

nova notes

NOVA Catholic Community

January 2010

Memories of NOVA's 2009 Advent and Christmas



2009 Advent Theme



Advent Wreath



Father Joe Nangle



Father Quinn Connors

"Where do I find hope and joy on the beltway, this year?"



Snowed in 4th Sunday of Advent – No Nova liturgy

"The core affirmation of our faith that has come down to us is that in the beginning was the Word, and the Word has come to be with us, and transforms us and our lives, in all their moments." (from Christmas homily)



Cackley Family Christmas Singers



Father John Langan – Christmas Liturgy

January Birthdays

NOVA Message Line	(703) 852-7907
Chairpersons	Tom Clarkson Gloria Mog
Treasurer	Joe Formoso
Coordinator, Community Life	Cece Michelotti
Liturgy Coordinator	Jeanne Clarkson
Padre Cadre Coordinator	John Mooney
Music Coordinator	Victoria Robinson
Peace & Justice Coordinators	Dianne Carroll Marie Keefe
Christ House Coordinator	Kopp Michelotti
Facilities	Glenn Passin
Newsletter Editor	Judy Christofferson

- 2 Marie Pinho
- 5 Michaela Kane
Jenny Tuccillo
- 11 Catherine Annunziata
- 14 Andrew Maussert-Mooney
- 15 Glen Passin
- 16 Larry Goldschmidt
- 23 Kirsten Carroll
Walt Landry
- 28 Phyllis O'Toole



Marie Noelle Christofferson – Born December 6, 2009 – welcomes the new year!

The NOVA Catholic Community Invites You To Celebrate The Eucharistic Liturgy With Us Every Sunday in Arlington, Virginia.

Note: Our Liturgy is usually celebrated at Kenmore Middle School, Arlington Blvd. and Carlin Springs Rd, Arlington, VA. Beginning Memorial Day Weekend up to our Fall Retreat weekend in September, we celebrate at Lacey Woods Park, George Mason Drive near Washington Blvd, unless otherwise noted.

Liturgies at Kenmore begin at 10:15 a.m.
Gather at 10:00 a.m.
Liturgies at Lacey Woods begin at 9:30 a.m.
Gather at 9:15 am

Call the Message Line (above) or check the NOVA website for the latest information.

The next Newsletter deadline is January 25th.

January Liturgies and Prayer List

January Music Liaison Barbara Formoso

January 3 - Epiphany

Jim Coriden – Linda Rosenberg & Kathy Scheimer
Isaiah 60:1-6
Psalm 72:1-2, 7-8, 10-13
Ephesians 3:2-3a, 5-6
Matthew 2:1-12

January 10 – Baptism of Jesus

John Haughey – Gloria Mog
Isaiah 42:1-4; 6-7
Psalm 104:1-4; 24-25; 27-30
Acts of the Apostles 10:34-38
Luke 3:15-16;21-22

January 17 – 2nd Sunday in Ordinary Time

Bill Callahan – Jim & Archer Heinzen
Isaiah 62:1-5
Psalm 96:1-3;7-10
1 Corinthians 12:4-11
John 2:1-11

January 24 – 3rd Sunday in Ordinary Time

Quinn Connors O. Carm. – Anne Passin
Nehemiah 8:2-6; 8-10
Psalm 19:8-10;15
Luke 1:1-4;4;14-21

January 31 – 4th Sunday in Ordinary Time

Joe Kenna – Peace and Justice Group
Jeremiah 1:4-5;17-19
Psalm 71:1-6;15-17
1 Corinthians 12:13-31 or 13:4-13
Luke 4:21-30

Liturgies: Cycle C

Inclusive Readings and Music Selections are available in
the new NOVA Yahoo Group Files
Please give all music selections to the Music Liaison the
Sunday before your liturgy.
Liturgies at Kenmore Middle School begin at 10:15 a.m.

NOVA is praying for...

Sonja Donahue, who would love a card, a call or a visit.

Grace Birch, who would also appreciate a card or visit.

Rose Barrett, who is recovering from radiation treatments

Judy's sister, **Mary Lou**, who has cancer.

Remember these and any other NOVA members, their friends and family, who need our prayers.



Lighting of Advent Wreath by Elena with Her Parents, Charlie and Amy

Volunteer Opportunities

Gunston Volunteers Needed

Nova volunteers distribute bags of non-perishable food, cereal provided by Nova, and perishable items such as eggs, milk, and meat that are picked up at the Arlington Food Assistance Center warehouse on the night of distribution. Produce items are picked up every other week by Eric Carroll at the produce markets downtown (and funded by the Nova Peace & Justice budget). The distribution takes place at the Gunston Middle School Recreation Center in Arlington. Many volunteers have been active in this project for many years. All love their work and would be glad to teach new Nova folks how it's done.

