IRAS

The Energy Transition: Religious and Cultural Perspectives

Program and Schedule

The Institute on Religion in an Age of Science

56th Annual Conference, July 24 to July 31, 2010

CONFERENCE STATEMENT

Energy and climate change typically are discussed in terms of their associated science, technology, economics, and politics. Little attention, however, has been given to fundamental religious and ethical questions surrounding the upcoming transition to renewable energy.

We are entering a period of monumental transition as we encounter the inevitable shirft from fossil to renewable fuels. Fossil fuels are being depleted while we pile up nuclear wastes, yet renewable alternatives, such as solar, wind, and biomass, are not significantly in place. As for any technological transition of this magnitude, ultimate success will require good ethics and religion, as well as good science and technology. Unfortunately, religious pronouncements to date have been largely dismissed owing to their feeble consideration of accompanying scientific and technological realities. Nevertheless, religious perspectives have the advantage of highlighting ultimate values, regardless of economic and political pressures. The time has thus come to bring together scientists, engineers, ethicists, and theologians to help effect a sustainable energy future.

The conference will engage scientific, technological, economic, and political issues associated with energy conservation and renewable energies in the context of global warming, sustainability, and human purpose. The emphasis will be n (1) ethical and religious perspectives that can be used to guide future energy choices and (2) energy choices that, in turn, might challenge ethical and religious perspectives. Queries will include the following:

- How will human values be challenged by the coming energy transition?
- What are the ethical implications of heightened competition for energy resources?
- How might religious perspectives help foster renewable energy for transportation or electrical power?
- What strategies can be used to provide affordable energy for low-income citizens?
- Can cultural values, as espoused by religious communities of simplicity, help humanize energy markets?
- What role should religion play in reducing consumption and building sustainable global communities?
- How are religious communities dealing with alternative energy policies and engaging realistically with those political processes needed to plan our energy future?
- How might theological and religious understandings of energy contribute to a viable energy future?
- How can religious institutions become better prepared to deal with human suffering on a global scale should we not plan well for a peaceful energy transition?

Norm Laurendeau
Larry Rasmussen
Conference Co-chairs

PRESIDENT'S WELCOME

Welcome to – and back to – Star Island!

Most of you have participated in many previous IRAS conferences, both here and last year in Chautauqua. If this is your first IRAS conference, we particularly look forward to getting to know you.

Our conference co-chairs, Norm Laurendeau and Larry Rasmussen, have assembled a splendid set of speakers to address some of the most pressing issues that face humanity, and I believe you will find the formal sessions of the conference enthralling, challenging and (this is a good thing) troubling. But an IRAS conference offers far more than lectures, however interactive and engaging. You will be offered a wealth of workshops, wonderful music (and opportunities to participate in making it), art, dancing, companionship and far-ranging conversation, as well as an opportunity to explore a beautiful and precious place where living is as chary of energy overconsumption as can be found in the 21st century this side of a campground.

As you know, this may well be IRAS's last conference on Star Island—certainly in the immediately foreseeable future. That is cause for sadness for many of us, but we will return to the wonderful venue of Chautauqua next year and are confident that IRAS will continue to flourish. This week, let us enjoy once more the place of our founding and revel in our traditions, emerging refreshed in IRAS's mission and charged by the chemistry of our friendships.

Most of our activities at this conference have been organized or coordinated by Norm and Larry, and I and the other members of the IRAS leadership will step back and let them and our speakers do their thing. But we are eager to hear your thoughts, to hang out with you, to get to know you and to explore your interest in IRAS and its mission and activities, and I hope you will take advantage of that eagerness. I know this will be a week of profound enjoyment of which each of you will be a precious part.

Ted Laurenson
President of IRAS

CONTENTS

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 that 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 Szantho 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 multidisciplinary 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 Midwinter Meeting adopted the "Campion Statement," so-called because it originated from discussions at the Campion Center in Massachusetts at the 2002 Midwinter 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 nonprofit 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 offshore 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 (603-601-0832). 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.

If you must communicate off-island, a new Business Center is available on the first floor of Cottage D. It offers a small number of computer stations, including wireless internet access, a printer, photocopier and scanner for a quite modest fee.

