

# IRAS

**Earth's Waters in Crisis:  
A Scientific, Spiritual, and Moral Challenge**

**Program and Schedule**

**The Institute on Religion in an Age of Science**

**51st Annual Star Island Conference, July 24 to 31, 2004**

# CONFERENCE STATEMENT

## *EARTH'S WATERS IN CRISIS: A SCIENTIFIC, SPIRITUAL, AND MORAL CHALLENGE*

Water is wondrous, scientifically and spiritually, and is essential to life on our blue planet. Water inspires the human imagination in religion and the arts. It is a major source of ritual and symbol in religious traditions. Yet, today, our waters are in crisis due to population, pollution, climate change and a multitude of competing local, regional and global demands.

On Star Island, where the experience of conserving fresh water shapes our daily lives, we will explore the roles science and religion can play in developing ethical approaches and moral commitment to actions on critical water issues.

Among the questions to be considered are:

- What are water's origins and unique physical and chemical properties? What are the relations between the global water cycle, climate and sea level change?
- What is the current situation of the world's water supplies? To what extent can conservation and technologies help improve the situation? How can we achieve sustainable water resources?
- How does water serve as symbol and substance in various religious traditions? Has a loss of reverence for water as precious gift and sacred symbol contributed to the current crisis? How can new scientific knowledge inform religious practice?
- How do we mediate competing demands such as those of agriculture, industry, energy production and domestic use?
- What are the tensions created by market forces, socio-political interests, and the demands for human rights and just water policies? How can universal access to adequate clean water be achieved?

The conference site itself, with its dependence on imported fresh water, rain and salt water, will provide a symbolic microcosm for the emerging planetary crisis.

## WELCOME TO STAR ISLAND!

Friends old and new,

At first it seems confusing – How could IRAS be 50 years old this summer, and yet this is our 51st consecutive annual Star Island Conference? The answer is easy; we had our first conference the same summer we were founded; a year later, when we were only one year old, we had our 2nd conference, and this seeming discordance has continued ever since. If you remember that before we left Portsmouth this morning, we were 50 years old and had indeed had exactly 50 conferences, it all makes good sense.

So much for the science; now for the religion – we DID come back, 50 wonderful years in a row! And many of you who are new this year will soon get entranced by the subtle and not-so-subtle rituals of this island, and you will also come back. We'll sing together, think together, discourse together, sometimes disagree with (usually) a firm but gentle spirit, and all in all we will be bonding ourselves to each other and to this environment.

This environment. It is special, and yet this week we will be thinking about how similar it is to all other environments habitable by humans – similar especially in that it requires water to remain habitable. Our super co-chairs Jeanie, George, and Sol, along with their committee Nancy Anschuetz, Bill Falla, Marion Griswold, Peter Kelly, Karl Peters, V.V. Raman and John Teske, have put together a stunning set of speakers and workshops and concepts to help us understand both cognitively and emotionally, both rationally and spiritually, how special the whole planet is. How special an opportunity we have to use resources wisely and joyfully.

It will be a great week. Again this year there will be no special "rush hour" to push you to join IRAS, but we IRASians DO mean to make it our business to persuade you personally to join us. Above all, we want to make sure you feel welcome on this island and in IRAS, answer any questions you have about the organization (brochures will also be available on the literature table), and hope that you will be as entranced by this all-volunteer organization as we all are, and choose to join us in trying to implement its noble purposes. Anyone with an "I" (for IRAS) on his or her nametag can tell you more, and I would love the opportunity to do the same. And finally, if there is any other way I can make your week more pleasant or more meaningful, please look me up and let me know how I can do that.

Yours very truly and eagerly,

*Michael Cavanaugh*  
President of IRAS

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## ORIGIN OF IRAS

In the late 1940s the American Academy of Arts and Sciences organized a Committee on Science and Values to address topics relating contemporary scientific knowledge to fundamental human concerns about life's morals and meanings. The Committee, which included astronomer Harlow Shapley, neurobiologist Hudson Hoagland, geologist Kirtley Fletcher Mather, biologist George Wald, and Ralph Wendell Burhoe, the executive secretary of the Academy, stated that "we believe that . . . the survival of human society depends on the reformulation of man's world view and ethics, by grounding them in the revelations of modern science as well as on tradition and intuition."

Several from this committee accepted an invitation to bring their views to an interfaith group at the Coming Great Church Conference on Star Island in the summer of 1954. Later in 1954 the group from the American Academy accepted an invitation of the Coming Great Church Conference to form the Institute on Religion in an Age of Science, a multidisciplinary society, which carried forward the work of both predecessor groups. Other leaders involved in the establishment of IRAS included Brand Blanshard, Edwin Prince Booth, Dana McLean Greeley, Donald Szanthe Harrington, Henry Murphy, Lyman Rutledge, and Malcolm Sutherland. Other early members included Ashley Montagu, B.F. Skinner, Theodosius Dobzhansky, and Ian Barbour.

Since 1954 IRAS has held an annual conference on science, values, and religion on Star Island, ten miles off the coast of Portsmouth, New Hampshire. IRAS has also conducted--on its own or in collaboration with other groups--conferences in other places: at universities and theological schools, and at meetings of the American Academy of Arts and Sciences, the American Association for the Advancement of Science, and the American Academy of Religion.

In 1965 IRAS joined with the Meadville Theological School of Lombard College (later Meadville/Lombard Theological School) to establish a journal: *Zygon: Journal of Religion and Science*. The first issue was published in March 1966 under founding editor Ralph Wendell Burhoe, director of the newly formed Center for Advanced Studies in Theology and the Sciences (CASTS) at Meadville/Lombard. In 1979, when Karl Peters succeeded Ralph Burhoe as editor, the editorial offices moved to Rollins College in Florida. IRAS, the Center for Advanced Study in Religion and Science (CASIRAS--successor to CASTS), and Rollins College became joint publishers. In 1989 the editorial offices moved back to Chicago under the editorship of Philip Hefner, director of the newly formed Chicago Center for Religion and Science (renamed the Zygon Center for Religion and Science in 1999). During the past quarter century, *Zygon* has been the chief international voice for the scholarly community in science and religion, and has greatly strengthened the influence of the IRAS-CASIRAS approach to relating religion and the sciences.

## PURPOSE OF IRAS

IRAS is a multi-disciplinary society of persons who seek to understand and reformulate the theory and practice of religion in the light of contemporary scientific knowledge, and to provide a forum for discussing issues relevant to that goal. The IRAS Constitution states the formal purpose as follows:

- (1) to promote creative efforts leading to the formulation, in the light of contemporary knowledge, of effective doctrines and practices for human welfare;
- (2) to formulate dynamic and positive relationships between the concepts developed by science and the goals and hopes of humanity expressed through religion; and
- (3) to state human values in such universal and valid terms that they may be understood by all peoples, whatever their cultural background or experience, in such a way as to provide a basis for world-wide cooperation.

Various other statements of the goals and purposes of IRAS have also been articulated over the years. For example there is one in the back of each Zygon which says “IRAS is an independent society of scientists, philosophers, religion scholars, theologians, and others who want to understand the role of religion in our dynamic scientific world.” The statement that appears as the lead-off paragraph in the Orange Book under “Purpose of IRAS” resulted from some discussions by the council before the 2002 Star Island Conference, and is intended to make it clear IRAS is open to all persons who share these goals, and is not some sort of “elitist” organization.

And most recently, the IRAS Council at its 2003 Mid-Winter Meeting adopted the “Campion Statement,” so-called because it originated from discussions at the Campion Center in Massachusetts at the 2002 Mid-Winter Meeting. The Campion Statement reads as follows:

*We at IRAS take the natural world seriously as a primary source of meaning. Our quest is informed and guided by the deepening and evolving understandings fostered by scientific inquiry.*

*From here, our quests for meaning take us in divergent directions. For some, the natural world and its emergent manifestations in human experience and creativity are the focus of exploration. For some, understandings of the natural world are interwoven with understandings inherent in various religious traditions, generating additional paths of exploration and encounter. As a result, we articulate our emerging orientations with many voices, voices that are harmonious in that we share a common sense of place and gratitude.*

*We acknowledge as well a shared set of values and concerns pertaining to peace, justice, dignity, cultural and ecological diversity and planetary sustainability. Although we may differ and hence debate on how these concerns are best addressed, we are committed to participating in their resolution.*

IRAS is a non profit membership organization. Governance is by a volunteer Council whose members are elected from the entire membership. New IRAS members and tax-deductible contributions are always welcome.

## IRAS ON STAR ISLAND

Star Island, first settled by Captain John Smith in the early 1600s, is situated in what was known as the best fishing grounds in the Colonial world. Today one can still see the lobstermen setting their traps. A small museum and island tours allow one to recapture this early human history; and tours of the local flora and fauna, tide walks, and a marine biology lab help one appreciate the local environment.

Because it is ten miles off shore from Portsmouth, New Hampshire, Star Island's temperature is usually ten degrees cooler than on the mainland. It thus became an ideal resort setting for one of the premier late-nineteenth century hotels on the east coast. Today the hotel, along with several cottages and motel-type units, is a conference center run by the Unitarian-Universalist Association and the United Church of Christ; these two religious organizations have formed the Star Island Corporation. Although IRAS is not affiliated with any particular religious organization, we have enjoyed the hospitality of the Star Island Corporation since our first IRAS conference in 1954.

The nineteenth century hotel and other facilities provide both the charm and the amenities of that period. Rooms are provided with wash basins and water buckets, and in most cases the toilet is down the hall. The Star Island management and its staff of mostly college students--called Pelicans--are first rate in meeting the various needs of guests from infants to octogenarians. A highlight of the week is the Pelican Talent show--a delightful "extra" from the hard-working staff. And in recent years IRAS conferees have returned the favor with their own talent show on the final night of the conference.

Star Island and other islands in the Isles of Shoals are excellent examples of the rocky New England coast. There are no roads, no cars, no bicycles, no TVs, and one public phone. (A cellular phone, 603-534-2190, is for emergencies only.) But there are rocks, bushes, grasses, nesting sea gulls, crashing ocean waves, sometimes fog horns, and sometimes crystal clear night skies to explore through telescopes with some of our professional astronomers (IRAS's first president was astronomer Harlow Shapley). There are opportunities for swimming, rowing, tennis, and ballroom dancing. And the Star Island Book Store and Gift Shop offer books related to the conference theme and other items to remember the week on the island.

Then there are the people who come to IRAS conferences--more than 200, from a variety of academic and professional fields as well as many well-educated "lay persons." Many belong to IRAS, which has about 400 members. Others come because they are interested in how liberal religion relates to science and in the particular topic. There is active dialogue in lectures, discussion groups, conversation on the porch overlooking the harbor and on the rocks, and at the social hour before dinner. For those interested, there are opportunities to meditate and worship together in the stone chapel on a high point of the island, at the gazebo, or in the reflective evening candlelight services.

Those who have been coming for a long time to IRAS conferences believe that the natural setting, the island history, and the people provide a unique opportunity for rigorous meaningful dialogue regarding religion and values in relation to contemporary science.

## GENERAL CONFERENCE INFORMATION

**Plenary session lectures and discussion** are scheduled in the *morning* (starting at 10 am) and *evening* (starting at 7:30 pm). The speakers will develop the theme of the conference as they address different issues and questions from their own disciplines and perspectives. The porch bell will be rung (a single stroke) five minutes before the beginning of the morning and evening sessions, at 9:55 am and 7:25 pm. We hope this advance warning will enable everyone to reach his/her seat in time to allow a prompt start at 10:00 am and 7:30 pm. A coffee/hot chocolate/bouillon break is scheduled for 10:55 - 11:15 each morning. When you hear the bell at the end of this break, please return quickly to the auditorium.

The **IRAS seminar** this year will be on the manuscript *Science-Religion Issues: Trans-denominational Perspectives for the Twenty-First Century* by V.V. Raman. It will be on Monday, Tuesday, and Wednesday, 1:40 to 2:40 pm in Marshman. Further information may be found on page 15.

**"Free University"** sessions, from 1:40 to 2:40 pm each day except Thursday, provide conferees with an opportunity to present their ideas informally and discuss them with others. If you wish to organize such a session, you need to do two things: 1) Check with Nancy Anschuetz at least the day before for a room assignment, and 2) after doing so, give a written note to Jane Bengtson, editor of the *Star Beacon*, describing your offering and its time and location. The announcement will appear in the *Beacon* and will also be posted on the chalkboard.

**Workshops and Discussion Groups** will be offered during the afternoon from 2:50 to 3:50 and 4:00 to 5:00 pm. Leaders and workshop locations are listed in the schedule on the back page of this program booklet, and workshop descriptions are on pages 16 – 23, listed alphabetically by presenter. Additional activities, such as the Water Tour, can be found on page 24.

**"Happy Hour"** takes place at the end of afternoon activities, from 5:30-6:30 pm. We gather informally in Newton Center for an hour of libations, snacks, socializing and, often, music. Contributions to cover the cost are both needed and appreciated.

**Recreation:** Afternoons are also opportunities for recreation: talking, thinking, napping, reading, walking, and playing. You can visit the Marine Laboratory of the University of New Hampshire on Appledore Island on Monday afternoon. (Please sign up at the front desk in advance – the boat capacity is limited.) Various tours by the Star Island staff will be announced.

**Swimming:** The hardy (or masochistic) enjoy a polar bear swim in the morning before breakfast. The rest of us can swim throughout the day when the lifeguard is on duty.

**Special meals:** There will be a lobster dinner on *Wednesday* (tickets *must* be purchased at the lobby desk by Monday noon). The traditional IRAS banquet will be on *Friday*.