January Schedule (blanks indicate volunteer needed)

January 7: Marie Pinho, Tim/Jerry

January 14: Don/Ann A., Cathy G.

January 21: Don/ Ann A, _____

January 28: Glen/Syd, _____

February 4: Joe/Michael Kane, Don/Ann

February 11: Tim/Jerry, Kopp/Cece

February 18: Joe/Michael Kane, Don/Ann

February 25: Glen/Syd, _____

Overflow Winter Shelter

From January to March St. Clements Episcopal Church in Alexandria operates as an emergency overflow winter shelter for Carpenter's Shelter. Nova has been participating for the last several years. Every other Monday, two Nova volunteers are on duty: welcoming the guests, helping them get comfortable for the night, remaining in the church sanctuary with the guests for the night and wishing them a good day in the morning. Volunteers are at the church from 7:00 p.m. to 7:00 a.m., with a lot of quiet time in the middle. Community members who have volunteered thus far are listed below. Blanks indicate another volunteer is needed.

Jan. 4: David Mog and Mike and Joe Kan

Jan.18: Ted Miller and Jerry Barrett

Feb 1: Clyde Christofferson and Marie Pinho

Feb 15: Two volunteers are needed.

March 1: Jason Powell and helper

March 15: Anna Reich, and Tim White



Nova Singers, who weekly share their time and talents.

NOVA Meetings: Past and Future

November Nova Nite Revisited

Somehow we managed to neglect reporting on the Nova Nite meeting held on November 15th at the Barretts. So, this is a quick recap on some of the issues discussed.

There were two social justice projects that needed approval before our annual meeting in January. The Community will be supporting John Mooney in his effort to raise \$1500 to help out a John XXIII project in Nicaragua. They are trying to start a Little League program for 6-12 year old boys in an effort to counteract recruiting efforts among young, poor boys by the Sandinistas. Nova will house the fund but John is confident he will be able to raise the money among private contacts. Also approved was a commitment of \$600/year to have full membership in VOICE (Virginians Organized for Interfaith Community Engagement). John and Nancy Veldhuis are taking the lead on this project. Nova is the 47th faith community to join VOICE.

Rosemarie Annunziata led a discussion on alternative ways that Nova can support Womenpriests as well as promote women's issues in general within the Church. One possibility would be to join with other IECs in the area in sponsoring liturgies led by Womenpriests. There was a lot of support for continuing to figure out how we can participate in women-led liturgies without drawing a lot of negative attention from the hierarchy. Opinions ranged from those who are quite fearful that this issue will get the community in trouble to those who question if they can stay in the community if we are not willing to be publicly supportive of what to them is a clear social justice issue. Discussion will continue at the next meeting.

John Mooney led the continuing discussion on alternative presiders for Nova liturgies. The focus for this meeting was on having married and/or laicized priests. There was much discussion on our role as a "prophetic community" and whether we're being an active part of the evolutionary process of the Church. It was pointed out that one-third of the parishes in the country are having non-eucharistic

liturgies regularly due to a severe priest shortage. They are already dealing with the necessity of calling forth alternative presiders. Many felt that as long as we used the Community Led Liturgy format that we approved, we should feel free to choose whoever we want to lead those liturgies. Others felt that it isn't necessary to have alternative presiders and raise the possibility of penalization of some kind. A strong statement was made that we should never be acting and deciding our conscience on the basis of fear. This discussion will be continued.

- Gloria Mog

You are invited to the:

Annual Peace and Social Justice Meeting

**Saturday, January 23, 2010
5:30-9:00 pm
Potluck at**

Meg Tuccillo's Home

This is the time when NOVA sets the direction for 2010 for peace and social justice. Not only do we decide what projects we wish to fund or continue funding, but we also determine how we wish to focus our energies as a community; what issues are now front and center as well what needs we can uniquely cooperate on through prayer, liturgy, and action. The December survey of the community about peace and social justice issues will be available for the January meeting. Clearly all hearts and minds are needed to bring about the best possible results for those who hunger and thirst and yearn for justice.

Social Justice Reports for 2009

The following reports were submitted by Dianne:

Each year the community has a Social Justice Annual meeting to remember the projects of the previous year, to address possible new projects, and to talk about the direction the community should take in the future. This list is the projects that the community agreed to fund for the coming year. Each project has a Nova person as its sponsor and that person is responsible for monitoring the project as well as keeping the community informed. The dollar amounts are per month except where stated. All project monies come from general funds except for those with asterisks which are designated donations. \$3755.00 per month for 2008 plus yearly donations.