Most importantly, there are the people who come to IRAS conferences—typically more than 150, from a variety of academic and professional fields, as well as many well-educated "lay persons." Many belong to IRAS, which has about 300 members. Others come because they are interested in how 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

Chapel services at 9 A.M. begin each day with reflections provided by Rev. Drew Christiansen.

Plenary session lectures and discussion are scheduled in the *morning* (starting at 10 A.M.) and *evening* (starting at 7:30 P.M.). The speakers (first hour) will develop the theme of the conference as they address different issues and questions from their own disciplines and perspectives. Following a break there will be general discussion. The porch bell will be rung (a single stroke) 5 minutes before the beginning of the morning and evening sessions, at 9:55 A.M. and 7:25 P.M. We hope this advance warning enables everyone to reach his or her seat in time to allow a prompt start at 10:00 A.M. and 7:30 P.M. 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. Abstracts and biosketches of the speakers begin on page 10.

The **IRAS seminar** will consider a book in progress by J.C. Smith, tentatively titled *From Ardi to Us: Sexual Dialectics and the Evolution of the Soul*. It will be held on Monday, Tuesday, and Wednesday, 1:40–2:30 P.M., in Marshman. Further information may be found beginning on page 16.

Free University sessions, from 1:40–2:30 P.M. 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 Steven Gaudet 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 in the lobby.

Workshops and **Discussion Groups** will be offered during the afternoon from 2:40 to 3:30 and 3:40 to 4:30 P.M. Leaders and workshop locations are listed in the schedule on the back page of this program booklet, and workshop descriptions begin on page 18, listed alphabetically by presenter. Other activities such as Meditation, Yoga, and Art are listed beginning on page 22.

Happy Hour takes place at the end of afternoon activities, from 5:30–6:30 P.M. 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. Persons under 21 are not permitted in the beverage-serving area.

Recreation. Afternoons are also opportunities for recreation: talking, thinking, napping, reading, walking, and playing. Various tours will be announced, including a trip to the Marine Laboratory of the University of New Hampshire on Appledore Island. (Please sign up at the front desk in advance, as the boat capacity is limited.)

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 after the plenary session, and the IRAS Talent Show is on Friday evening. 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 appears at breakfast each morning with up-to-date information on the conference and its participants. It provides opportunities for you to respond to lectures and the conference theme, challenge ideas, publish poetry, commentary, and other forms of artistic expression, including humor, all at the discretion of the editor, Jane Bengtson, and as space is available. Contributions from our younger conferees often grace the pages.

Candlelight services allow time for quiet reflection at the close of each day in the chapel and environs, and follow the evening-program discussion hour. Each service lasts ~20 minutes.

Star Gazing takes place on clear nights after Candlelight, generally in the open area near Vaughn, with the Island telescope. Check the announcement board to see if we'll be observing.

Memorial Service. A memorial service for IRAS members who have died during the past 2 years will be held in the Chapel on Friday at 1:40 P.M.

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

Dancing will take place in Newton Front every evening after the candlelight services. Please bring along any favorite CDs you have with you. Genres will range from ballroom to rock, as requested by those who come.

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

Children must participate in the children's program unless Steven Gaudet receives a signed waiver. See more about the program on page 7.

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 Ted Laurenson.

Star Island Regulations: You were sent with your registration packet, and will find in your room, a memorandum on the regulations that govern the Star Island Conference Center. These will also be emphasized in the required "Fire and Water" presentation on Saturday afternoon. Please read and adhere to these carefully, notably those relating to permissible locations for smoking and alcoholic beverages. Illegal substances are of course forbidden at all times. Persons found violating these regulations will be removed from the Island on the next boat and may be barred from attending future conferences, depending upon the circumstances.

If you have any **questions or suggestions** concerning the conference, please bring them up with Conference Coordinator Steven Gaudet, or with Co-chairs Norm Laurendeau and Larry Rasmussen.

ARCHI PELAGOS: IRAS CONFERENCE YOUTH PROGRAM

Welcome to Star Island!