**Shows:** The Pelican show (organized by the Pelicans, the young people who do all the work to make our stay on Star Island so delightful) will be on Thursday evening, and the IRAS Talent Show on Friday. If you would like to participate in the Talent Show, especially if you have

talent (this is an optional requirement — all hams are welcome), Joan Hunter, the talent show coordinator, will be happy to hear from you.

**Newspaper:** The *Star Beacon* is an IRAS tradition. This conference newspaper will appear at breakfast each morning and will give you up-to-date information on the conference and its participants. It provides opportunities for you to respond to lectures and conference theme, challenge ideas, publish poetry, commentary, and other forms of artistic expression, including humor — all at the discretion of the editor and as space is available.

**Candlelight services,** arranged by Betty Lau, allow time for quiet reflection at the close of each day in the chapel. Each service is ~30 minutes.

**Mass:** Catholic Mass will be celebrated on Sunday at 5pm in the Chapel. All are welcome.

**Memorial Service:** A memorial service for IRAS members who have died since last summer will be held in the Chapel on Friday at 1:40.

The **snack bar**, open until 11 pm, is a favorite place for congregating and socializing after the candlelight services.

An informal **farewell party** will be held on Friday night, an important activity being to use up any refreshing substances left over from Happy Hour.

**Children** must participate in the children's program unless Nancy Anschuetz receives a signed waiver.

**Discrimination and abuse:** The Star Island Corporation has requested that all conferences formulate guidelines for the prevention of child and adult discrimination and abuse. The IRAS Council has adopted such guidelines. Information about the policy is available from IRAS President, Michael Cavanaugh.

If you have any **questions or suggestions** concerning the conference, please bring them up with Conference Coordinator Nancy Anschuetz, or with Co-Chairs Sol Katz, Jeanie Graustein or George Fisher.



## ARCHI PELAGOS: IRAS CONFERENCE YOUTH PROGRAM

While parents and grandparents cogitate, their children play, create, explore Star Island, and develop friendships under the guidance of professional teachers and counselors. Our goal is to enjoy together stimulating games, opportunities for creative expression, crafts, stories and song. Our hope is to deepen our connection with Star Island and each other. We explore marine biology and island flora and fauna directly out and about and in the science center with island staff. We row over to Smuttynose Island for a close-up of intertidal life and feast on fresh seaweed and mussels on the beach. We have access to the island historian and marine lab assistants.

We meet each morning at 9:00 am in age specific groups until 12:15 pm. The seniors meet at morning chapel and often again afternoons in Parker. The morning session is structured with both energetic and quiet activities. Older groups integrate conference themes. Many of these young adults have been attending the youth program its full eight years. Afternoons are free and youth are under the supervision of parents and guardians until the social hour (5:15-6:15 pm). Several afternoons we offer craft or game activities on the porch, and these activities are open to all.

Snacks are offered at 5:00 pm on the front porch of Oceanic. Choices for social hour include playground, field games, island exploration, and preparation for the dance and talent show.

Following supper we offer a sunset program (7:30-8:30 pm) featuring bonfires with singing and s'mores on Saturday evening, music (including a Wednesday evening dance), storytelling, mysteries and games, and our own chapel service on Thursday (8:00-8:30 pm). Parents and friends are requested to accompany their young children in these evening activities. The activities are thoughtfully but not rigidly prepared and inspiration is appreciated in this vibrant place where we discover and nurture our collective being.

After eight years, many returning staff as well as children have found in Star Island a spirit home. We are grateful.

Sandra Woodworth, Coordinator

### Archi Pelagos Special events

Saturday Evening:	Bonfire, down on rocks left of summer gazebo (bring flashlight)
Sunday, 8:30 am:	Youth photo (time could change.)
Tuesday, 5:15-6:15 pm:	Field games
Wednesday, 7:30-9:30 pm:	Dance in Brookfield — open to everyone!
Thursday, 8:00-8:30 pm:	Chapel service
Friday, 5:15-6:15 pm:	Talent Show in Lawrence

Please check the bulletin board on the porch for daily details and notices of changes or additions.

**There will be a brief meeting for parents, children, and staff on Saturday in Elliott, immediately after the Star Island Orientation Meeting. All parents with children in the Archi Pelagos program are required to attend. This is your opportunity to meet the staff, find meeting places and ask questions.**

## LECTURE ABSTRACTS AND BIOSKETCHES

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### SATURDAY EVENING

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#### LIVING WATER

**George Fisher**

#### ABSTRACT

This session will attempt to set the stage for the week's conversation by a series of reflections on how water sustains life at all scales from the molecular to the organismal to the planetary, and on how water and the beauty it makes possible sustains our spiritual well-being. We depend utterly upon the availability of water, and our survival as a species depends upon our ability to use water wisely. Water use must therefore be shaped both by understanding the scientific dimensions of water management and by reflecting on the moral dimensions of water allocation.

#### BIOSKETCH

George Fisher has taught geology and Earth system science at Johns Hopkins since 1966, except for a term as Dean of Arts and Sciences during the 1980's. He now serves as professor of geology and as Director of Hopkins' Institute for Global Studies in Culture, Power, and History. His early research centered on the geology of the Appalachian Mountain system and on how heat flow, diffusion, and chemical reactions interact in deeply buried rocks. During the last decade his interests have shifted to questions of understanding the limits imposed by the Earth system, and to philosophical and religious ways of understanding how we can best live within those constraints. George studied geology at Dartmouth College (B.A. 1959) and Johns Hopkins University (Ph.D., 1963), and theology at St. Mary's Seminary and University (M.A., 2002).

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### SUNDAY MORNING

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#### WATER AND THE FITNESS OF THE ENVIRONMENT

**Owen Gingerich**

#### ABSTRACT

In 1913, long after Darwin had described the fitness of organisms for their environment, the Harvard chemist L. J. Henderson drew attention to the fact that the organisms themselves would not exist were it not for the fitness of the environment itself. Central to the argument in his "The Fitness of the Environment" were the special properties of water, such as its high specific heat (essential to the thermostatic regulatory systems of organisms), its resistance to freezing or boiling, and its properties as a solvent. Henderson went on to discuss carbon dioxide and its solubility in water to form carbonic acid ( $\text{H}_2\text{CO}_3$ ). In 1913 he had no idea that H, O, and C are three of the four most abundant elements in the universe, nor how they were formed and why they are so abundant. Nor did he know about the nuclear structure of the atoms or the nature of the hydrogen bond, which plays a major role in the properties of water (not to mention in DNA and genetic replication).

This lecture will deal not only with the physical chemistry of water, but also with the cosmic origin of water, its function in modifying the atmosphere of the earth, and its crucial role in the life processes of oxygen-burning organisms (like ourselves!). Prof. Gingerich will argue that water is the *sine qua non* for the existence of life, and for this reason it is essential to establish the historic presence of water on Mars to give any hope to the notion of finding traces of primitive life there.

#### BIOSKETCH

Owen Gingerich is Research Professor of Astronomy and of the History of Science at Harvard University and a senior astronomer emeritus at the Smithsonian Astrophysical Observatory. In 1992-93 he chaired Harvard's History of Science Department. Professor Gingerich's research interests have ranged from the recomputation of an ancient Babylonian mathematical table to the interpretation of stellar spectra. He is co-author of two successive standard models for the solar atmosphere, the first to take into account rocket and satellite observations of the sun; the second of these papers has received over 500 literature citations.

In the past three decades Professor Gingerich has become a leading authority on the 17th-century German astronomer Johannes Kepler and on Nicholas Copernicus, the 16th-century cosmologist who proposed the heliocentric system. The Harvard-Smithsonian astronomer undertook a three-decade-long personal survey of Copernicus' great book *De revolutionibus*, examining over 580 sixteenth-century copies in libraries scattered throughout Europe and North America, as well as those in China, Japan, and Australia. His annotated census of these books was published in 2002 as a 434-page monograph. In recognition of these studies he was awarded the Polish government's Order of Merit in 1981, and more recently an asteroid has been named in his honor. An account of his Copernican adventures, *The Book Nobody Read*, has recently been published by Walker & Co.

Professor Gingerich has been vice president of the American Philosophical Society (America's oldest scientific academy) and he has served as chairman of the US National Committee of the International Astronomical Union. He has been a councilor of the American Astronomical Society, and he helped organize its Historical Astronomy Division. In 2000 he won the Division's Doggett Prize for his contributions to the history of astronomy. In January the AAS awarded him their Education Prize for 2004. For some years he served as consultant to the eminent designer Charles Eames, and he was an advisor for "Cosmic Voyage," an Imax film at the National Air and Space Museum. He has given the George Darwin Lecture (the most prestigious lecture of the Royal Astronomical Society), and in 1999 an Advent sermon at the National Cathedral in Washington. A world traveler, he has successfully observed twelve total solar eclipses.

Besides over 500 technical or educational articles and reviews, Professor Gingerich has written more popularly on astronomy in several encyclopedias and journals. Two anthologies of his essays have appeared, *The Great*

*Copernicus Chase and Other Adventures in Astronomical History* from Cambridge University Press, and *The Eye of Heaven: Ptolemy, Copernicus, Kepler*. At Harvard he taught “The Astronomical Perspective,” a core science course for non-scientists, which at the time of his retirement in 2000 was “the longest-running course under the same management” at Harvard. In 1984 he won the Harvard-Radcliffe Phi Beta Kappa prize for excellence in teaching.

Professor Gingerich and his wife Miriam are enthusiastic travelers, photographers, and rare book and shell collectors.

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#### SUNDAY EVENING

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#### CLIMATE: EARTH’S CARDIOVASCULAR SYSTEM

**George Fisher**

#### ABSTRACT

Water is the life-blood of Earth’s biosphere. Life probably began in the rich, warm waters of submarine vents developed along mid-ocean ridge volcanic systems. Photosynthetic life first flourished in warm, shallow ocean waters. Terrestrial life became possible only when organisms evolved that were able to extract and contain water from the environment.

Earth’s climate system governs the flow of water – how much rain falls and where it falls, how much surface water evaporates and how much soaks into the ground – and so determines the distribution and character of terrestrial ecosystems. But the climate system is itself governed by the flow of water through the atmosphere. Atmospheric water vapor is transparent to visible light, but absorbs infrared energy, and so raises Earth’s surface temperature by about 30°C, creating conditions nearly ideal for carbon-based life.

Our use of fossil fuels and our wholesale cutting of forest systems are beginning to perturb the climate system in ways that we do not fully understand. The increasing size and expectations of the global community and the momentum of the global economic systems driving those expectations are accelerating the practices that affect the climate system. Working through this knotty conundrum will take all the scientific knowledge and technological ability that we can muster. Doing so in a way that is sustainable and that is seen as fair by a majority of people will take all of the moral wisdom that a global community can bring to bear. In the end, we will need to decide what kind of life is both sustainable and spiritually fulfilling.

#### BIOSKETCH

See Saturday Evening’s lecture.

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#### MONDAY MORNING

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#### EMERGENT PROPERTIES OF WATER AND THEIR ROLE IN BIOLOGY

**Ursula Goodenough**

#### ABSTRACT

The talk will be in two parts. I will first describe some of the key roles played by water in numerous facets of biology at the cell and molecular level. I will then lift up some of the themes of last year’s IRAS conference, “Ecomorality,” and make the obvious point that stewardship of, and

reverence for, the Earth’s water is central to any ecomoral orientation.

#### BIOSKETCH

Ursula Goodenough is Professor of Biology at Washington University, where research in her lab focuses on the molecular evolution of mating systems and speciation in eukaryotic green algae, and where she teaches undergraduate courses in cell biology and evolution. She was formally educated at Columbia and Harvard Universities. She has been attending IRAS-Star conferences since 1987 and has held various positions in the IRAS leadership since 1989. She writes and lectures frequently on the science/religion interface and has written a book, *The Sacred Depths of Nature*, that offers religious responses to our scientific understandings of nature. She has 5 children and 3 grandchildren.

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#### MONDAY EVENING

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#### YAMUNA: RIVER OF LOVE IN AN AGE OF POLLUTION

**David L. Haberman**

#### ABSTRACT

What or who is a river? How have rivers been conceptualized in other cultures? The Yamuna River, which begins high in the Himalayan Mountains and flows for over 800 miles before joining the Ganges on the plains of northern India, has been worshipped as a goddess for thousands of years. This slide presentation will explore the religious sites and meaning associated with this sacred river, drawing from both religious texts and ethnographic fieldwork conducted over the past several years. I will discuss how this river is conceptualized by pilgrims, priests, and daily worshippers within the Hindu religious culture of northern India. Most importantly, Yamuna is regarded as an exquisite goddess of love who initiates souls into the world of divine love. Today, however, we live in a complicated world, a world in which our waters have become severely polluted. This is also true of the Yamuna River, which flows through the megalopolis of Delhi. I will, therefore, also explore how the current pollution is affecting the religious culture associated with the Yamuna, as well as how river worshippers are marshalling their religious traditions to clean up and protect this sacred river, for what we might identify as environmental activism is often represented as religious devotion in India.

#### BIOSKETCH

David Haberman is Professor and Chair of the Department of Religious Studies at Indiana University, Bloomington. He received his Ph.D. in the history of religions from the University of Chicago Divinity School in 1984, and taught at the University of Arizona and Williams College before joining the faculty at Indiana University. Although he is a student of all religious traditions, Haberman specializes in the religions of India, where he has lived for over five years studying the Hindu temple and pilgrimage cultures of that country. He has published several books on the religious traditions of India, including the AAR prize-winning *Journey Through the Twelve Forests* (Oxford, 1994), and has been recipient of research awards from Fulbright, Smithsonian, and the National Endowment for the

Humanities. His present academic passion is in helping to develop a new subfield in Religious Studies known as Religion and Ecology, which involves examination of religious worldviews to understand how different worldviews shape different human attitudes and behavior toward the nonhuman world. He is currently on the advisory board of the Forum on Religion and Ecology, which is based in the Center for the Environment at Harvard University. Haberman has been studying the rivers of northern India for the past several years to understand the religious culture associated with them and how that culture is affected by the severe pollution that rivers in India face today. Haberman is also an avid outdoorsman and lover of forests, and serves as an officer for the Indiana Forest Alliance and Heartwood, organizations that work to protect forests in the central hardwood region. He will be accompanied at Star Island this year by his wife Sandy, daughter Meagan, and son Nathan.