AACH Arlington Alexandria Coalition for the Homeless	Kopp Michelotti	\$200
Works in coordination with public agencies, businesses and community groups to give homeless people the support, shelter, counseling and employment training they need to regain self-sufficiency. Sullivan House is a transitional shelter in Arlington administered by AACH. Nova members are on the board. http://www.aachhomeless.org/		
ACTION AFRICA	Marie Keefe	\$250
Action Africa serves children and families in rural sub-Saharan villages in the vital areas of health, education, and economic generativity. NOVA is the sole supporter of 4 free medical clinics yearly, seeing over 1,000 each and giving HIV/AIDS education in Imo State, Nigeria. In 2007 we plan to begin clinics in war-ravaged Sierra Leone www.actionafrica.org		
AMANACER SALOMON KLEIN ORPHANAGE	Emma Violand-Sanchez	\$175
Currently there are 150 children from newborn to 6 year at the orphanage in Cochabamba Bolivia. At the "hogar" (home) children receive medical care and attend Montessori and Kindergarten classes. http://www.amanecer-bolivia.org/amanecer.htm		
AFAC: Arlington Food Assistance Center	Dianne Carroll	\$100
Over 975,000 pounds of food are distributed directly to needy families in Arlington. The working poor, elderly and disabled rely on AFAC. Nova members volunteer for the Gunston distribution site every week on Thursday. http://www.afacinfo.org/		
ASPAN: Arlington Street People's Assistance Network	Meg Tuccillo	\$100
Emergency winter shelter offers warm space for the homeless in Arlington. Employment counselors assist those who can work. Some Nova members are on the board. http://www.a-span.org		
BETHANY HOUSE	Anne Houck	\$75
Shelter for abused women and their children in Fairfax County. http://www.bhmv.org/		
BOLIVIAN FAMILY SUPPORT	Rosenbergs	\$200
Support for a young woman in financial crisis known and helped by the Rosenbergs when they were living in Bolivia.		
CAMBONI SISTERS/Sister Adriana Tovar	Carolyn Miller	\$100
Project in South Sudan, Leer-Upper Nile -- support education for primary and secondary schools, and training local teachers		
CENTER OF CONCERN	Jim Hug, SJ	\$75
Non-governmental Organization (NGO) working for greater global justice http://www.coc.org		
CHRIST HOUSE	Kopp Michelotti	\$55
It opens the doors to serve an evening meal to those who are hungry. An average of 80 people eat at Christ House in Alexandria each evening. Nova volunteers serve the meal and clean up on the 3rd Monday of every other month. http://www.cda.net/programs_christhouse.php		
CO-PARTNERS OF CAMPESINAS	Archer Heinzen	\$75
Supports a training center and scholarship program in Ilobasco, El Salvador and a small micro enterprise program in Chichicastenango, Guatemala. Money pays teachers' salaries and utilities in the training center, supports school supplies and transportation scholarships for impoverished children, and provides micro credit. Nova members have traveled to El Salvador to volunteer. http://copartners.org/		
ESCUELA BOLIVIA	Emma Violand-Sanchez	\$100
Funds are used to fund scholarships at Escuela Bolivia in Arlington VA. About 85% receive scholarships. In addition to Spanish, English and Quechua language classes, Escuela Bolivia offers a comprehensive parental leadership program. http://www.escuelabolivia.org/		

Social Justice Reports for 2009 (continued)