Oh, how I missed being with you on Star last summer, and how excited I am to be a part of this great conference in our Star Island home. Many of you "did come back" and some of you may find yourselves here to share this gift with your children and grandchildren. Certainly it is love that calls me here each summer. I feel richly blessed to share this time with your children, and I wait in anticipation to see the familiar names on the roster and tell the teachers who will be in their groups. It is such a delight to know we will have this time with them again: to play, create, explore, and especially renew and develop special Star Island friendships. And, of course, there are new staff as well as new young people to share our treasured island with.

We have some traditional activities like scavenger hunts and game day. Then there's that row to Smuttynose (some adults join us) and oft times we have secret friends and most times we hang out and explore in the marine lab and listen to stories and games with the island historian. We'll visit our favorite places all over the island. We'll avoid poison ivy. We'll create things and imagine things. We'll try to incorporate some emergence experiences into our morning program and probably our Thursday evening chapel. And who knows what will emerge for our game day activity? We're hoping to have an opportunity to work with some of the incredible and creative speakers as well. Our program is planned and responsive.

Each parent will receive a handout with the schedule for their child's group at the introduction meeting following the mandatory Star Island orientation session Saturday afternoon. We hope the bulletin board on the porch is available for our daily announcements and copies of the schedules as well as fun stuff to share. The names and locations of the staff as well as the youth will also be posted there. This year we have four groups and 25 youth. Please check the board daily for changes and updates. We will try to get announcements into the morning Beacon as well.

In general, we meet each morning at 9:00 A.M. in age-specific groups until 12:15 P.M. The seniors meet at morning chapel and again afternoons in Parker. The morning session is structured with both energetic and quiet activities. Afternoons are free and youth are under the supervision of parents and guardians until the social hour (5:15–6:15 P.M.). The one exception is Tuesday afternoon when we offer a program from 4:00–5:15 and parents take back responsibility from 5:15, allowing youth staff to socialize that afternoon.

Several midafternoons we set up craft or game activities on the porch, and these activities are open to all.

A light afternoon snack is offered at 5:00 P.M. on the front porch of the Oceanic or the well house at the bottom of the stairs. This is round-up time for the games and playground time we supervise from 5:15–6:15.

Thank you for bringing your precious ones.

Sandra Woodworth, coordinator

LECTURE OVERVIEWS, ABSTRACTS, AND BIOSKETCHES

GENERAL CONFERENCE OVERVIEW

Welcome to the fifty-sixth annual summer conference sponsored by the Institute on Religion in an Age of Science (IRAS). We are enthusiastic about our theme this summer, *The Energy Transition: Religious and Cultural Perspectives,* for three reasons. First, to our knowledge, this conference is the first in the United States to consider fully the significant connections between energy and religion as we ponder our energy future. Second, while, of course, we'll consider the science and technology of energy, we'll focus specifically on salient religious and cultural issues important to energy policy, both globally and in the United States. Third, we are excited by our group of distinguished speakers—from academia, a national laboratory, and private industry, covering also a wide spectrum of religious and cultural traditions.

The conference agenda begins with the science and technology of energy, shifts to ethical issues, and ends with religious and cultural perspectives on energy policy. While many factors will undoubtedly play a role in our energy future, including population, resources, and national interests, we have chosen to focus on what are probably the two most significant drivers of the upcoming energy transition: *climate change* and *the shift from oil to renewable fuels*.

Saturday evening, conference cochair, Norm Laurendeau, will set the stage for the conference by introducing thermodynamic and theological considerations relevant to energy policy. General scientific and technological aspects will be covered within the context of the first and second laws of thermodynamics. Similarly, general ethical and religious aspects will be covered within the context of basic philosophical and theological motifs within secular culture. Our intention here is to provide the necessary background, motivation, and perspectives for a fuller discussion of such issues during the remainder of the conference.

Sunday morning, John Abraham, professor of mechanical engineering at Purdue University, will discuss current and emerging means of generating power for transportation, including internal combustion engines, gas turbines, batteries, and fuel cells. While petroleum-based fuels are currently the predominant source of energy for transportation, synfuels and biofuels are gaining in importance. However, as Professor Abraham will show, production methods employed for such fuels can have negative impacts on the environment. Furthermore, any rise in consumption invariably puts increasing strain on our natural resources.