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TUESDAY MORNING

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WATER AS SACRED, WATER AS COMMODITY

**Bonnie G. Colby**

ABSTRACT

No other element embodies the mystical and practical aspects of human community as fully as water. Revered in the world's great wisdom traditions and subject of countless wars, water presents us with the paradox of conflict and transcendence. In this session, we will explore how human societies have cooperated to develop and share water resources and have become embroiled in conflicts over water.

Contemporary water conflicts involve disputes between growing cities and rural areas; between aboriginal tribes and non-native water users; between advocates seeking instream flows for fish, wildlife and recreation and those wishing to divert water from streams for agriculture, cities and industry; and between nations sharing common rivers and aquifers. In addition, multiple levels of government (federal, state, municipal, tribal) vie with one another for control over water.

In light of such disputes, we will discuss various forms of legal "rights" to use water (both traditional and modern), and their implications for cooperation and conflict. We will examine the benefits that balanced water management brings to regional economies and communities.

In many parts of the world, water is now traded as a commodity. Water acquisitions and transfers have become an essential tool for maintaining reliable regional water supplies during drought. However, water transfers often create unintended social and environmental problems and require complex negotiations among multiple interests. Transactions that move water from traditional uses and rural communities to support urban sprawl and resort development are a stimulus for bitter conflict. On the other hand, innovative transactions can help to restore degraded watersheds and to sustain cultures and communities.

We will identify characteristics of beneficial transactions and the potential for water transfers as a peace-building strategy, helping to resolve trans-boundary conflicts. Decades of worldwide experience with water transfers have

shown that the types of arrangements for transferring water from one use and place to another are limited only by the creativity (and financial resources) of the parties involved.

We will conclude by exploring practical strategies for enhancing the cooperative spirit that sharing water evokes and for resolving conflicts over water; the element which comprises ninety percent of our own bodies and covers ninety percent of our planet.

BIOSKETCH

Bonnie G. Colby is Professor of Agricultural and Resource Economics at The University of Arizona, where she has been a faculty member since 1983. Colby previously was with the State of California, Department of Food and Agriculture. Colby received her doctorate from the University of Wisconsin in 1983. Her expertise is in the economics of inter-jurisdictional water disputes, water transactions and water policy. She has authored numerous publications on water issues, including five books on resolving conflicts over water, water trading (*Water Markets in Theory and Practice, 1987*), and aboriginal water rights (*Indian Water Rights: Negotiating the Future, 1993*). She has provided testimony on these matters to tribal councils, state legislatures, courts and the U.S. Congress. Since the mid-1980s, she has developed dozens of water acquisition and water pricing plans to assist parties involved in regional water conflicts.

Colby served on the National Research Council's Committee on Western Water Management and on the National Academy of Science committee investigating use of economic methodology by the Army Corps of Engineers, involving billion-dollar proposed projects on US waterways. She teaches graduate and undergraduate classes on water resource economics and the economics of environmental policy, as well as special workshops for judges, engineers, attorneys and environmental advocates. In addition to her academic research and teaching, Dr. Colby advises public, private and non-profit organizations on managing water resources and resolving disputes over water.

Bonnie enjoys working on complex water management problems throughout the western United States and worldwide. She has three sons who have often accompanied her on her water-related travels. She has served on the board of directors of several environmental non-profit organizations. Bonnie makes regular pilgrimages to hot springs, lakes and rivers to renew herself, and enjoys annual silent meditation retreats. She is active in teaching applied meditation techniques as tools for resolving conflicts and for enhancing the quality of life for ourselves, our families, friends, colleagues and our planet. Her unfolding life IS her main hobby!

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TUESDAY EVENING

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BIBLICAL PERSPECTIVES ON WATER AND ECOLOGY

**Barbara Rossing**

ABSTRACT

From the waters of creation in the book of Genesis to the rivers of life in Revelation, the Bible draws on water imagery to envision the life and renewal of the world. Water

is foundational to both Jewish and Christian tradition. In the oldest biblical traditions, wells of water are places of theophany and community, revealing God's presence. Through times of oppression, biblical prophets invited people to "come to the waters" to renew their vision of God's salvation. The Psalmist's promise of a "river whose streams make glad the city of God" sustained people's hopes through occupation and empire. In a landscape where water was precious, just and equitable access to water was a biblical value. The diversity of ecosystems sustained by water was celebrated by biblical writers who observed and marveled at the intricacy of God's creation.

This paper will explore the range of biblical water imagery, focusing especially on the role of water in apocalyptic visions. While some critics view apocalyptic literature as world-destroying and escapist, I will argue that Revelation 21-22 with its river of life and world-healing tree is a down-to-earth ecological vision we urgently need today. Contrary to fundamentalist interpretations of Revelation such as the popular "Left Behind" novels, the biblical vision is not of world destruction but of world renewal. Revelation's water of life is not just spiritual or metaphorical, but also has something to say to the watersheds of our world. Revelation's critique of the Roman empire and of its abuse of the world's waters can also serve us today in a time of globalization and commodification of fresh water that denies access to the world's poorest peoples. I will draw on the Roman Catholic Bishops' statement on the Columbia River Watershed ([www.columbiariver.org](http://www.columbiariver.org)) as an example of how we can embrace an ecological reading of the biblical water of life imagery for the world's watersheds, aquifers and communities today.

#### BIOSKETCH

Barbara R. Rossing is Associate Professor of New Testament at the Lutheran School of Theology at Chicago, where she has taught since 1994. She holds a doctorate in New Testament from Harvard Divinity School, an M. Div. from Yale Divinity School, and a B.A. in Geology from Carleton College in Northfield, Minnesota. She is an avid hiker and environmentalist. Her research focuses on the biblical book of Revelation.

She is the author of *The Rapture Exposed: The Message of Hope in the Book of Revelation* (Westview Press, 2004) as well as Bible studies for the 2003 Lutheran World Federation Assembly, "For the Healing of the World" (see [www.lwf-assembly.org](http://www.lwf-assembly.org)); *The Choice Between Two Cities: Whore, Bride and Empire in the Apocalypse* (Trinity Press, 1999); and book chapters and articles on Revelation, liberation and ecology.

She recently appeared on "CBS Sixty Minutes II" discussing her new book and critiquing the theology of the best-selling "Left Behind" novels (see [www.cbsnews.com](http://www.cbsnews.com), "The Greatest Story Ever Sold," April 14, 2004). This week she will draw on *The Rapture Exposed* as well as on her research on water for a 1998 Harvard symposium on *Christianity and Ecology* (see "River of Life in God's New Jerusalem: An Ecological Vision for Earth's Future," in Dieter Hessel and Rosemary Ruether, eds., *Christianity and Ecology* [Harvard University Center for World Religions, 1999]).

Previously Rossing served as chaplain to Harvard Divinity School, pastor and teacher at the Holden Village retreat

center, and pastor at Bethany Lutheran church in Minneapolis. She serves on the board of Augsburg Fortress Publishers, the publishing house of the Evangelical Lutheran Church in America, and is an ordained Lutheran minister. She frequently spends summers teaching at Holden Village, a remote retreat center in Washington's Cascade mountains. She loves glaciers, lakes and alpine waterfalls and meadows.

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#### WEDNESDAY MORNING

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#### WATER AND HEALTH IN THE DEVELOPING NATIONS: CAN THIS BE CONSIDERED DEVELOPMENT?

**Les Roberts**

#### ABSTRACT

Environmental improvements such as improved housing, food safety, and the provision of piped water and sewage led to extraordinary improvements in health conditions in Europe and North America. In the U.S., the rate of death from infectious diseases decreased approximately 95% between 1900 and 1960; life expectancies increased 6 hours per day over that period. Throughout the history of our species, it is unlikely that such a dramatic improvement in human health conditions ever has occurred. Among these environmental improvements, the evidence linking safe water to improved health is probably the strongest. In city after city, improved water quality was linked to lower death rates from typhoid fever and in a couple of cities, death rates were seen to decline in association with greater water consumption.

Several attempts have been made to repeat the European and American experience from the first half of the 20<sup>th</sup> Century in the developing nations during the last half of the 20<sup>th</sup> Century. Most dramatic among these, was the World Health Organization's "Water and Sanitation Decade" during the 1980's which involved a multi-billion dollar effort to provide safe water and adequate excreta disposal facilities to everyone on the planet by 1990. Not only did the efforts fall short, but in 1990, the number of people without basic water and sanitation services was greater than it had been in 1980. The reasons for this were both related to population increases and the inability of the societies receiving facilities to maintain them. A book entitled *Drawers of Water* was published in 1972 and described a study documenting a range of water and health issues from 33 sites in Uganda, Kenya, and Tanzania. This study was repeated in the same locations using the same methods in 1997, showing that both the water availability and the health of East Africans had declined over the preceding quarter century. Data from the Central Asian Republics also show a situation of degrading infrastructure and water quality in major urban centers.

While major technological improvements have been made to provide safe and inexpensive water over the past 50 years, on the net, it is likely that the number of people living without access to safe water has increased. It is believed that population growth and decaying social capacity to provide services have played a role in this, "lack of development." It will be argued that the focus on technology in major development agencies contributes to this problem.

## BIOSKETCH

Les Roberts has a Masters degree in public health from Tulane University and a Ph.D. in environmental engineering from Johns Hopkins. He did a post-doctorate fellowship in epidemiology at the Centers for Disease Control and Prevention where he worked for 4 years. While there, he was the winner of the Schnitker Award for Outstanding Contribution to International Health. He worked as an epidemiologist for the World Health Organization in Rwanda during the civil war of 1994. Les was Director of Health Policy at the International Rescue Committee from Dec. 2000 through March of 2003. Before entering public health, Les worked as a high school physics teacher and as a stormwater engineer for the State of Maryland.

Les' work has focused on two areas; the relationships between water and sanitation and human health, and measuring adverse health effects in times of war. A study conducted for the United Nations High Commissioner for Refugees about water storage habits among Mozambican Refugees in 1993 has led to a widely applied practice of providing people with closed containers rather than open buckets in times of humanitarian crisis. His work in recent years documenting the death toll of the war in the Congo has resulted in front page stories in the New York Times and Washington Post on the results of his surveys and an invitation to testify before Congress.

He is currently a lecturer at the Johns Hopkins University Department of Geography and Environmental Engineering where he teaches classes on water and sanitation and a seminar on methods for documenting human rights abuses each fall, and teaches classes on water and sanitation and applied epidemiology at Columbia's Mailman School of Public Health each winter. Les lives in Upstate New York with his wife Mary Grace. At the moment, he is working as the scientific editor for the 2005 UN Human Security Report.

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### WEDNESDAY EVENING

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#### 'WE MADE FROM WATER EVERY LIVING THING' (QUR'AN 21:30): THE SHARI'A AS AQUIFER FOR ISLAMIC FAITH AND ORDER

**Frederick M. Denny**

#### ABSTRACT

The Qur'an, Islam's supreme scriptural authority in all domains of human individual and communal life, tells of an offer of global trusteeship that God presented to the heavens, the Earth, and the Mountains (Sura 33:72), but they refused to shoulder the responsibility out of fear. Humankind seized the opportunity and bore the "trust" (*amāna*), but they were "unjust and very ignorant." Even so, God through mercy has guided and enabled humankind in bearing the responsibility of the trust, even though failures have continued to occur. The Qur'an clearly asserts that God is the holder of dominion over the creation (e.g. Sura 2:107), and that everything returns to Him (Sura 24:42).

The Prophet Muhammad said, according to a hadith ("tradition"): "He who serves drinks to others should be the

last to drink himself."<sup>1</sup> Another hadith goes: "All Muslims are partners in three things – in water, herbage and fire."<sup>2</sup> A third hadith tells of the Prophet's young wife Aisha asking her husband: "'O Messenger of Allah, what is the thing of which refusal is not lawful?' He said: 'Water, salt and fire.' She replied: 'I said, O Messenger of Allah, we know the matter about water. What is the significance of salt and fire?' He said: 'O darling with reddish cheeks! Whoso gives fire gives in charity as it were all that fire cooks, and whoso gives salt as it were in charity all that the salt gives taste; and whoso gives a sip of water to a Muslim where water is available, he sets as it were a slave free; and whoso gives a sip of water to a Muslim where water is not available, he gives as it were his life.'"<sup>3</sup>

As the quoted passage in my title indicates, water has the highest meaning and value in the Qur'anic world-view. References to water in its various forms and sources occur frequently in the Qur'an. The Muslim world has throughout history paid close attention to water management from legal, economic, and ethical perspectives. Water in the Islamic vision is of fundamental importance for sustaining human and all other forms of life, whether in the production of food and drink or in personal and communal piety in the purification rites that all Muslims perform on a daily basis, from cleansing one's surroundings to washing and bathing after experiencing impurity and before worship.

It is of the greatest significance that the Arabic word that came to represent Islamic law in its totality is *sharī'a*, whose primary meanings in ancient Arabic were "water hole, drinking place" and the way to such sources. My paper will consider the Shari'a in relation to the divinely bestowed trust as it applies to the conservation and equitable uses of water in its various forms. The paper will also treat selected water issues and initiatives in the Muslim world today.