FRIENDS OF GHANA	Kate Doherty	\$50
Helps help treat children suffering with Buruli Ulcer, combats drug and alcohol addiction, Books for Africa, and several other groups working with students and child laborers.		
GREENWELL	John Tarrant	\$100
The Greenwell Foundation offers universal access to a natural park environment through therapeutic and educational programs, accessible facilities, and inclusive community events. http://www.greenwellfoundation.org/		
Handicapped Encounter Christ (HEC)	Bill Meyer	\$75
Develops retreats to enable adults with physical disabilities to have an opportunity to get away for a spiritually enriching, fun-filled weekend. Every person with a disability has a partner to help care for their needs during the weekend. Nova's financial support helps those who can't pay the cost of the retreat. Many Nova members have participated in the retreats.		
HOLY CROSS ABBEY	Marie Pinho/Timpanes	\$25
Their main income comes from their bakery products . NOVA is one of the very few "churches" on record as supporting them. Their religious are aging and are trying to live on \$12.00 a day. http://www.hcava.org/		
HOMELESS PREVENTION RENTAL ASSISTANCE	Jenny Carroll	\$200
This fund is for local families in crisis with no other sources to help.		
HOPE (Helping Others Pursue Education)	Emma Violand-Sanchez	\$75
This project was named and established by Nova members. It provides assistance for needy students in Arlington to pursue education.		
KENMORE PROJECT	Cece Michelotti	\$75
The school used these funds to provide scholarships to middle school students so that they could take English and Mathematics classes during the summer.		
NEW COMMUNITY CHURCH	Jim Weber	\$50
Support for Jim Dickerson and the MANNA projects in Washington, DC. Manna Inc. develops quality affordable homeownership opportunities for the residents of Shaw and Columbia Heights. http://www.newcommunitychurchdc.org/index.html		
NONVIOLENT PEACEFORCE	Nick Mele	\$200
The mission is to facilitate the creation of a trained, international civilian nonviolent peace force. The Peace force is sent to conflict areas to prevent death and destruction and protect human rights, thus creating the space for local groups to struggle nonviolently, enter into dialogue, and seek peaceful resolution. http://nonviolentpeaceforce.org/		
UGANDA PROJECT	John/Nancy Veldhuis	\$150
Funds support the building of facilities which are required to house and teach all of these students. Nova members are on the board and have traveled to Uganda to volunteer. www.CentralBugandaUniversity.info .		
NOVA FOOD PROJECT	Eric Carroll	\$475
Twice a month fresh veggies: cases of potatoes, tomatoes, grapes, oranges, onions, broccoli, bananas, are boxed to go to Doorways (emergency shelter & safehouse), Sullivan House (transitional shelter), individual families and the Gunston distribution.		
PRISON MINISTRY	Rev. Valerie Dixon	\$75
Support for the ministry to the women in prison in the York Correctional Institution in Connecticut. The Episcopal priest administering the program was a Nova chairperson in the early years of the community.		
MINISTRY OF PETER HENRIOT, SJ	Pete Henriot, SJ	\$75
This helps to support the ministry of a Nova priest working in Zambia. www.jctr.org.zm		
QUEST FOR PEACE	John Mooney	\$200
Works to build a policy of peace and friendship between the people of Nicaragua and the United States through humanitarian aid, partnering with the Institute of John XXIII to build homes and sends 60 tons of school supplies to Nicaragua for use in rural schools. http://quest.quixote.org/		
VOICE OF THE FAITHFUL	Bernie Byrne	\$25
To provide a prayerful voice, attentive to the Spirit, through which the Faithful can actively participate in the governance and guidance of the Catholic Church. To support those who have been abused, to support priests of integrity, and to shape structural change within the Church. www.votf-nova.com		

Social Justice Reports for 2009 (continued)

WOMEN'S ORDINATION FUND

Nancy Veldhuis **\$50**

The Women's Ordination Conference is a US based Catholic organization working locally and nationally in collaboration with the worldwide movement for women's ordination. <http://www.womensordination.org>

BREAD FOR THE WORLD

Peggy Meyer **\$150/yr.**

Bread for the World is a nationwide Christian citizens movement seeking justice for the world's hungry people by lobbying our nation's decision makers. BFW Institute seeks justice for hungry people by engaging in research and education on policies related to hunger and development. <http://www.bread.org/>

ARLINGTON INTERFAITH COUNCIL

Kopp Michelotti **\$100/yr.**

The mission of the Arlington Interfaith Council is to provide a tangible religious witness in the community through promotion of understanding and cooperation among member congregations and to develop and support programs to alleviate suffering and promote justice for residents of Arlington. <http://www.arlingtonva-interfaith-council.org>

COMMUNITIES OF FAITH UNITED FOR HOUSING

Helen Michie **\$100/yr.**

An advocacy network of faith communities in the Fairfax/Falls Church community who are committed to increasing the supply of affordable housing within our community.

<http://www.cfuhfx.org/>

CENTRO VILLA CANDELARIA

Dianne Carroll

A school in Cochabamba, Bolivia educating and supporting the child and family. A group of 35 Nova members participate in this project. Each person contributes \$10/month for 1 child. The parents of the children contribute to the school a small amount and some cannot pay at all and are on scholarship. The young girls are making dolls to sell and food production (dried fruit) started in 2002.

GUNSTON FOOD DISTRIBUTION

Dianne Carroll

Nova volunteers pick up perishable food at the AFAC warehouse on Nelson Street in South Arlington and take it to Gunston Middle School recreation center and distribute it to the families.

