procedures and turned control back to the local technicians for their shut downs requiring hands-on such as the oil to azimuth bearing and the primary mirror thermal control. As the remote observer I felt right at home! There only remain a few more details to make remote observing to VATT fully safe and efficient for observers intending full scientific runs not only from our control station at Steward Observatory but from elsewhere.

Fr. Boyle is one of the staff celebrating 50 years as a Jesuit.



photo courtesy of Frank Garcia

Noteworthy



Fr. Andy Whitman, S.J., received the Holy Cross Pro Ecclesia et Pontifice award, a special honor given for distinguished service to the Church by lay people and clergy. The medal was established by Leo XIII, the same Pope that refounded the Vatican Observatory in 1891.

Fr. Whitman is a priest and mathematician, having founded the Clavius Group and served as a member of the Vatican Observatory for many years. He is known for welcoming guests in Tucson and faculty and students in Castel Gandolfo. For many students in the Vatican Observatory Summer Schools, he was like a grandfather.

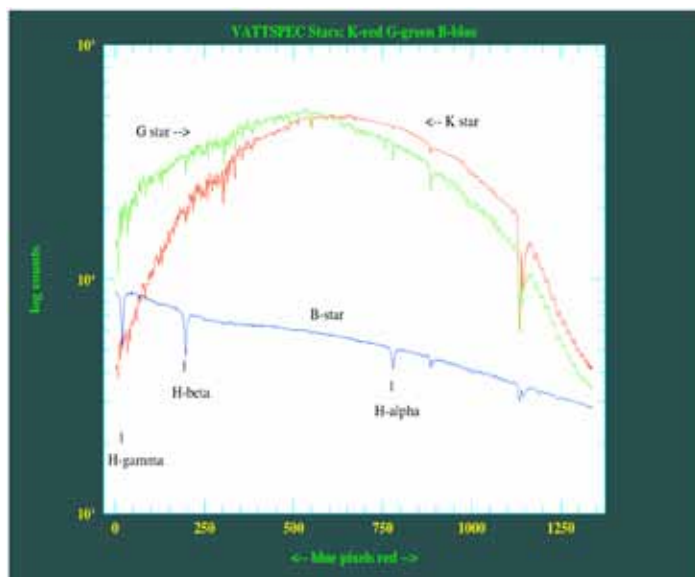
In presenting Fr. Whitman with the award, Fr. José Funes remarked that, “Andy has been an extraordinarily good example of the intellectual apostolate of the Church. To be a good apostle, a good Jesuit, we need to be Christians, Catholics, and especially good human beings. Andy is all those things. Tonight I am delighted to be here and present this award that recognizes Fr. Andy Whitman’s devoted service to the Church.”



VATT

✦ by Fr. Christopher Corbally, S.J. ✦

First light on VATT Spectrograph, March 25, 2011. Ken Duffek and Dave Harvey observed these 3 stars, a hot B-type blue star and the cooler green G-type and red K-type stars. The characteristic absorption lines of Hydrogen are seen in the graphic spectrum of the B star. The ripple-like effect obvious along the red longer wavelength half of these raw spectra is most likely due to sky emission causing optical interference fringes in the charged-coupled detector. Further data processing removes this artifact.



(Graphics by Richard P. Boyle)

Spectra, or “rainbows”, of stars, nebulae, and galaxies, when allied with theory, tell us much about the physical state and the abundance of elements and molecules in these objects. So spectra are a vital complement to the direct imaging cameras that have been on VATT since science observations began in 1995. That is why the planning for a spectrograph started early on, in fact in September of 1987, and the making of its optical elements began in the fall of 1992. You can understand why the commissioning of this spectrograph (getting it all to work at the telescope) was a long-awaited moment, and we are happy to report that it started early this March. We are grateful to our VATT engineering team who patiently solved many problems along the way to the success shown at its “first light.”



Changing a Life

✦ by Suzanne Gurton ✦

Teachers can change your life. It's a cliché, but in this case, Father George Coyne, S.J., played a part in completely changing the direction of my life by sharing his wisdom, passion and humor with his introductory astronomy class for non-majors at the University of Arizona over 30 years ago.

As a college freshman, I'd thought business would be a sensible major for me to pursue, but fortunately, the business college required a four credit lab science, and I chose astronomy. The course was taught by Father Coyne and Ray White. It was the only class I took that had me mesmerized. Three times a week I sat in wonder at both the universe and our ability to find out so much about it by decoding twinkling beams of starlight.

I'm not quite sure why the whole class was not as taken as I was, but I never looked back. I switched majors to Astronomy and Physics, worked every campus astronomy job I could get from tutoring basketball players in astronomy, to running the campus observatory for public viewing nights, to working in the planetarium to doing independent study research projects with another astronomer, John McGraw. After 20 years in the planetarium field, I've spent the last ten years managing a variety of astronomy education and public outreach programs for the Astronomical Society of the Pacific.

Throughout this long career in astronomy education, I've always been grateful for the example set by Father Coyne. The noisy expression of the false conflict between science and religion was always quieted by my memories of Father Coyne of the Vatican astronomers. It gave me great confidence as I pursued science and science education and my own spiritual path.

Suzanne Gurton is Education Manager of the Astronomical Society of the Pacific. She is pictured here with her children Kjersti Chippindale (16) and Anders Chippindale (14).



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FOUNDATION

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Fathers Richard Boyle and William Stoeger each celebrate 50 years as Jesuits in 2011, and Father George Coyne celebrates his 60th! Fr. Boyle is from the New England Province and spends many a night observing the heavens including the night of the first remote observing done on the VATT. Originally from California, Fr. Stoeger is known for his fascinating conversations on such complicated issues as multiverses and for leading memorable retreats. A member of the Baltimore province, Fr. Coyne often describes reading "forbidden" astronomy and physics books in the Novitiate — look where it got him! In grateful recognition of these men and their service as Jesuits, the VOF Board presented each Jubilarian with a special gift during this year's Awards Dinner as well as a gift in their name in support of the foundation.

Consider becoming a member of the Sacred Space Giving program with an automatic monthly gift to honor these dedicated scientist priests. Visit www.vofoundation.org or contact Katie Steinke to learn more: katie@vaticanobservatory.org or (805) 901-6591