Sunday evening, Susan Leschine, professor of microbiology at the University of Massachusetts, will build on Professor Abraham's presentation by considering in more detail perhaps the only sustainable source of liquid fuel—solar energy captured by plants and stored as biomass. Advanced biofuels, such as cellulosic ethanol derived from nonfood biomass, promise major economic and environmental benefits: improved rural economies, decreased dependence on imported oil, and reduced greenhouse gas emissions. The positive energy return for cellulosic ethanol results, at least in part, because the process makes use of the whole plant. Here, Professor Leschine will focus on an approach that employs a novel bacterium from forest soil, which apparently decomposes efficiently all the major components of biomass and produces ethanol as its primary fermentation product.

On Monday, R.V. Ravikrishna of the Indian Institute of Science and George Hoguet of NativeEnergy, Inc., will address issues of energy sustainability in both developing and developed nations. Employing aspects of ancient Indian philosophy relevant to community building, Professor Ravikrishna will offer a more global perspective on the topic of energy. The application of ethical and religious motivations derived from this philosophy will be delineated with respect to the practical implementation of energy projects, with a focus on bio-energy projects being pursued as a source of electricity for rural India and on large-scale solar-thermal systems for community kitchens in some Indian religious institutions.

Shifting to rural and low-income people of the developed world, George Hoguet will consider on Monday evening how such communities might increase self-reliance and sustainability, and how community-based solutions using carbon credits and emission offsets can be integrated with and contribute to the larger need for carbon-free energy. An important key to success here is collaborative and cooperative attitudes within communities; is there trust, is there openness and willingness to share? More specifically, can common ground be found within diverse faith beliefs and values that might actually energize, unite, and fuel communities in a transition to new ways of sharing energy and other resources?

The significance of energy conservation and renewable fuels with respect to sustainability will be the focus on Tuesday. Anne Perkins, director of Homeownership Programs at Rural Development, Inc., will address the building of zero net-energy homes for low-income families. The goal here is to design and build buildings that have as low an energy load as possible, and then to apply renewable energy to bring net use to zero. While high-end homes have previously been built to a zero net-energy standard, only recently have builders of homes for low- and moderate income buyers become involved in the movement. Surprisingly, the cost

increase to construct buildings with very low heat and electric loads as compared to traditional buildings is only 1.5%, while the projected energy savings are $2500 per year.

Following Ms. Perkins' presentation, Chuck Kutscher, group manager of the Building Systems Integration Center at the National Renewable Energy Laboratory, will consider how renewable technologies for electric power can help reduce U.S. carbon emissions. Dr. Kutscher will begin by discussing the latest evidence underscoring the urgency of the climate change problem, the reasons why we have been so slow to act, and potential solutions. In particular, he will summarize the results of a study he led for the American Solar Energy Society to determine the impact that efficiency and renewable energy technologies can have in the United States. He will then describe both the challenges and opportunities associated with making a rapid, large-scale transition from traditional energy systems to a sustainable, carbon-free future.

On Wednesday, the conference will shift to ethical and religious issues related to the energy transition. William Irvine, professor of philosophy at Wright State University, will address our craving for consumer goods, which, of course, cannot be provided without considerable energy consumption. The reality is that consumption is not necessarily related to satisfaction. In fact, when it comes to consumer goods, we tend to be insatiable—satisfying one craving only gives rise to other, even grander cravings. This raises two questions. First, why are we this way? Is it simply that our evolutionary past has programmed us to be this way? Second, is there anything we can do to overcome our energy gluttony? Here, Professor Irvine will acquaint us with the most salient advice from philosophers and religious thinkers on how we can accomplish the goal of wanting less.

Professor James Martin-Schramm of the Center for Ethics and Public Life at Luther College will dovetail with Professor Irvine by considering specifically moral and religious values germane to energy policy. In particular, he will introduce ethical resources Christian communities have developed over the last forty years to grapple with the nexus between social justice and environmental issues, especially the norms of sustainability, sufficiency, participation, and solidarity. These four ecojustice norms will then be utilized to conduct an ethical assessment of traditional and alternative energy options currently available to policy-makers.