ST CLEMENT'S EMERGENCY SHELTER

Dianne Carroll

This overflow shelter is housed in the sanctuary at The Church of St. Clement, Episcopal, Alexandria VA. Nova volunteers participate in this program.

NORAH'S EDUCATION – UGANDA

Nancy Veldhuis

A group of 7 Nova women provide her tuition 3 times a year for her schooling in Uganda.

LIGHTS FOR LAS HUERTAS

Archer and Nova members

A one time project to bring electricity to 15 families in El Salvador in the village of Las Huertas by "selling bulbs" for a Christmas tree during December. Buying a light could be a gift for someone. \$1000.00 will be raised by this.

Second Collection Report for 2009

Below are the dates/amount collected and the purpose for Nova's second collections in 2009

2/1/09

At the request of John Veldhuis for a tax program in Fairfax County. Volunteers assist to fill out tax forms and the money paid for paper and highlighters for this program. \$300.00

2/22/09

Nova invited people in the community, current & past, to contribute to a fund for the family of Jesse Zinn: his wife and four young children. Jesse was born and baptized in Nova 35 years ago. \$2800.00

3/9/09

A second collection was taken for Nova's treasury, which was low. The community was asked re-evaluate the regular contribution made to Nova each Sunday in light of the expenses and social justice projects that the community funds on a regular basis. \$1800.00

Social Justice Reports for 2009/Reflection

08/31/09

The community agreed to take a collection at the end of August to help a family with school expenses. Part of the money was given to the mother to use for immediate “back to school” expenses and part was set aside to use during the year for educational expenses such as field trips, school supplies, clothes, summer school, etc. \$845.00

10/11/09

A collection was taken for a young man living with wife, children and brothers who lost his job. Former student of two Nova members without family to help out. \$427.00

12/13/09

Emma Sanchez invited nova to donate to the orphanage, Soloman Klein, in Bolivia. She was traveling to Bolivia and would take the additional funds with her. \$1575.00

12/13/09

During 2009 Nova provided rental assistance to families who have children in Arlington schools: a Nova monthly project. Last December a second collection was taken to provide more opportunities to help those who are in need. That collection was taken again this year for the rental assistance fund. \$2835.00

Nova’s Rental Assistance Program to Prevent Homelessness

During 2009 a total of \$4971.00 was disbursed for rental assistance for eight families. These families live in Arlington County and have children in the Arlington Schools. The school social worker refers the family to Nova by filling out a form with documentation of what county services have been accessed, what the family situation is and what the rental need is. Some families are undocumented so their options for help are fewer. Family situations causing the need for rental help include loss of work due to health problem of a family member or parent health issue, loss of work hours, loss of job, immigration issue, etc. One school social worker said: *The families we have helped through your organization have been very appreciative. We certainly all benefit by keeping families in their own homes until they can get back on their feet.*

Jennifer Carroll, a former Arlington County school social worker, administers the program and works with the social workers in five Arlington schools to determine need.



Monetary Offerings at Nova Liturgy

Christmas at Christ House

NOVA Catholic Community

December 21, 2009



Christ House Poem – Ken Chaison

The traffic was miserable; the beltway was crammed.
The parking impossible; Alexandria streets were jammed.
But, Hark! To wondrous eyes did appear,
Cheery NOVA people with food, gifts, music and all of their gear.

They provided dinner to many, who don't have much of their own,
Gifts to a few children, and gifts to many already grown.

The NOVA-tones brought good cheer; the music was great;
They even sang to one woman who came in late.

As we cleaned up the kitchen, and turned out the light,
Everyone said, "Merry Christmas to all, and to all a good night."



Thank You Letters/Article

Dear Ken, Nancy/John, Joe/Rosemary, David/Gloria, Fr. Bill ... and NOVA families extended and friends that reach across the years!

Finally, an all but and rapidly becoming a late Christmas letter ... and this, just to keep in touch. I look forward to your Christmas letters ... with news of the Nova family and activities. I am likely to pass through DC in mid-March or later ... and will try to alert you and see if we can get together for Sunday liturgy or at least a coffee break with some of you!

Trust all goes well ... and from this side, many blessings and best wishes for the Christmas Season ... and the New Year!