## BIOSKETCH

Frederick M. Denny is Professor of Islamic Studies and the History of Religions at the University of Colorado at Boulder. A University of Chicago Ph.D. with previous appointments at Yale College and the University of Virginia, he has conducted field research on Qur'anic recitation, Muslim popular ritual, and characteristics of contemporary Muslim societies in Egypt, Indonesia, Malaysia and North America. His current research includes religion and human rights and Islamic environmental ethics. His college-level textbook *An Introduction to Islam* (2nd ed. Prentice-Hall 1994) is widely used and his University of South Carolina Press scholarly series "Studies in Comparative Religion" has published pioneering books on

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<sup>1</sup> Imam Nawawi, *Gardens of the Righteous (Riyadh as - Salihin)* tr. Muhammad Zafrullah Khan (London: Curzon Press, 1975), p. 154, no. 115. Reported by al-Tirmidhi.

<sup>2</sup> Al-Haj Maulana Fazlul Karim, ed. and tr., *Al-Hadis: an English Translation and Commentary of Mishkat-ul-Masabih* (Lahore: The Book House, 1939), vol. II, p. 311, no. 8. Reported by Ibn Majah and Abu Daud.

<sup>3</sup> *Ibid.*, p. 312, no. 11. Reported by Ibn Majah. Translation from Arabic slightly adjusted.

Islamic subjects. He serves on the editorial boards of *The Muslim World*, *Studies in Contemporary Islam*, and *The Journal of Islamic Law and Culture*. Born and raised in Vermont, Denny is a white water canoeist and Lightning class sailboat skipper.

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THURSDAY MORNING

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USING WATER NATURALLY

**Holmes Rolston III**

ABSTRACT

I first ask about using water naturally, though I end asking about using water ethically, and religiously. Right and wrong in using water, some will object, has nothing to do with using water naturally. However, the connection may be more complex than we think. In one sense, everything that humans do is "natural," there can be no such thing as using water unnaturally because everything that people do is part of the natural systems. In another sense, when humans deliberately modify natural systems, all human uses of water will have to be considered unnatural because all human actions, such as constructing ditch lines, modify wild nature. In a third sense, we use water naturally, more or less, considering the degree to which human activities fit in with the natural cycles of water on landscapes. Some uses of water uses may be more, some less natural. I consider this relative sense.

For economists, water is a marketable good. Whoever has money can buy the water. That may sometimes be appropriate; but then again, water may not be the kind of resource that we can simply let people buy and do with what they please. We also need to use water ecosystemically, thinking in terms of the hydrology of the watershed, of the flourishing of the bioregion. The water we use is a part of natural systems; we may cycle it through our economies, through our fields, through our homes, but these little cycles are part of a bigger cycle where the water moves around and around on the landscape, nourishing fauna and flora, some of it used by humans, flowing down to the sea, taken back into the air. We need to use water naturally so that the big cycles of spontaneous nature contain the little cycles we artificially build.

Water is one of the miracles of natural history. The planet on which we reside is called Earth but could have as well been called Aqua, since 70% of the surface is water. Earth is the only planet in the solar system in which there is a long history of liquid water flowing in large quantities. There may not be another planet like this anywhere in the universe. Water is the most vital resource we have; it is more than a resource, it is the life blood of the planet. The rivers of water are part of a bigger philosophical picture, the rivers of life on Earth. Unless we use water at least relatively naturally, we will threaten this natural history, and threaten ourselves as well. This more comprehensive understanding of water figures into the religious symbolism of water.

BIOSKETCH

Holmes Rolston, III, is University Distinguished Professor and Professor of Philosophy at Colorado State University. He has written seven books, most recently *Genes, Genesis and God* (Cambridge University Press), *Science and*

*Religion: A Critical Survey* (Random House, McGraw Hill, Harcourt-Brace), *Philosophy Gone Wild* (Prometheus Books), *Environmental Ethics* (Temple University Press), and *Conserving Natural Value* (Columbia University Press). He gave the Gifford Lectures at the University of Edinburgh, 1997-1998. Rolston has spoken as distinguished lecturer on seven continents. He is featured in Joy A. Palmer, ed., *Fifty Key Thinkers on the Environment, 2000*. He received the Templeton Prize in Religion in 2003, in amount about 1.3 million dollars, greater than a Nobel Prize, and the largest such award in the world. The award was given by Prince Philip in Buckingham Palace.

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THURSDAY EVENING

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WATER IN THE HUMAN FOOD CHAIN:  
BIOCULTURAL EVOLUTIONARY MODELS OF THE  
PAST, PRESENT AND FUTURE OF WORLD WATER

**Solomon Katz**

ABSTRACT

Throughout the 2 + million year evolutionary history of our ancestors, water has always been a critical resource for drinking water, cooking, cooling, washing and detoxifying various foods, fishing, and navigation. With the origins of the Neolithic agricultural revolution about 10,000 years ago, the role of fresh water in the food chain increased dramatically. In a few thousand years, those populations practicing plant agriculture were so successful that they replaced most other populations throughout western Asia and Europe. Since a sufficient and reliable water supply was essential, water became connected to many rituals and ascended to such a critical role within societies that it became sacred.

Dramatic climate changes often profoundly influenced water availability over the last 10,000 years. As food production increased, human populations grew and areas for food crop production were continuously expanded to supply these larger, more concentrated, and socially differentiated populations. Locating near the regular water and the rich soil resources of the great rivers such as the Nile, which were subject to periodic flooding, may have stimulated a parallel need for more reliable sources of water than the annual vagaries of weather provided, so the cooperative regulation of irrigation began to develop. The advantages were so important that irrigation may have been the major impetus toward the repeated origins of civilization around the world. When water resources failed, however, as they did in ancient Mesopotamia and in the pre-Columbian Mayan world, the civilizations collapsed. Today we face large and looming water crises in many areas of the world, possibly precipitated or exacerbated by human-induced global warming, and the question arises of what we can do to avoid the mistakes of the past.

Using a "macro biocultural evolutionary ecosystems approach," this paper will trace the natural history of cooperative water uses into contemporary times, as agricultural productivity must now provide for a human population of over 6 billion, growing toward a projected 8-10 billion. Although the green revolution, dependent in part upon high technology irrigation, has improved world food production per capita during the last 30 years, it is not clear if this level of production will be sustainable given climate

changes, probable sea level rises, depletion of non-renewable groundwater resources, and energy costs.

Furthermore, we ought to query the injustice of a food system that leaves hundreds of millions near starvation in much of the world but also leads to growing health problems from obesity in other areas. Today, there is an appropriate and profound mistrust of multinational corporations to provide such a basic commodity as water. One of the most articulate counter voices in today's world to the multinational move to privatize water resources and delivery is Vandana Shiva of India. As one approach to stopping the move to the commoditization of water, she has articulated a concept of "Water Democracy," which contains nine principles including the following: water as nature's gift, the essential role of water in life, the interconnectedness of all life through water, the necessity of free access to water for sustenance needs, the need for the sustainable use of water resources, conservation of water, water as commons i.e. not created by humans and not private property, no one has the right to abuse/destroy water resources, and unlike most commodities, there is no substitute for water. This paper will consider Shiva's "Water Democracy" model in detail, integrating both the macro perspective of the biocultural evolutionary ecosystems approach and the overall spiritual, secular, and scientific insights developed over the week of our IRAS Conference.

#### BIOSKETCH

Dr. Solomon Katz is a leading expert on the anthropology of food, specializing in the biocultural evolution of cuisine. He is widely recognized for a new theory for how cooking and food processing techniques evolved along with the rise of agricultural productivity. He is editor-in-chief of the *Encyclopedia of Food* published by Scribners. The Encyclopedia has received six awards since January 2004, including: "ALA Outstanding Reference Sources for 2003"; "Library Journal Best Reference Sources for 2003"; the Dartmouth Medal 2004 "Best Reference of the Year 2003," equivalent of the Pulitzer Prize in the US; "Emerald Award (UK) 2004 Best Reference of the Year".

Sol was a founding Associate Editor of the *Journal of Human Ecology*. He has published over two hundred professional books, papers and articles in major scientific and public media, many of which deal with food and nutritional topics. He is director of the Krogman Center for Childhood Growth and Development at the University of Pennsylvania. The Center has specialized in many national and international studies of chronic diseases that have a significant nutritional component that influences child growth, development of obesity, and early sexual maturation among US urban children.

His work in the field of science and religion spans 30 years with leadership in the Institute on Religion in an Age of Science (IRAS), in which he served as president from 1981 to 1984, and he is an associate editor of *Zygon: Journal of Religion and Science*. He was president of the Center for the Advanced Study of Religion and Science from 1989-2002. He serves on the board of the American Association for the Advancement of Science (AAAS) and on several committees including 'The Dialogue Between Science and Religion.'

Dr. Katz is president of the Metanexus Institute on Religion and Science, where he is principal investigator for the Institute's Spiritual Transformation Scientific Research Program, in which an interdisciplinary team studies the various biological, psychosocial and cultural conditions and factors that underlie spiritual transformations of individuals and groups.

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#### FRIDAY MORNING

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#### IN-THE-ROUND CONVERSATION

How will we respond to the scientific, spiritual and moral challenges regarding water? Speakers and conferees are invited to suggest and refine important themes that have emerged from our week's presentations and conversations; to say how the week impacted your life and ideas; or to consider alternative action strategies we may take home as individuals, citizens and IRAS members.

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## IRAS SEMINAR

In the IRAS Seminar, seminar leaders comment on a manuscript or recent book by a member (or members) of IRAS, followed by open discussion by all who would like to participate.

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The manuscript being reviewed is *Science-Religion Issues: Trans-denominational Perspectives for the Twenty-First Century* by V. V. Raman.

The three sessions will be held in Marshman on Monday, Tuesday, and Wednesday from 1:40-2:40 pm. Invited responders will be Jeff Dahms, who will moderate, and Karl Peters.

### DESCRIPTION

*Science-Religion Issues* explores science and religion as two lofty expressions of the human spirit: religions provide experientially meaningful worldviews and joyous commitments, while science is an internationally woven and intellectually elevating enterprise. Doctrinally and in their historical course, each religion is unique and different from the others. Yet religions also share many things in common.

The book under discussion brings out the key elements in both science and religion from trans-denominational perspectives, i.e. without serving as a voice for one tradition or another. It emphasizes what binds us as human beings rather than what divides us. At the same time it brings into focus the distinctiveness of science as a trans-cultural enterprise to unravel the complexities of the phenomenal world.

### PROCEDURE

On **Monday**, Jeff Dahms will give a brief overview of the manuscript and will comment, with response from V.V. On **Tuesday**, Karl Peters will comment, with V.V. responding. The discussion will continue on **Wednesday**. Each session will be open to discussion among all present.

### BIOSKETCHES

**V. V. Raman**, Emeritus at the Rochester Institute of Technology, was Professor of Physics and Humanities for 33 years. He has a Master's Degree in Applied Mathematics from the University of Calcutta, and a Ph.D. in Theoretical Physics from the University of Paris where he also studied philosophy. He is at ease in more than half a dozen languages.

Over the years, Dr. Raman has published several papers and books, written articles, lectured on the historical and philosophical aspects of science, and reviewed more than 300 books. He was among the first batch of faculty (1984) from across the country to be honored as Outstanding Professors by the American Association of Higher Education. The titles of his books on science-related topics include *Variety in Science History*, *Science and Relevance*, *Scientific Perspectives*, *Glimpses of Ancient Science*, and *The Framework of Science*. He has also written on aspects of Hindu culture. His books on this subject include: *Glimpses of Indian Heritage*, *Nuggets from the Gita*, *Satanama: One*

*Hundred Great Names from India's Past*, and *Balakanda: The Ramayana as Literature and Cultural History*. A full listing of his articles and books may be found in his web-page: <http://www.rit.edu/~vvrsp/>.

During the past decade he has turned his interests to the broader theme of science and religion. He has studied the doctrinal framework of the major religions, and also attended worship services in a whole range of religious denominations in order to experience their spiritual dimensions. He is a regular participant in IRASnet. His *Calendrical Reflections on Science and Religion* may be found in the METANEXUS Web-page. He has just returned from participating in the World Parliament of Religions in Barcelona.

**Jeff Dahms** is a scientist with an interest in science's fundamental models and its relationship to wider issues including religion. In particular he is interested in accounts of mind/brain's evolution and the implications for understanding human nature and human possibility. He is a philosophic naturalist who sees the generic religious sensibility (non theistic) as a very important though completely 'accidental' part the default human state. In his day job he is a surgeon working in the developed world and periodically in the developing world and is interested in practical hands-on responses to human problems.

**Karl Peters** is Professor Emeritus of Philosophy and Religion at Rollins College, Winter Park, Florida. He has been attending IRAS Star Island Conferences since 1972, is a past president of IRAS, and is coeditor of *Zygon: Journal of Religion and Science*. He also is the current president of the Center for Advanced Study in Religion and Science, which is IRAS's partner in publishing *Zygon*. Karl has a B.A. degree from Carroll College in Wisconsin, an M. Div. from McCormick Seminary in Chicago, and a Ph.D. from Columbia University in New York.

In his teaching, research, and writing, Karl has specialized in issues in science and religion. He focuses on issues such as evolution and the idea of God, how humans can be motivated to be good, environmental problems, and religious and philosophical issues in medicine. He has published several scholarly articles in science and religion. His book *Dancing with the Sacred: Evolution, Ecology, and God* was published by Trinity Press International in 2002. The manuscript for this book was the subject of the 1999 IRAS book seminar. He hopes that V. V. Raman will benefit as much from the current seminar as he did.

## IRAS WORKSHOPS

In IRAS Workshops, topics related to the conference or of continuing general interest are explored and discussed in small groups. Workshops are listed alphabetically by presenter.