The shift to religious values continues on Thursday. The Reverend Fletcher Harper, executive director of GreenFaith, will address how religious groups can effectively participate in energy policy. Specifically, he will share successful strategies used by religious groups to promote measurable changes in energy consumption in diverse settings, efforts which make use of replicable methods well-suited for nonprofit, religious, and community-based organizations.

Finally, conference co-chair Larry Rasmussen will integrate the various presentations by posing queries at the interface between energy policies and religious values. What challenges do energy policies pose to religious values so that the latter might be judged to be truly earth-oriented and earth-honoring? Reciprocally, how do shared cross-cultural, interfaith religious values challenge present and prospective energy policies? How might value orientations such as asceticism, sacramentalism, mysticism, prophetic and liberative practices, together with wisdom traditions, influence energy practices and policies?

Throughout the week, the Reverend Drew Christiansen, editor-in-chief of *America* magazine, will provide related chapel talks. Rev. Christiansen will relate our deliberations to Christian social teaching, with a focus on how the Catholic tradition has grown to include environmental issues and how it is being applied today to global climate change and energy ethics. The talks will treat (1) the nature and themes of Catholic social teaching; (2) the relevance of premodern theological visions of the cosmos; (3) environmentalism in contemporary Catholic social teaching; (4) climate change: a test case for the religious community; (5) religious ethics and science in the public domain; and (6) Teilhard de Chardin: the scientist as mystic and activist.

Your whole experience this week will be enhanced by the many workshops and activities that accompany an IRAS conference. Enjoy the speakers, workshops, discussions, and, of course, the new friends. We look forward to your comments on this conference and on your suggestions for upcoming conferences. Bon appétit!

SATURDAY EVENING

AN ENERGY PRIMER: FROM THERMODYNAMICS TO THEOLOGY

Normand M Laurendeau

ABSTRACT

Scientific, technological, ethical and religious issues confronting the human prospect are emerging as we encounter the inevitable shift from fossil to renewable fuels. Culturally, we are entering a period of monumental transition with respect to both the forms and use of energy. As for any technological transition of this magnitude, ultimate success will require good ethics and religion as well as good science and technology. Economic and political issues associated with energy conservation and renewable energies are arising in the context of peak oil, climate change, sustainability and human purpose. In particular, we must consider (1) ethical and religious perspectives which might guide future energy choices and (2) energy choices which, in turn, might challenge ethical and religious perspectives. In this opening talk, I will set the stage for the presentations to come by introducing thermodynamic and theological considerations relevant to our energy future. Scientific and technological aspects will be covered within the

context of the first and second laws of thermodynamics. Similarly, ethical and religious aspects will be covered within the context of basic philosophical and theological motifs within our secular culture. My intention is to provide the necessary background, motivation, and perspectives for a fuller discussion of such issues during the remainder of the conference.

BIOSKETCH

Normand Laurendeau was awarded the Ph.D. in mechanical engineering from the University of California, Berkeley in 1972. He immediately joined the faculty at Purdue University, rising through the ranks to professor of mechanical engineering in 1982. From 1980 until 1984, Dr. Laurendeau served as Director of Purdue's Coal Research Center. He was appointed the Reilly Professor of Combustion Engineering in 1995, subsequently becoming the Ralph and Bettye Bailey Professor of Combustion in 2000. Dr. Laurendeau retired from Purdue University in 2007. He is currently a research associate at Bowdoin College (Brunswick, ME) and a visiting scholar at the Graduate Theological Union (Berkeley, CA). Prof. Laurendeau has taught at the graduate and undergraduate levels in the areas of thermodynamics, combustion and engineering ethics. He continues to conduct research with Purdue colleagues and graduate students in the combustion sciences, with particular emphasis on laser-based diagnostics, pollutant formation and energy policy. Dr. Laurendeau has authored or coauthored over 180 refereed publications and nearly 225 presentations and reports. His textbook, *Statistical Thermodynamics: Fundamentals and Applications*, was published in 2005 by Cambridge University Press. Professor Laurendeau is a Fellow of the Optical Society of America and of the American Society of Mechanical Engineers. He is also a fully professed Lay Dominican, a member of the Combustion Institute and of the American Chemical Society.