--Fr. Mike Schultheis, SJ, Catholic University of Sudan

From Dianne --

A Nova thank you to the generous elves who made Christmas a special time for a dozen people including 8 happy children. Thanks to Ann Arabian, Linda Christie, Anne Passin, Cathy Showalter, the Cackleys, the Baileys, Meg Tuccillo, Teddi Ahrens, Ken Chaison, Marie Keefe, Carmela Ormando, Rosemarie Annunziata, Peggy Becker, Tom Clarkson, Kathy Scheimer, Mike Glaser and Kate Doherty. Stockings filled with gloves, hats, toys, nail polish, socks, and a Giant gift card for parents. Winter coats, hats, gloves, boots were wrapped for a dad/son who were in need of those items – and following the snow Eric delivered them as quickly as possible. The snow storm kept us from gathering all the presents at church on the last Sunday of Advent. But with help from the social workers at Wakefield and Gunston, drop-offs from Nova elves to the Carrolls (some came on foot with their package) and many pickups by Eric all gifts were gathered together and subsequently delivered before Christmas.

Three loud cheers for everyone!!

Program for “Faith in a Secular Age”

Cardinal Francis George (author of *The Difference God Makes*) and Professor Charles Taylor (author of *A Secular Age*) traded interpretations of secularity at a forum on “Faith in a Secular Age” at Catholic University on November 19th.

This forum begins a year long project sponsored by CU’s Council for Research in Values and Philosophy to respond to a Pew Foundation report indicating that that young people retain concern for the spiritual dimension of their lives but reflect that concern in an attitude of search rather than commitment to Church identification. The research project “will focus on unfolding the meaning of faith for the new dimensions and needs of our evolving human awareness, its challenges and opportunities.”

Padre Cadre member Fr. John Haughey, SJ (author of *Where is Knowing Going?*), is coordinating one of the research teams pursuing the project’s objectives, focusing on the interior search for meaning. Following the George/Taylor conversation, Fr. Haughey described his team’s work as an invitation to intellectual conversion, going back to the drawing board to discern what we are called to do. He cited Jesus’ encounter with the Phoenician woman as “an invitation to rethink his mission” and if we are to follow the example of Jesus “our understanding of our faith needs to die.”

Joe Annunziata and I attended the program. Joe reports that Fr. Haughey would appreciate some as yet undefined contribution by NOVA to this enterprise. -- Clyde Christofferson

The Difference God Makes. Cardinal George reminds his readers of the insights of the recent Popes, and builds upon these insights. *A Secular Age.* Taylor provides a review of the grass roots of Western civilization, noting its persistent spiritual consciousness. *Where is Knowing Going?* Fr. Haughey reflects upon the good that drives the lives of people, and perhaps the lives of the institutions they work in, based upon interviews of participants in a series of workshops conducted for academics.

Theology for a Small Planet: A Collection of Essays

by Clyde Christofferson © 2009

Part 2: From Kindness to Social Justice

A. Mostly Physics

Some time ago I picked up a book entitled *The Faith Instinct* by Nicholas Wade. I was looking for something that more closely connected “this world” with “the next world” – in the end it all has to be one existence, or so I’ve been thinking. Stephen Jay Gould attempts to deal with conflict between science and religion in *Rocks of Ages* by dividing these areas of knowledge into “non-overlapping magisterial areas” (NOMA), but as much as I like Gould’s writing I didn’t find this approach satisfying. Reality should somehow be an integrated whole.

The Faith Instinct attempts an integration, but I did not find it satisfying. Wade’s position is that faith is genetic and goes back to the earliest humans, but my marginal notes (-- wouldn’t trust myself with a library book that I had to return --) object to his Darwinian concept that faith survives because it promotes social cohesion. My own “instinct” is that faith is present in both winners and losers in the Darwinian struggle, and therefore survives in any event. Genetic differences don’t have much to do with it, apart from providing some measure of neural complexity.

We can become too enamored of Darwin. Evolution on a cosmic time scale has a breadth (-- and, I would argue, a future --) that is not captured by Darwin’s natural selection mechanism. There is something mind clearing about stepping back from this small planet called Earth and seeing creation from a larger scale. That larger scale can be described in three stages. Each stage blends into the next, and yet each succeeding stage has a novelty that suggests the progression is not finished.

I recall listening to a Teaching Company lecture series on *Big History*, which begins with the “big bang” and ends by projecting several thousand years into the future. The professor begins by asking the listener to imagine the difference in perspective between looking at an elephant in the distance and being a flea on the elephant’s back. Our brief time on Earth is like the journey of a flea on the elephant’s back.

But at least our time here provides a bookend to the Big Bang. As we journey through life we experience small kindnesses, and these resonate in our hearts. In Part 1 of this series of essays I drew an analogy between these kindnesses and the cosmic background radiation. The cosmic background radiation, first discovered in 1965, was the evidence used to prove the existence of the Big Bang.

The small kindnesses of everyday life, in a similar way, show that we are not alone in a vast and dark cosmos: a loving God is sharing existence with independent beings able to image God by loving one another.