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### GLOBAL WARMING: THE IMPACTS OF NEGLECT

Monday, 2:50pm–3:50pm, Elliot

**Muriel Blaisdell and Peter Kelley**

#### ABSTRACT

Participants will use yellow caution tape to stripe the front lawn, in a demonstration of the projected impact on Star Island of the two- to four-foot rise in sea level that is projected for this century because of global warming, caused primarily by the burning of fossil fuels. Videotaped computer simulations will show the expected impact of sea level rise on other coastal regions around the United States. Handouts will summarize the basic science of global warming and the most widely accepted predictions of its effects, and critique Hollywood's recent fictionalized account, "The Day After Tomorrow".

### THE ETHICS OF A LOCAL RIVER FLOOD

Tuesday, 2:50pm–3:50pm, Elliot

**Muriel Blaisdell and Peter Kelley**

#### ABSTRACT

The video "River Voices" shows the effects of the devastating 1937 Ohio River flood on Portsmouth, Ohio. The effect at the time and the long term effects of such disasters will be explored in the discussion that follows this film, made by Shawnee State Professor of History John Lorentz and his son. A handout will offer some questions to guide our discussion of ethical principles related to individual choices in the context of losses of property, employment, and life.

### DAM BUILDING AND THE ETHICS OF NATIONAL POLICY

Wednesday, 2:50pm–3:50pm, Elliot

**Muriel Blaisdell and Peter Kelley**

#### ABSTRACT

The video "The Wall Across the Yangtze", as shown on public television, raises viewers' awareness of the positions of Chinese governmental officials who see economic benefits from the dam that is currently flooding the Three Gorges, previously an historic site and popular tourist destination. Millions of people have been displaced, galvanizing environmental activists worldwide to speak out against the dam. A handout will be offered to guide our discussion of the ethics of science and society at the level of national policy.

### RISING WATERS: GLOBAL WARMING AND THE FATE OF THE PACIFIC ISLANDS

Thursday, 2:50pm–3:50pm, Elliot

**Muriel Blaisdell and Peter Kelley**

#### ABSTRACT

This video, produced in 2000 by PBS documentary filmmaker Andrea Torrice, addresses the human consequences of rising sea levels on islands such as American Samoa and Hawaii. Islanders discuss what will happen to them when their islands become uninhabitable. This video will give viewers an opportunity to see the impact of ethics at the "macro" level. Sea level rises will have worldwide impact, but the burden will be borne by individuals and local groups. A handout will be shared concerning the ethics of national and international policies related to global climate change.

#### BIOSKETCHES

Muriel Blaisdell is Professor of Interdisciplinary Studies at Miami University in Oxford, Ohio where she has taught several courses related to this year's conference theme. She has taught "Religion and Science", as well as "Rivers: An Interdisciplinary Perspective" and "Critical Reflections on the Life Sciences". She has a PhD from Harvard University in the History of Science, an MS from Oregon State University in General Science, and a BS in Biological Science from DePaul University.

Peter Kelley is Vice President for Communications and Marketing at American Rivers in Washington DC, a non-profit national environmental group that leads a nationwide movement of over 2,500 local river and watershed groups. He formerly worked as a newspaper reporter and as Communications Director at the National Environmental Trust, where he developed public education programs about global warming and attended the 1997 Kyoto treaty talks in Japan. He has a BA in Government from Harvard University.

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### GLOBAL WARMING: CAN SACRAMENTAL WATER EMPOWER US TO MEET THE CHALLENGE?

Thursday, 4:00pm–5:00pm, Newton Front

**Paul H. Carr**

#### ABSTRACT

*"Water indeed reflects heaven because my mind does — such is its serenity — its transparency — its stillness..."*  
Thoreau

We will explore ways in which water's sacramental power can inspire us to meet the challenge of global warming and flooding. I will illustrate the symbolic meaning and sacred

power that Thoreau's "Walden" attributed to water with photographs of beautiful Walden Pond.

Glaciers are retreating. Average temperatures in the arctic have climbed as much as 7°F. In the past century, sea levels have increased by 40cm and shorelines shrunk by 20m. The United Nations Intergovernmental Panel on Climate Change has concluded: "There is new and stronger evidence that most of the warming observed over the past fifty years is due to human activities." Carbon dioxide levels in our atmosphere have increased 10% in the last thirty years from the burning of fossil fuels. We can reduce these emissions by using passive and active solar energy for heating and by generating electricity with windmills, semiconducting solar cells, hydropower and nuclear energy. This will also decrease our dependence on imported fossil fuels and protect us from the price increases resulting from the depletion of this nonrenewable resource.

The consecration of Walden Pond as a natural and cultural shrine is an example of progress towards environmental challenges. Hopefully, water's sacramental power can cleanse us from the unintended consequences of our past and empower us to sacrifice for the good of creation and for future generations.

#### BIOSKETCH

Paul Carr has presented workshops at Star Island since 1998 and has taught a philosophy course "Science and Religion: Cosmos to Consciousness" at the University of Massachusetts, Lowell. He organized the Science and Religion Session of the International Paul Tillich Society Conference in New Harmony, IN, as well as presenting the paper "Science and Religion: Original Unity and the Courage to Create" published in the June 2001 issue of ZYGON. He presented the paper "Technology Touches Theology and Visa Versa" at the ESSSAT Conference in Barcelona, Spain in April 2004. In his former life, he led the Component Technology Branch of the Air Force Research Laboratory, which did research and development on microwave ultrasound, surface acoustic waves, superconductors and laser activated antennas. He earned his PhD in physics from Brandeis University and his BS and MS from MIT. In 2003, he moved from Bedford, MA to Bedford, NH to marry Virginia Kilpack. His Web site may be found at: [MirrorOfNature.org](http://MirrorOfNature.org)

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#### THE GEOPOLITICS OF WATER

Tuesday, 2:50pm–3:50pm, Sandpiper

**Ryan Case**

#### ABSTRACT

This workshop will explore the relationships between the major entities in the field of water and the role of international trade policies in the management of our global water resources. We will also discuss human rights issues and the mounting grassroots campaigns to defend water's place in the commons.

#### ECOLOGICAL- AND COMMUNITY-BASED WATER MANAGEMENT

Tuesday, 4:00pm–5:00pm, Elliot

**Ryan Case**

#### ABSTRACT

The current manner in which society manages its water resources is leaving millions thirsty and destroying entire ecosystems. There are, however, many simple and low-cost methods and technologies to manage our water sustainably. This workshop will survey what sustainable water management would look like.

#### BIOSKETCH

Ryan Case is director and co-founder of the Water Stewards Network. He has a very multidisciplinary background in International Environmental Studies and has spent much time exploring first-hand sustainable development and human rights issues in various parts of the world. He began his work with water by designing and constructing ecological wastewater treatment systems with John Todd several years ago. This work brought his attention to the root problems surrounding our water resources and to the larger political realm as well. For the past two years, he has dedicated himself to studying global water politics and the development of a global grassroots water movement while continuing with on-the-ground work developing sustainable water management systems. He has become an active participant in the emerging Peoples' World Water Movement.

The Water Stewards Network works to build cohesiveness among regional water networks emerging around the world and to emphasize the theme of stewardship in the global dialogue. This project also works to collect and disseminate informational resources on sustainable water management in order to empower communities to take more local responsibility, thereby rebuilding a culture of stewardship.

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#### SUSTAINABLE DEVELOPMENT IN THE COASTAL ZONE: WHERE THE WATER MEETS THE LAND

Sunday, 4:00pm–5:00pm, Elliot

**Russell L. Chapman**

#### ABSTRACT

The words "water" and "crisis" understandably make one think of freshwater and its importance to life on our planet. But our "blue planet" is mostly covered by the oceans and seas, and worldwide the coastal zones — where the water meets the land — face a series of challenges to continued sustainable development. It can be argued that these challenges are at or are nearing a crisis stage. Louisiana is losing about one football field of coastal wetlands every thirty minutes, and is thus a poster child for the topic of sustainable development in the coastal zone. Although the overall situation in Louisiana may be seen as a unique set of challenges, the individual components challenging sustainable development in the coastal zone in Louisiana are comparable to those present in coastal zones around the world. This workshop will include a brief review of the Louisiana coastal wetlands loss — the causes, threats, and solutions — and a brief review of the global perspective on the challenges the peoples of the world face as they try to live in the productive margins bordering the oceans and seas.

#### BIOSKETCH

Russ Chapman is the dean of the School of the Coast and Environment and professor in the Department of Oceanography and Coastal Sciences at Louisiana State University. A native of New York, he earned his undergraduate degree in biological sciences from Dartmouth and his PhD at the University of California at Davis on ultrastructural aspects of a red alga.

During his career at LSU, Dr. Chapman has received several special honors including the Amoco Foundation's Outstanding Undergraduate Teaching Award and the LSU Alumni Federation Distinguished Faculty Award in recognition of outstanding contributions to the university in teaching, research, and administration.

Dr. Chapman is the author of numerous journal articles and book chapters dealing with his research interests, which include algal ultrastructure and phylogeny, the biology of the Trentepohliaceae (Chlorophyta), and molecular evolution in algae and bryophytes.

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### SACRED WATERS: WITHIN US, AROUND US

Wednesday, 2:50pm–5:00pm, Marshman

**Bonnie Colby**

#### ABSTRACT

In this experiential workshop, we will draw upon myth, poetry and ancient meditation techniques to sense the Water Element as an expression of the divine. Water is central in the world's great wisdom traditions, from baptismal rites to ritual bathing in the Ganges.

We will learn to make contact with the primal rhythm of our own heartbeat and pulse, and then use a centuries-old water meditation technique that was re-introduced to the West in modern times by the beloved Sufi mystic Hazrat Inayat Khan. This form of meditation is simple, grounded and accessible to beginners, while also intriguing to experienced meditators from all traditions. It is suitable for those of any (or no) faith tradition. Participants are invited to bring a water-related poem, song or story to share in the circle we create together in this workshop. We will conclude with a ritual that draws upon the qualities of the Water Element and apply these to a situation we select in our own lives or our world — a situation which we may elect to share or to keep private.

#### BIOSKETCH

See lecture descriptions.

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### THE WONDERFUL WATER MOLECULE

Tuesday, 4:00pm–5:00pm, Newton Front

**Lawrence Fagg**

#### ABSTRACT

What are the characteristics of the water molecule that point to how vital it is to all of earthly nature? Why are snowflakes hexagonal? Why is ice lighter than water? Why does liquid water at certain cold temperatures have two different forms? These are a few of many questions that will be addressed in this workshop. All interested scientists (physicists, chemists, biologists, etc.) are invited to share

what they know about the many facets of the water molecule and its behavior. Non-scientists are especially invited to attend. The discussion will be geared at an elementary level so that what is shared will be equally informative for all.

#### BIOSKETCH

Larry Fagg is a Research Professor of Nuclear Physics (retired) at the Catholic University of America in Washington, DC. He has a PhD in physics from Johns Hopkins University and an MA in religion from George Washington University. He is a Fellow of the American Physical Society, an Academic Fellow and former Vice-President of the Institute on Religion in an Age of Science as well as the author of many publications in science and religion, including articles in journals and edited books as well as three books: "Two Faces of Time", "The Becoming of Time: Integrating Physical and Religious Time" and "Electromagnetism and the Sacred: at the Frontier of Spirit and Matter". On Star Island he has presented invited lectures and many workshops and candlelight services. He and his wife, Mary, live on a farm in the Shenandoah Valley, where they grow organic chestnuts.

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### THE BOOK NOBODY READ: CHASING THE REVOLUTIONS OF NICOLAUS COPERNICUS

Tuesday, 2:50pm–5:00pm, Marshman

**Owen Gingerich**

#### ABSTRACT

Owen Gingerich will speak about the interesting story told in his new book, "The Book Nobody Read: Chasing the Revolutions of Nicolaus Copernicus". The title is used ironically, since the book is a memoir describing the search for 16th century copies of Copernicus' *De revolutionibus* to find the marginal notes from early readers to demonstrate that Arthur Koestler's put-down, that it was "the book that nobody read", was completely wrong-headed. The chase involves bookworms and book thieves, book lovers, dealers and collectors, book restorers and forgers, and even the FBI and Interpol. As Dava Sobel writes on the dust jacket, "It is a detective story, a Renaissance flashback, an expose, a true confession, an altogether engrossing romp through ideas and movable type."

#### BIOSKETCH

See lecture descriptions.

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### RELIGIOUS NATURALISM AT IRAS

Wednesday, 2:50pm–3:50pm, Sandpiper

**Ursula Goodenough**

#### ABSTRACT

IRAS recently initiated the concept of special interest groups, and one such group is called "Religious Naturalism". All are invited to attend this workshop, be you a signed-on member of irasRN or curious as to what it entails. After a brief description of the original tenets of the group, there will be open discussion about future projects and activities.

## BIOSKETCH

See lecture descriptions.

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### STARTING A GRASS-ROOTS WATERSHED ORGANIZATION

Sunday, 4:00pm–5:00pm, Sandpiper

**Marion Griswold**

#### ABSTRACT

The Pomperaug River Watershed Coalition is a small not-for-profit organization founded five years ago by citizens concerned about the quality and quantity of water in their local watershed in western Connecticut. The Coalition quickly gained recognition at local, state and national levels for its collaborative approach, and has developed into an effective organization as a result of its partnering with universities, governmental agencies and other non-profits. This workshop will discuss why and how the organization was formed, its research projects and its efforts to engage the local community in issues relating to water. We will discuss what makes a new organization flourish, the pitfalls that it will inevitably encounter, and the challenges of keeping it going. Others who have been involved with small, home-grown organizations are most welcome to share their experiences as well. The workshop will include a showing of the group's volunteer-produced informational video.

#### BIOSKETCH

Marion Griswold has been a member of IRAS for about fifteen years and currently serves as its Treasurer. She has worked for the Pomperaug River Watershed Coalition for four years. She is active in local politics and in open space and farmland preservation efforts, and raises flowers, vegetables and chickens.

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### A PERSONAL WATER ETHIC TO RENEW THE EARTH

Monday, 2:50pm–3:50pm, Lawrence

**Timothy J. Kautza**

#### ABSTRACT

What should be the response of faith communities to the growing scarcity of clean water? Begin the development of a personal water ethic that will guide your lifestyle decision making and help you shape government policy. While reflecting on principles of human dignity, care for creation, responsible self-governance, and the common good, you'll formulate action ideas that will help...

- Reduce your own personal demand for water.
- Grow an ecospirituality that acknowledges the sacredness of water.
- Raise awareness of the impact of consumer decisions on water.
- Activate congregations.
- Make water institutions accountable.
- Improve public policy.
- Create a water conscious generation.

Participants will receive a copy of a developing water ethic being guided by the National Catholic Rural Life Conference.

### WHO IS MY NEIGHBOR?

Thursday, 4:00pm–5:00pm, Lawrence

**Timothy J. Kautza**

#### ABSTRACT

Experience a process used in Catholic churches in Iowa that helps people prayerfully reflect together on contentious and divisive large-scale swine production issues while determining personal action shaped by church social teaching. Learn about the impacts this increasingly common industrial form of hog production has on water and air quality and on communities. We'll help each other apply the readily adaptable process to our personal situations, other local issues, and personal faiths. Participants will receive facilitator's guide used for parish gatherings.

#### BIOSKETCH

Tim Kautza has been the science and environmental education specialist for the National Catholic Rural Life Conference for three years. He applies his natural science and education experience to environmental issues with a current emphasis on water, pesticide safety, antibiotic resistance, food safety, confined animal feeding operations and global climate change. Tim is coordinating a parish-based pesticide safety education project for migrant/immigrant farm workers in the Diocese of Yakima, Washington, and is developing a water ethic to serve as a guide to water quality and management decision making. He recently conducted parish gatherings examining large-scale hog confinement operations through the lens of Catholic social teaching. He works with religious communities, dioceses and parishes in examining their care for creation. Tim received a BS in biology and education from St. Norbert College and a MS in Education from Drake University. He has worked in environmental conservation and education for more than thirty years at local, state and national levels and is a Certified Parish Minister with more than fifteen years experience in religious education, youth ministry and the Rite of Christian Initiation of Adults.

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### A RETROSPECTIVE IN PHOTOGRAPHS OF MY FIRST TEN YEARS AT STAR

Monday, 4:00pm–5:00pm, Elliot

**David Klotz**

#### ABSTRACT

As many of you know, I am seldom without my camera when I'm on Star. It is part of my enjoyment of being there to try to capture each year's experience in pictures, returning the following year with an album of photographs that I force on anyone with whom I can make eye contact. This workshop consists of a presentation of selected slides from the conferences of 1993 to 2002; speakers, conferees, gulls, butterflies, flowers, waves, rocks, islands, buildings, and anything else that looked interesting to me. Of course, I

will also have an album with all of last year's photos (about 180).

### BIOSKETCH

I started taking photographs during my high school years with my dad's prewar 35 mm Argus. Since then the equipment has improved greatly, as has, I hope, my eye for composition and understanding of what makes an interesting photograph. I suspect that if I had ever tried to make a living in photography, it wouldn't have been so much fun, so I've worked as college professor, engineer, tech writer and trainer (both freelance and regularly employed), textbook editor, and various permutations. Somewhere along the way I developed the interest in the interface between science and religion that first brought me to IRAS on Star and which (along with the people and the island) keeps me coming back.

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### WATER: IS IT EARTH'S MEDIATOR?

Sunday, 4:00pm–5:00pm, Newton Front

**D. L. 'West' Marrin**

#### ABSTRACT

This workshop will examine the premise that water's primary role is mediating or facilitating processes ranging from climate regulation to protein assembly. We'll begin by visiting the ancient premise that water serves as the substance through which our observable world emerges from the unobservable (pre-creational) realm. Next, we'll touch upon the theories of modern naturalists, who maintain that water's vibrations (rhythms) are responsible for its role in creational processes — not only here on Earth, but throughout the Universe. Finally, we will look at a few modern scientific theories that portray water, not as an inert solvent, but rather as a type of mediator between different forms of earthly matter and energy. Might water function primarily as a molecular-scale mediator? What attributes of water may permit it to perform such roles?

### OUR PERCEPTION OF WATER: THE REAL CRISIS

Wednesday, 4:00pm–5:00pm, Newton Front

**D. L. 'West' Marrin**

#### ABSTRACT

The focus of this workshop is on our postmodern perception of water (i.e. that commonly held in the western world) and its contribution to the water 'crisis'. We'll examine the contention that our current challenges with water are fundamentally about our perceptions of water and only secondarily about water-related policies and projects. We'll briefly trace the history of human views of water and how those views have changed since the Renaissance. In doing so, we will discuss intellectual, spiritual and experiential perceptions of water, speculating on their potential to contribute to our postmodern view. If Albert Einstein's truism is valid, we are unlikely to solve our present challenges with water from the very same perspective that gave rise to those challenges. What will constitute the collective view of water in the 21st century view?

### BIOSKETCH

West Marrin is a water scientist and biogeochemist based on the Hawaiian Island of Kaua'i. He is a former professor at San Diego State University and the founder of two firms specializing in environmental chemistry and science communication, respectively. His current interests include global infrasound and the complexity of water's network. He is the author of "Universal Water: The Ancient Wisdom and Scientific Theory of Water" (Inner Ocean, 2002), which confronts our modern-day perception of water by presenting diverse and controversial perspectives.

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### GOD AND ATOM — A SURVEY OF THE SCIENCE-RELIGION PROJECT

Sunday, Monday and Thursday,  
4:00pm–5:00pm, Pink Parlor

**Louis C. Martin**

#### ABSTRACT

The basis for this three-part workshop is my book "God and Atom", to be published in the late Winter of 2004. "God and Atom" is my personal take on the discussion between science and religion. It is not neutral; rather, it advocates for a particular position or set of positions. "God and Atom" is not the answer to everything; rather, it is my vision of where the science-religion conversation needs to take place. It is my statement of a *Prolegomena to a Future Discussion*.

I: MUNDUS MENDAX. The world tricked us. We couldn't develop theory without writing. We couldn't develop writing until well into the evolutionary game, but when we did, we were faced with two huge sources of obscurity and confusion. 1) We had not carried with us an active memory of our own biological past, and 2) we didn't have the foggiest idea about the actual complexity of our own beings. While the world was the only thing which presented our evidence, it gave us evidence in a highly skewed package. This has seriously affected cultural history.

II: COSMOS I AND COSMOS II. This may be history with a meat axe, but for the purposes of discussion, we divide the world into two visions. In Cosmos I (until 1500) we thought that the world was created recently, and pretty much the way it is now. Man was created in this world by an omnipotent, intelligent force that we called God. The important issues were sin, redemption and the establishment of the Kingdom of God. Over the last 500 years we have discovered the world to be quite different. In Cosmos II the physical Universe (probably) developed from the Big Bang. Man evolved through the marvels of evolution (which we only partly understand). Biological evolution is somehow an extension of nature's underlying laws. We are in a position which cries out both for continuing discovery, but also for strong synthetic thinking.

III: EVOLUTION, MIND AND METAPHYSICS. Darwin had a brilliant insight, but natural selection is not the complete story. The hooker in the matrix is explaining the emergence of biological, particularly neurological, complexity. An hypothesis about how evolution *really* works: mind is the product of neurological complexity. In spite of our growing knowledge of how the world works, we are still puzzled about how there is anything at all in the first place, and how there comes to be a "plan" and determination in the world. My controlling hypothesis is

that this is the area where the science–religion discussion will continue to evolve.

### BIOSKETCH

Louis Martin was born in Omaha and grew up in a Catholic family. He is still some sort of Catholic, but his spiritual journey has brought him to a place where the mental landscape of the Baltimore Catechism seems a very strange country indeed. Like countless others, he owes a great deal to education by the Jesuits. He needed a base in empirical science and that led him into medicine, but his interest in mind and spirit led him into psychiatry. A medical degree from the University of Nebraska was followed by training at the Nebraska Psychiatric Institute (since defunct). He has been in both private and academic practice, but the latest chapter in his life has led him into Forensic Psychiatry for the State of Nebraska. However, old interests bloomed once again, and the science–religion project has become his driving concern and interest. He is convinced that the world is *somehow*, and that our attempt to understand it and our place in it is the journey of journeys. It's been a long and winding road, but not without its vistas and horizons.

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### WATER: SACRED AND PROFANE?

Tuesday, 4:00pm–5:00pm, Sandpiper

**Sandra Menteith**

#### ABSTRACT

This workshop will begin with “The Flow of Life: Water as Ethical Symbol” (full paper: Australasian Catholic Record, July 2004). Throughout history water has had symbolic significance to heal, regenerate and transform. In rediscovering the meaning of both the spiritual and physical significance of water, and recognising the implications for both sacramentality and justice, we can begin a reconciliation process. As we heal our rivers, we also begin to heal our hearts. From water’s symbolic value springs an invitation to be fully aware of the importance of this precious gift and to actively engage with others sharing common values and concerns to build a world that is truly life-sustaining.

The workshop will continue with “the fishbowl game”, a participatory exploration of the issues, and will conclude with a short meditation on water.

### TAKING ACTION FOR WATER

Wednesday, 4:00pm–5:00pm, Elliot

**Sandra Menteith**

#### ABSTRACT

Oz GREEN (Global Rivers Environmental Education Network, Australia) is a not-for-profit environmental NGO that enables community participation in the care of the world’s waters and action programs in Australia, East Timor, Varanasi (India) and Papua New Guinea. Oz GREEN ([www.ozgreen.org.au](http://www.ozgreen.org.au)) focuses on enabling community participation in the care of the world’s waters and the building of a life-sustaining society.

A background sketch of the organization and its methodologies for educating for social change will be given

as well as case studies of key projects including: Living Waters Living Communities (Sustainable living program); MYRiveR (Youth engaging rural river communities); and, YouthLEAD (Environmental Youth Leadership training). Considering the rôle of Visioning and Action Planning as tools for environmental action, this will be a participatory session to try group activities that help communities to enact change.

### BIOSKETCH

Sandra Menteith is Office Manager of Oz GREEN and an associate lecturer with the Catholic Institute of Sydney ([www.cis.catholic.edu.au](http://www.cis.catholic.edu.au)) with research interests in Environmental Ethics and Ecotheology. She was a member of the inaugural interim council of Catholic Earthcare Australia, a recently formed national agency under the Bishops Committee for Justice Development Ecology and Peace. While in western New York state she has been involved in the development and facilitation of an ecumenical six-week Lenten study program with the UCMC in Salamanca, “Reconciliation: healing our relationships with God, each other and the Earth”.

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### EMBRACING THE EPIC

#### A MEDITATION ON THE ELEMENTS

Monday, 4:00pm–5:00pm, Newton Front

**Andrew C. Millard**

#### ABSTRACT

Making full use of our senses and our imaginations, we will celebrate the basic elements of the Earth that support and sustain us. This four-part meditation — adapted from Paul Harrison’s “The Elements of Pantheism”, Tom Hayden’s “The Lost Gospel of the Earth” and David Suzuki’s “The Sacred Balance” by Tom Brower and Andrew Millard — will celebrate the Epic of Evolution and our connection to the past, present and future of creation. Given this year’s conference topic there will be a special emphasis on water — the water we drink and otherwise use, often without thinking about it, in our daily lives — but we will also take the time to reflect on the air we breathe, the food we eat and the light that is the source of life on Earth.

### BIOSKETCH

Andrew Millard came to the United States nearly twelve years ago to attend graduate school in the Physics Department at Princeton University. In his last year in New Jersey he shared a house with five other vegetarians and found environmentalism. In 1998, he discovered IRAS, the World Pantheist Movement and Unitarian Universalism (in approximately that order), learning that (a) science and religion can co-exist, not just peacefully, but synergistically and (b) Pantheism doesn’t mean a belief in many gods and provides a precise religious context for his green leanings. Since then he has been increasingly interested in the interface between science and religion, particularly the relationship between spirituality and the environment. He recently stepped down as chair of the Social Responsibility committee at the Unitarian Society of Hartford (CT) and stepped up as chair of the Adult Programmes committee. He is a life member of the Sierra Club and on the executive committee of the Greater Hartford (CT) Sierra Club. He is also a former director of the World Pantheist Movement, a student at Hartford Seminary, and an Aspirant to the

Unitarian Universalist ministry. He was elected to the IRAS Council last year, and this year marks his fifth visit to wonderful Star Island.

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**LESSONS FROM COMPLEXITY:  
THE HYPOTENUSE, THE PATHWAY OF PEACE**

Monday, 2:50pm–3:50pm, Newton Front  
repeats Tuesday, 2:50pm–3:50pm, Newton Front

**Carlos E. Puente**

**ABSTRACT**

A pathway for world peace is revealed using universal principles recently discovered in the study of natural complexity. It is shown how simple repetitive notions from modern science, as used to model atmospheric turbulence and other intricate processes, provide an impartial framework for visualizing the dynamics and consequences of mankind's ever present divisive traits, that encompass the enormous economic disparities and the pervasive distrust present in the world today. It is explained how these simple ideas, so basic that they may be understood by children, entice all of us, in a logical way, to seek peace in a condition typified by the hypotenuse of a right-angled triangle.