It does seem like a lot of trouble. Why not simply do what Genesis thought God did: create the Earth and place us in it, complete with plants and animals and all sorts of crawly things? And, by the way, leave calm waters and don’t bother with earthquakes and volcanoes. The authors of Genesis may have conceived that the Garden of Eden was a better idea for human society than what they were observing in the Hebraic communities around them.

But the evidence – all developed in the last hundred years – is of a much more interesting creation. It is a long – and by now fairly well understood – series of adaptations. And it’s not all physics. Oh, the early adaptations are dominated by physics, but there appears to be a progression.

First Stage

The story can be told through the gold wedding band on my finger. Amazingly, physicists think they know when every proton and electron in each of these gold atoms was created – in the first second of the big bang. The gold atoms themselves were not created until much later. It sounds like the tale of a creative alchemist making clever use of heat. The initial Big Bang was very hot and the universe was very small, and the universe – at least on very large scales – has been getting bigger and cooler ever since. Even so, it was not until about 380 thousand years after the Big Bang that the initial plasma cooled enough to allow the hydrogen and helium nuclei to capture electrons and allow the photons in this cosmic soup to move without colliding with electrons.

This “clarifying” event occurred at about three thousand degrees Kelvin, and is what we “see” when we study the cosmic background radiation. We are still inside this “clarified” universe, whose space has continued to expand these last thirteen billion years. Because of this expansion of space itself, the photons we now see have “stretched” and become much cooler, by a factor of a thousand, to about three degrees Kelvin.

It turns out that temperature plays a prominent role in this alchemist’s story. Heat is necessary to mold protons and neutrons into the nuclei of higher elements like gold, and the Big Bang cooled down too quickly to get much

beyond hydrogen and helium. The task of creating the remaining elements in the periodic table was left to the stars, which were formed by the force of gravity from clouds of mostly hydrogen. The universe as a whole was cooling, but gravity operated to compress hydrogen atoms into ever hotter concentrations of matter, which turned to plasma above three thousand degrees, allowing nuclei stripped of their electrons to collide. As the temperature increased under the inexorable pull of gravity, every so often the right sequence of collisions would produce a helium nucleus. Since the mass of the helium nucleus is slightly less than the mass of the protons and neutrons needed to construct it, the missing mass becomes energy ($E=mc^2$) and the star begins to light up.

Eventually, the hydrogen fuel burns up. For our sun, this will take another five billion years. But in general, including stars that existed before our sun, gravity continues to work its alchemist's magic on the star's plasma, generating further elements up to iron in the periodic table. But this process can't go beyond iron. Up to iron, each step – each new element produced by further gravitational collapse after the fuel from the prior stage burns out – is like rolling a ball down a hill into a valley. Iron is at the bottom of the valley.

The alchemist requires a different strategy at this point, otherwise we can't get to gold – the gold in my wedding band. Stars with a small mass burn more slowly, and may last much longer than our sun. Much bigger stars burn their hydrogen fuel much more rapidly and reach the iron valley floor more quickly. But with these very large and apparently dead iron hulks of stars gravity continues to work, eventually producing one of the universe's most spectacular events, a supernova. It is in this supernova explosion that the elements above iron – including the gold in my wedding band – are created. There is enough heat and concentration of nuclei, for a long enough time, so that nucleic collisions form the higher elements, which are included along with iron in the supernova.

The Big Bang cooled so rapidly that only hydrogen and helium nuclei (and trace amounts of lithium) had time to form. A supernova cools more slowly, and begins with more complex nuclei. But the processes are similar. In both the Big Bang and supernova, creation of more complex nuclei occurs because of heat that makes the necessary collisions more probable, followed by enough cooling so that the newly created nuclei are not broken apart by further collisions of higher energy. More complex nuclei formed within stars by nuclear fusion depend upon energy – or mass converted into energy ($E=mc^2$) – triggered by gravitational collapse. In all these cases there is a window of time during which more complex structures form, all the while overall entropy (– which is the opposite of increased complexity –) is increasing. The overall

increase in entropy is what allows the more complex structures to remain stable.

This pattern – more complex structures generated thermally but which remain stable because of increasing entropy – will repeat itself in a different form as what we call life evolves out of the cosmic soup. I will give a name to this pattern: “thermo entropic window of time.” Our own civilization is developing within one of these “windows of time”. This window is longer than the period for increased complexity in a supernova, which in turn is orders of magnitude longer than the Big Bang's period of increased complexity. Our window of time will not last forever – indeed, is likely to be rather short by cosmic standards – but more on that later.