**MORE LESSONS FROM COMPLEXITY:  
THE ORIGIN, THE ROOT OF PEACE**

Wednesday, 2:50pm–3:50pm, Newton Front

**Carlos E. Puente**

**ABSTRACT**

The last few decades have witnessed the development of a host of ideas aimed at understanding and predicting nature's ever present complexity. It is shown that such a work provides, through its detailed study of order and disorder, a suitable framework for visualizing the dynamics and consequences of mankind's ever present divisive traits. Specifically, this work explains how recent universal results pertaining to the transition from order to chaos via a cascade of bifurcations point us to a serene state of unselfish love, symbolized by the convergence to the origin in the root of a Feigenbaum's tree, in which we all may achieve our inherently desired condition of justice, peace and joy.

**BIOSKETCH**

Carlos Puente was born in Cartagena, Colombia and did his undergraduate studies in Mathematics and Civil Engineering at Universidad de los Andes in Bogotá, Colombia. He continued his studies at the Massachusetts Institute of Technology in Cambridge MA, where he received master's degrees in Civil Engineering and Operations Research and his doctorate in Hydrology.

Dr. Puente has been a professor of Hydrology at the Department of Land, Air and Water Resources and a faculty member at the Institute of Theoretical Dynamics at the University of California at Davis since 1986. He is the author of over forty refereed publications including the recent book "Treasures inside the Bell: Hidden Order in Chance" (World Scientific, 2003). Due to his contributions he was appointed fellow of the International Society for

Complexity, Information and Design in 2002. He lives in Davis with his wife and two daughters.

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**RWANDA, A CASE STUDY:  
REFUGEES, WATER AND DISEASE**

Thursday, 2:50pm–5:00pm, Marshman

**Les Roberts**

**ABSTRACT**

This workshop will begin with a description of the exodus from Rwanda and the cholera outbreak that occurred in Goma, Zaire in 1994. It was the worst cholera outbreak ever recorded in a single location. A short video segment from "Sixty Minutes" will show how (after the fact) advocates used a vaccine to combat the outbreak in Goma. Workshop participants will then be encouraged to debate the advantages of focusing on providing safe water versus providing a vaccine. While this may sound rather technical, the essence of the discussion does not require much scientific background. The workshop aims to show that water professionals are not very effective at influencing water issues. In fact, water professionals have done little to "develop" their field, limiting their ability to exert political or social force compared to economists and physicians. One of the main reasons for this, it will be argued, is that the water delivery field was mostly developed by 1920, and that the power and influence of professions is influenced more by excitement and the potential for new technical solutions than by any measure of societal need. Technology is improving but the availability of resources is diminishing. In many ways we have lost ground globally over the past three decades, mostly due to population growth.

**BIOSKETCH**

See lecture descriptions.

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**WATER RITUALS**

Monday, 2:50pm–3:50pm, Marshman

**Edmund Robinson**

**ABSTRACT**

Using the Unitarian Universalist "Water Communion" as a core, we will practise and discuss ritual aspects of water. We will explore how these might deepen our connection with water and our commitment to protecting and conserving water. If you brought water from home or any water source with special meaning for you, please bring it with you. If not, you can still participate fully. What sort of ritual might we create to recognize that our week on Star Island depends completely on a unique mix of rainfall, sea water and drinking water brought daily by the ferry?

**BIOSKETCH**

Edmund Robinson is the incoming minister of First Church (UU), Belmont MA, a banjo picker and a former lawyer. He lives in Arlington MA and is married to Jacqueline Schwab.

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AN ISLAND GARDEN: CHILDE HASSAM,  
CELIA THAXTER AND THE PAINTING  
AND POETRY OF THE ISLES OF SHOALS

Sunday, 2:50pm–3:50pm, Elliot

**Sally Sapienza**

ABSTRACT

For nearly a quarter of a century, America's most outstanding impressionist painter, Childe Hassam, visited, was inspired by, and worked on Appledore Island. There he created paintings, watercolors, pastels and drawings that are thought to be among his finest works, and stand as icons of late 19th and early 20th century art. Attached to Celia Thaxter's salon during the 1880's and to the Isles past her 1894 death, Hassam created his art using as subjects Celia Thaxter, her book- and flower-filled home, her gloriously rich and vibrant garden, and the views from her porch. Beyond this little world of lively intellectual discussion, art-making and music lay the seemingly inhospitable rocks of Appledore Island. But these too attracted Hassam's eye. He found that "the rocks and the sea are the few things that do not change and they are wonderfully beautiful." They too became the subject of many of his later works.

The subject of this presentation by Vaughn Curator, Sally Sapienza, will be about Hassam's work focused on Celia Thaxter and the sea surrounding her island home. The wild, barren and isolated island location provided Hassam with a unique opportunity to work tranquilly and uninterrupted, making it possible for him to experiment with both the subjects and techniques of his paintings. On Monday afternoon Sally will lead a tour of Appledore Island, stopping at Celia's garden, the site of her former home, her grave, and several of the locations which Hassam painted.

BIOSKETCH

Sally Sapienza, curator of the Vaughn Cottage Museum, first learned about Celia Thaxter and the Isles of Shoals while working at the Longfellow National Historic Site, in Cambridge, Mass. The poet, Henry W. Longfellow's daughter, Alice, was a friend of Celia Thaxter's, and many members of the family visited Appledore and Star Islands. Before working for the National Park Service, as an educator and museum curatorial assistant, she was a docent at the Fogg Art Museum at Harvard University, using her BA degree in art history, followed by an educational position at the Concord Museum, Concord, Mass. She has also worked as an independent curator and collection manager at the New Bedford Art Museum and The Children's Museum, Boston, after receiving her Masters Degree at Syracuse University in Museum Studies. Currently she is writing a book on the history of natural history museums and the whaling industry in 19th century New Bedford MA.

As population increases, the supply of fresh water per person is declining. The need for fresh water has become a strategic issue in many parts of the world, leading to growing tensions. Experts in many fields believe that future civil and regional wars will be fought over the availability of fresh water, not just oil. This workshop will explore ways that the interlocking political, economic and military systems influence and control water policy and reality. We need to have clarity on these issues before we can design and implement any creative solutions to the pressing problem of adequate fresh water for everyone.

BIOSKETCH

Douglas Wight has had a teaching career spanning kindergarten to college, in a variety of fields including social sciences, sports, ecology and wellness. For six year he was also a YMCA director. For the last twenty years he has been a writer, researcher and activist. He is currently living in the Sirius Community ([www.sirius.org](http://www.sirius.org)) in western Massachusetts, an eco-village aiming to be wholly sustainable and renewable. Sirius is a spiritual community that embraces the truth in all religions.

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WATER AND  
THE MILITARY-INDUSTRIAL COMPLEX

Wednesday, 4:00pm–5:00pm, Sandpiper

**Douglas Wight**

ABSTRACT

## OTHER ACTIVITIES

### WATER TOUR OF STAR ISLAND

Training: Sunday during Free University  
Tours: Monday through Wednesday  
All during Free University;  
also as announced at other times

#### DESCRIPTION

Given its location, Star Island has had to develop unique solutions to meet its various water needs: the toilets flush with salt water; cistern water for washing and showers is collected from the rooftops; and potable water arrives each day from the mainland on the ferry. This walking tour will explore these various sources of water, how it is transported and used, and how the waste water and sewage is processed. Special emphasis will be placed on how these systems attempt to combine utility and environmental sensitivity. Come explore, and appreciate anew, the delicately balanced and complex infrastructure that makes our lives on this lovely island possible.

Meet at the ferry dock and follow the guide with the blue flag. The tour will last approximately 40 minutes.

Coordinator: Bill Falla

Children's Book: Veronique and Liam Blanchard

Tour Guides: Bill Falla, Jeanie Graustein, other conferees

Star Island Staff: Paul Jennings, Joe Watts and others

#### BIOSKETCHES

Veronique Blanchard has created a children's book about the island and its water, called "Sammy's Week on Star" which features an eight-year-old girl and her small stuffed toy, Pitter Pat, accidentally flushed down the toilet! The book is illustrated by Liam Collier, a ninth grader at New Hope-Solebury High School. This is Veronique's fifth time at Star, thanks to her mother, Claudine Blanchard, who gives her this trip as a birthday present every year. Veronique's interest in water issues goes back to her student days as an Environmental Studies major at Smith College with a focus on water and botany. She had many career changes since then, including being a Recycling Consultant for a private firm, a Librarian and Women's Studies teacher at Solebury School and now managing her own business making handmade tile in quilt patterns.

Bill Falla is the Pastor of St. John's UCC-Mickleys in Whitehall PA as well as an Adjunct Instructor of Philosophy at Moravian College and of Theology at Moravian Theological Seminary. He has a BA in Chemistry from Harpur College, an MS in Geology from Penn State and ThM and ThD degrees from the Lutheran School of Theology at Chicago.

Jeanie Graustein gained true appreciation for water by living through a North Dakota winter with no indoor plumbing. She has a BA in Anthropology from the University of California, Berkeley, MEd in elementary education and MDiv from Yale Divinity School. She is the Environmental Justice Ministry Coordinator for the Office of Urban Affairs

of the Archdiocese of Hartford (CT). She has gathered parishes by watersheds to learn about water pollution prevention and educates adults about the complex connections between care of neighbor and care of the Earth.

### MULTI-LEVEL FLOW YOGA

Every day from Sunday through Friday,  
6:30am-7:45am and 5:15pm-6:15pm,  
all in Brookfield

#### Bob Vaccaro RYT

#### DESCRIPTION

Slow and long inhales and exhales weave together an uninterrupted sequence of forty to fifty simple postures drawn from several yoga traditions. Each participant is encouraged to work the edge in each posture where tensions are releasing from the muscles being stretched. This requires intense focus and can be challenging but should not threaten even out-of-shape beginners. As tensions leave your body, anxieties and confusions will leave your mind and your connection to your inner spirit will grow.

#### BIOSKETCH

Bob Vaccaro has been practicing yoga for over twenty years and has been teaching yoga for over ten years. He holds certifications as a Psychosynthesis (spiritual psychology) Counselor, a Holistic Lifestyle Teacher, an Advanced Phoenix Rising Yoga Therapy Practitioner, an Integral Yoga Teacher, and a Yogassage Practitioner.

### THE BLUE PLANET: SEAS OF LIFE

Sunday through Wednesday during Free University  
Sunday through Wednesday after Candlelight  
all in Elliot

#### DESCRIPTION

With over two-thirds of its surface made up of water, ours is a watery planet dominated by the forces of the ocean. Yet few places on Earth retain their secrets as well — we know less about our ocean depths than we do about the surface of the Moon. Beyond the shorelines lies this largely undiscovered world, with its secrets only just beginning to be revealed. Narrated by David Attenborough, the BBC's "Blue Planet" series took five years to make and a budget of over \$10 million. Its eight episodes present the definitive natural history of the world's ocean, exploring this fascinating environment in all its variety. From popular shores and teeming shallows to the apparent "desert" of the open ocean and the mysterious depths where monstrous creatures lurk in the abyssal darkness, the Blue Planet will change our views of the deep.

Episodes include "Ocean World", "Frozen Seas", "Open Ocean", "The Deep", "Seasonal Seas", "Coral Seas", "Tidal Seas" and "Coasts".

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WATER WATER EVERYWHERE

Every day from Sunday through Thursday,  
2:00 – 3:30 pm or 3:30 – 5:00 pm,  
all at the Art Barn

**Kathy Baucke**

An art workshop in which participants will use the templates from some very old illuminated pages to create a visual discourse on the manner in which water is woven into the web of our lives. Participants are asked to bring along a significant memory involving water. There will be two sessions for the workshop, which will meet Sun-Thursday 2-3:30 or 3:30-5. Space limited to 10 participants per session.

BYO Materials: watercolors & brushes, drawing materials. For anyone without materials, don't worry, there will be a limited amount of brushes and watercolors. A sketchbook would be great! Artist Kathy Baucke will be providing supplemental materials.

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## CHAPEL AND CANDLELIGHT SERVICES AND CHOIR

Activities of the day begin right after breakfast each morning with chapel.  
Scheduled activities of the day end with a candlelight service.

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### CHAPEL SERVICES 9 - 9:45 am

**V.V. Raman** will be the chapel speaker on “Water in Science and Water in Religions.” **Rev. Dr. Barbara Whittaker-Johns** will serve as minister for the week.

**V.V. Raman** has a Ph.D. in Theoretical Physics, but during the past decade he has turned his interests to the broader theme of science and religion. He has studied the doctrinal framework of the major religions, and also attended worship services in a whole range of religious denominations in order to experience their spiritual dimensions. He is a transcultural voyager, who finds meaning in life as he courses from language to language, from physics to philosophy, from music to metaphysics, from Gita to Gregorian Chants, from Mozart to Musicals, from feasting to fasting, who experiences mystical thrills as much from Maxwell's equations as from meditation, addicted to alliterations, deeply committed to spreading Science and Enlightenment, and very aware of the positive contributions of religions, dedicated bridge-builder: who thinks that the only thing that ultimately matters in life is whether one has been kind and compassionate to fellow beings, and brought smiles and laughter to those with whom one interacts, and that much of everything else is but entertaining or useful noise; convinced that the ultimate truths about God and the hereafter will be revealed one way or another to all of us when the time comes. After serving Rochester Institute of Technology for 33 years as Professor of Physics and Humanities, he is currently Professor Emeritus at RIT. [see IRAS Seminar page for more biographical information]

**Rev. Dr. Barbara Whittaker-Johns** has been coming to the IRAS week since 1984, with her husband, Frank Toppa. Their son, Isaac Toppa, has been coming since he was born, in 1989. She is Senior Minister of First Parish, Unitarian Universalist Church in Arlington, MA, and has been active in IRAS in organizational roles and as Chaplain for a number of Star Island conferences.