The debris from a supernova are disbursed into the galactic cloud and the process of star formation continues under the inexorable force of gravity. For second and third generation stars, gravitational dynamics produces not only a star of mostly hydrogen. Around the star there will rotate clumps of matter, including the debris from supernovae. This will be mostly iron, but also higher elements – including the gold in my wedding band. Over time, gravity pulls these clumps in similar orbits together, generating heat from collisions. This heat, together with heat from decay of radioactive isotopes of higher elements, was enough produce a young planet Earth fuming at the nostrils, as it were, and not very hospitable, but retaining a source of energy for continued change and adaptation in a molten iron core. Some of Earth's gold – a product of some supernova explosion before the formation of the solar system – eventually made its way to the Earth's crust, where it was mined and perhaps molded and reused any number of times before being used to make a set of wedding bands some forty odd years ago for Judy and me.

It is worth noting – and these are conclusions drawn from further and more precise measurements of the cosmic background radiation – that on large scales of more than two hundred million light years the universe is what is called “isotropic”, that is, the same. The physics of galaxy and star formation, the observed distribution of stars of various sizes, and supernova that continue to occur with predictable regularity, lead to the conclusion that the proportion of elements – including gold – is the same throughout the universe, on large scales.

It is evident that even the physics of creation has a certain adaptive rhythm to it, proceeding from the simple to more complex atoms. That appears to be a common theme: over time, as the universe expands and cools on very large scales, there is a thermodynamic rhythm to the formation of more complex structures.

We now know the long cosmic history of the gold atoms in my wedding band, from proton formation in the Big Bang itself to gold atoms in a supernova perhaps five to seven billion years ago, lodging in the Earth some four

and a half billion years ago as part of formation of the solar system. Protons and neutrons were formed from quarks – almost as a thermal precipitate – as the immense temperatures early in the Big Bang dropped. These protons and neutrons are very stable because never again would temperatures in the universe be high enough to break these particles down into their constituent quarks. Gold atoms have a similar stability because they were created during a “window of precipitation” as declining temperatures from a supernova were for a time high enough for their creation but after a time fell below a temperature which could break them apart, a temperature far higher than anything these gold atoms would have to endure on Earth.

In a sense, more complex forms of matter – first, protons and then, for example, gold nuclei – have “evolved” in a dance of declining temperatures brought on by cataclysmic events: the Big Bang, star formation and eventual gravitational collapse, and supernovae. Much has been said in physics about the destiny of the universe: it will eventually run down, because its “entropy” is inexorably increasing towards zero. But this entropy rule for the whole does not prevent greater complexity (decreasing entropy) in pockets within the universe, which is what we observe as the cosmos evolves – successive “thermo entropic windows of time”.

I use the term “observe” advisedly. We have been here only a short time. How can we “observe” a cosmic history that is some fourteen billion years old? We are all familiar with “telescopes” and “microscopes”. These instruments have expanded our collective vision far beyond what was available to the ancients. Remarkably, we have also come to understand another instrument, what might be

termed a “timescope”. Because the speed of light is finite, when we look at great distances we are looking back in time. The cosmic background radiation provides our farthest look back in time, and we continue to learn more about cosmic history by ever more precise measurements of the cosmic background radiation.

Stage Two

This “timescope” perspective – which we owe to Maxwell and Einstein – allows us to see that creation is evolving toward greater complexity, even at the level of inanimate physics. It is not obvious – from the vantage point of physics – where this leads. In retrospect it leads to life forms and adaptation to a changing environment by natural selection as described by Charles Darwin. In Darwin’s theory the basis for natural selection is variation in the attributes and characteristics of what would later be understood as an organism’s genetic makeup.

But as I said at the beginning of this part, evolution on a cosmic time scale has a breadth (-- and, I would argue, a future --) that is not captured by Darwin’s natural selection mechanism. There is something mind clearing about stepping back from this small planet called Earth and seeing creation from a larger scale. From that perspective, the beginnings of life look like an extension of Stage One. More on that next time, with

B. Life and Society

Reflection by Peggy Meyer

MOST COMMON MISCONCEPTION

Throughout the ages, many people everywhere have wanted their religions to be about judging other persons or groups as "good" or "bad" (acceptable or unacceptable) according to their conformity (or not) to their own set of creeds and rules.

The "good" ones should be loved, accepted, included, respected and/or rewarded while the "bad" should be hated, rejected, excluded, excommunicated, penalized -- even tortured or killed.

I wonder how many of today’s Christians are aware that this way of thinking is in **direct contradiction** to the teachings of Jesus. (See Matthew 5.)