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### CANDLELIGHT SERVICES 9:40 - 10:10 pm

Saturday: **Paula Fangman** – “Sacred Uses of Water”  
Sunday: **Michael Cavanaugh** – “Awkwardness”  
Monday: **Normand Laurendeau** – “Woman at the Well”  
Tuesday: **Jane Penfield and David Klotz** – “Peace in the Garden”  
Wednesday: **Pamela Banks** – “I ‘Was’ Water”  
Thursday: **Tanya and Peter Avakian** – “Water Stories”  
Friday: **Chip and Eunice Ordman** – “The Waters of Meribah”

**Coordinator:** Betty Lau

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### THE IRAS CHOIR

The IRAS Choir meets to rehearse Sunday through Friday immediately after lunch in the Pink Parlor [off the main lobby] and as otherwise announced. The choir is a lively and enthusiastic group of conferees, and looks forward to preparing music for the closing banquet, the talent show, and a chapel service. All singers are warmly encouraged! Accomplished instrumentalists are welcomed with open arms! Speak to Jane Penfield if you are interested but have doubts, and she will persuade you that they are misplaced.

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# PEOPLE

## Conference Planning Committee

Jeanie Graustein	Co-chair
Sol Katz	Co-chair
George Fisher	Co-chair
Bill Falla	Karl Peters
Marion Griswold	V.V. Raman
Peter Kelly	John Teske (Publicity)

## Conference Administrators

Conference Coordinator	Nancy Anschuetz
Registrar	Bonnie Falla

## Conference Facilitators

Announcements	Nancy Anschuetz
Book Table	Joan Goodwin
Bookstore Order	Karl Peters
Candlelight Coordinator	Betty Lau
Children's Program Coordinator	Sandra Woodworth
IRAS Reps at Ferry Check-in	Joan Goodwin, David and Joan Hunter
IRAS Seminar	Jeff Dahms, Karl Peters
Music Director	Jane Penfield
Other Music	Frank Toppa
Program Pamphlet	Doug Burton
Social Hour Coordinator	Sara Sturges
<i>Star Beacon</i> Editor	Jane Bengtson
Talent Show	Joan Hunter
Water System Children's Book	Veronique and Liam Blanchard
Water Tour Coordinator	Bill Falla
Workshop Coordinator	Andrew Millard

Most of the facilitators are recruited on the Island. A more complete list of facilitators will be prepared for the banquet program pamphlet after we know who they are.

The successful functioning of the conference is utterly dependent on the facilitators. If you would like to become actively involved in the functioning of the conference and meet and work with new and old friends, the conference chairpersons and coordinator, choir director, and *Star Beacon* editor and production manager would like to hear from you.

## IRAS Scholars

Maureen Oates	Giovanni Zinn
Richard Trowbridge	

## IRAS Officers

Michael Cavanaugh	President
Christopher Corbally S.J.	Immediate Past President

Carol Albright	Vice President, Religion
Solomon Katz	Vice President, Science
Willem Drees	Vice President, Interdisciplinary Affairs
Robert Schaible	Vice President, Conferences
Ursula Goodenough	Vice President, Development
Edwin C. Laurenson	Secretary
Marion Griswold	Treasurer

## Elected Council Members

Stacey Ake	Edward Lowry
Carol Albright	Andrew Millard
Elizabeth Bjorkman	V.V. Raman
Willem Drees	Edmund Robinson
Larry Fagg	William Stone
Joan Goodwin	John Teske
Jean Graustein	Barry Werner
Sol Katz	Elizabeth White

## Other Council Members (Ex Officio)

Philip Hefner	Zygon Editor
Solomon Katz	CASIRAS Representative
Nancy Anschuetz	Conference Coordinator

## Others with Official Responsibilities

Marjorie Davis	Historian/Parliamentarian
David Klotz	Membership Coordinator
Edwin C. Laurenson	Newsletter Editor
Stacey Ake	Newsletter Co-editor
Doug Burton	Webmaster
V.V. Raman	Discussion Groups Coordinator

## Honorary Officers

Donald Harrington	Honorary Vice President
Malcolm Sutherland	Honorary Vice President
Philip Hefner	Honorary Vice President
Karl Peters	Honorary Vice President
Solomon Katz	Honorary Vice President

## Committee Chairs

Archives	Philip Hefner
Awards	Karl Peters
Development	Ursula Goodenough
Finance	David Klotz
Internet	Doug Burton
Long-Range Conf. Planning	Robert Schaible
Membership	David Klotz
Newsletter	Ted Laurenson
Nominating	Marjorie Davis
Publicity	John Teske
Scholarship	William Falla

## BOOKS FOR ADDITIONAL READING

- Altman, Nathaniel, “Sacred Water: the Spiritual Source of Life”
- Ball, Philip, “Life’s Matrix: A Biography of Water”
- Barlow, Maude & Tony Clarke, “Blue Gold: the Fight to Stop the Corporate Theft of the World’s Water”
- Colby, Bonnie G., “Water Markets in Theory and Practice”, 1987
- Denny, Frederick, “An Introduction to Islam”, Prentice Hall 1994
- Gleick, Peter H., “The World's Water 2002 - 2003: The Biennial Report on Freshwater Resources,” Washington DC: Island Press, 2002.
- “The New Economy of Water: the risks and benefits of globalization and privatization of fresh water,” Oakland, Calif.: Pacific Institute for Studies in Development, Environment, and Security, 2002.
- Gingerich, Owen, “The Book Nobody Read”
- Goodenough, Ursula, “The Sacred Depths of Nature”
- Haberman, David, “Journey Through the Twelve Forests”, 1994
- Henderson, Lawrence, “The Fitness of the Environment” [1913, try a library]
- Hillel, Daniel. “Rivers of Eden: The Struggle for Water and the Quest for Peace in the Middle East”. New York: Oxford University Press, 1994.
- Marks, William, “The Holy Order of Water: Healing Earth’s Waters and Ourselves” 2001
- MacLean, Norman, “A River Runs Though It”
- Marrin, D.L, "Universal Water: the Ancient Wisdom and Scientific Theory of Water", Inner Ocean, 2002.
- Postel, Sandra, “The Last Oasis: Facing Water Scarcity”
- “Pillar of Sand: Can the Irrigation Miracle Last?”
- Reisner, Marc, “Cadillac Desert: the American West and its Disappearing Water” 1993
- Rolston, Holmes, “Genes, Genesis and God”, “Environmental Ethics”
- Rossing, Barbara, “The Rapture Exposed: the Message of Hope in the Book of Revelation”, Westview Press, 2004
- Shiva, Vandana, “Water Wars: Privatization, Pollution and Profit”
- Steingraber, Sandra, “Living Downstream: an Ecologist Looks at Cancer and the Environment” 1997
- United Nations Commission on Sustainable Development. “Comprehensive Assessment of the Freshwater Resources of the World.” Geneva: United Nations, 1997.
- United Nations World Water Development Report, “Water for People, Water for Life,” available online at <http://www.unesco.org/water/wwap/wwdr/index.shtml>
- U. N. Environment Programme <http://www.unep.org/themes/freshwater>
- Catholic Bishops of the Columbia River Watershed. “The Columbia River Watershed: Caring for Creation and the Common Good -- an International Pastoral Letter by the Catholic Bishops of the Region.” <http://www.columbiariver.org/index1.html>

## ACKNOWLEDGMENTS

We are grateful to our speakers and workshop leaders, and to those who said "yes" when we asked them to be coordinators and facilitators — all of whom shared our enthusiasm for this conference and who generously contributed their time and talents without pay as they carry out the planning and innumerable tasks necessary for a successful conference.

We are also thankful for our conferees, those who coordinate and volunteer for particular activities and all who participate in so many ways. We appreciate all the wonderful ideas and suggestions contributed, those we incorporated into the conference and those we could not.

We are grateful to the Isles of Shoals Association, Unitarian Universalist, for their grant. This has funded some special workshop expenses, as well as development and printing of the Star Island Water System guide and the children's story and coloring book.

We express our appreciation to the Star Island staff for the competent, courteous, and efficient way they take care of our needs and help make our week on the Island so rewarding. Special thanks to Sally Sapienza for bringing the art and poetry of the Isles of Shoals alive for us. Special thanks also to Paul Jennings, Joe Watts and other Star Island Corporation staff for working with us to develop and conduct the Water Tours, helping us to more fully appreciate all that goes into making our lives possible on Star Island for this wonderful week.





# 51st Annual IRAS Conference, "Earth's Waters in Crisis: a Scientific, Spiritual and Moral Challenge" Saturday, July 24, thru Friday, July 30, 2004

PERIOD	ACTIVITY	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Morning Activities: Chapel and Plenary Lectures</b>								
8:00 -9:00 am	<b>Breakfast</b> <sup>9</sup>							
9:00-9:45 am	<b>Chapel</b>	V. V. Raman, Chapel Speaker						
10:00-10:55 am	<b>Lectures (El)</b>	WELCOME TO STAR ISLAND	Owen Gingerich	Ursula Goodenough	Bonnie Colby	Les Roberts	Holmes Rolston	Closing Discussion
10:55-11:15 am	<b>Break</b>							
11:15-12:15 pm	<b>Discussion</b>							
12:30-1:30 pm	<b>Lunch</b>							
<b>Afternoon Activities<sup>1</sup>: Recreation<sup>5</sup>, Seminar, Workshops, Free University<sup>4</sup>, and Socializing</b>								
1:40-2:40 pm	Annual Meeting IRAS Seminar Free University	ARRIVING, GETTING SETTLED, GREETING FRIENDS	Water Tour Training Blue Planet Video- El	IRAS Seminar- Ma Water Tour Blue Planet video- El	IRAS Seminar- Ma Water Tour Blue Planet video	IRAS Seminar – Ma Water Tour Blue Planet video	IRAS Annual Meeting - El	Memorial Service Chapel
2:50-3:50 pm	<b>Session I</b> Workshops		Sapienza (El)	Blaisdell/Kelly (El) Kautza(Lw) Robinson(Ma) Puente(NF)	Blaisdell/Kelly (El) Case (Sp) Gingerich (Ma) Puente (NF)	Blaisdell/Kelly (El) Colby (Ma) Goodenough (Sp) Puente (NF)	Council Meeting(Sp) Blaisdell/Kelly (El)	
4:00-5:00 pm	<b>Session II</b> Workshops	<b>MANDATORY STAR ISLAND ORIENTATION-4:00</b> <sup>2</sup> <b>PARENTS MEETING-5:15</b> <sup>3</sup>	Chapman (El) Griswold (Sp) Marrin (NF) Martin (PP) 5 pm Mass in Chapel	(Appledore trip) Klotz (El) Martin (PP) Millard (NF)	Case (El) Fagg (NF) Gingerich (Ma) Menteith (Sp)	Colby (Ma) Marrin (NF) Menteith (El) Wright (Sp)	Council Meeting(Sp) Carr (NF) Kautza (Lw) Martin (PP)	
5:30-6:30 pm	<b>Happy Hour</b> <sup>9</sup> (Newton)							
6:30-7:30 pm	<b>Dinner</b>					Lobster Dinner <sup>6</sup>		Banquet
<b>Evening Activities: Plenary Lectures, Candlelight Services, and Late Evening Activities</b>								
7:30-9:30 pm	<b>Lectures and Discussion</b>	George Fisher	George Fisher	David Haberman	Barbara Rossing	Fred Denny	Sol Katz	Talent Show
9:40-10:10 pm	<b>Candlelight Services (Ch)</b>	Paula Fangman	Michael Cavanaugh	Normand Laurendeau	Jane Penfield & David Klotz	Pamela Banks	Tanya & Peter Avakian	Chip & Eunice Ordman
10:10 p - ?		<b>Videos, Snacks, Conversations, and Socializing</b> <sup>8</sup>						Farewell Party (Newton)

<sup>1</sup>Room abbreviations are: **Br** = Brookfield; **Ch** = Chapel; **El** = Elliott; **Lw** = Lawrence; **Ma** = Marshman; **Nb** = Newton back; **Nf** = Newton front; **Pk** = Parker; **PP** = Pink Parlor [off hotel lobby]; **Sp** = Sandpiper [back hall from Elliott and Lawrence]; **WR** = Writing Room [NW corner hotel porch].

<sup>2</sup>The Star Island Orientation, conducted by the Star Island staff starting at 4 pm, is the one and only scheduled activity that is mandatory for all conferees.

<sup>3</sup>All parents with children in the Archipelagos program, and their children, are required to attend a brief meeting at 5:15 pm in Elliott.

<sup>4</sup>"Free University" and other activities organized by conferees will be announced on the Island and scheduled for the 1:40 to 2:40 pm period. See chalkboard for daily schedule.

<sup>5</sup>Excursion to Appledore Island on Monday afternoon. **Leaves Star Island dock at 3:45, returning 5:45.** \$5.00 per person. Please sign up on Sunday. Limited to 45 people.

<sup>6</sup>There will be a lobster dinner on Wednesday; price (per lobster) dependent on market (\$9-\$11.) Tickets must be purchased by Monday noon. **Lobster diners should be seated by 6:15 pm.**

<sup>7</sup>On Thursday evening the plenary session discussion ends at 8:55 pm, the Pelican show starts at 9:05 pm, and the Candlelight Service begins as soon as the Pelican Show is over.

<sup>8</sup>The snack bar closes at 11 pm. Socializing and informal discussions can continue until dawn.

<sup>9</sup>Yoga will take place Sunday-Friday 6:30-7:45am and 5:15-6:15pm in Brookfield.