SUNDAY MORNING

TRANSPORTATION: BEYOND OIL TO SYNFUELS AND BIOFUELS

John Abraham

ABSTRACT

I will begin this talk by discussing current and emerging means of generating power for transportation. These means include internal combustion engines, gas turbines, batteries, and fuel cells. This discussion will cover elements of the physics/chemistry of energy conversion in these engines/devices. Petroleum-based fuels are the predominant source of energy for transportation, but synfuels and biofuels are gaining in importance. The mechanisms for the formation of pollutants during the conversion of the chemical energy of these fuels to mechanical/electrical energy will be considered, including their impact on health and environment. Fuel-dependent performance of combustion engines will be discussed. Increasing demand for biofuels and production methods employed for biofuels and synfuels can have negative impacts on the environment. Viewed from a broad perspective, petroleum-based fuels, synfuels, and biofuels all have a common origin: living things. Differences lie in the vastly different time-scales over which they are replenished: the first two are consumed orders of magnitude faster than they are replenished (except when synfuels are generated from biomass), whereas the third is consumed at the same rate at which it is replenished. Equal rates of consumption and replenishment, while appearing to lead to a sustainable system, poses the dilemma that increasing consumption puts increasing strain on natural resources. I will discuss this dilemma with supporting quantitative data.

BIOSKETCH

Professor Abraham received his Ph.D. from the Department of Mechanical and Aerospace Engineering at Princeton University in 1986. He held positions as a research staff member at Princeton University, senior engineer at John Deere Technologies International, and the Richard and Barbara Nelson Assistant Professor in the Department of Mechanical Engineering at the University of Minnesota, before joining the faculty in the School of Mechanical Engineering at Purdue University in January, 1996. His research interests include internal combustion engines, fuels, combustion, multiphase flows, and computational fluid dynamics. His work has led to three patents, 88 archival publications, and over 115 additional publications in conference proceedings. His work has been funded by industry and government agencies. Professor Abraham has collaborated extensively with personnel in industry and at the Los Alamos, Sandia at Livermore, and Lawrence Livermore National Laboratories. He has been a consultant to several engine companies. He has given several invited talks at U.S. and international institutions and conferences. Professor Abraham is a Fellow of the Society of Automotive Engineers (SAE), has won the Lloyd L. Withrow Distinguished Speaker award from the SAE, and the Harry Solberg Best Teacher award from the School of Mechanical Engineering at Purdue University. He is an associate editor of *Combustion Science and Technology* and a board member of the Central States Section of the Combustion Institute. He is also a member of the American Society of Mechanical Engineers, the American Institute of Aeronautics and Astronautics, and the American Physical Society.

SUNDAY EVENING

THE FUTURE OF BIOFUELS: SCIENCE, ECONOMICS, ETHICS

Susan Leschine

ABSTRACT

The only sustainable source of liquid transportation fuel, which may replace the world's finite supply of oil,

is solar energy captured by plants and stored as "biomass." Advanced biofuels, such as cellulosic ethanol, derived from nonfood biomass (e.g., woodchips, agricultural byproducts) promise major economic and environmental benefits: improved rural economies, decreased dependence on imported oil, and reduced greenhouse gas emissions. The positive energy return on investment for cellulosic ethanol results, at least in part, because the process makes use of the whole plant. However, the recalcitrance of cellulosic biomass to enzymatic processing and the scarcity of effective microbial catalysts capable of fermenting the wide range of biomass carbohydrates pose significant impediments to the development of commercially viable processes for cellulosic ethanol production. Current processes are complex and only marginally cost-effective. An approach we have used to overcome economic hurdles to biofuels production involves tapping the natural diversity that exists in soil microbial communities. At the University of Massachusetts Amherst, we developed a microbial biomass processing technology that employs a novel bacterium from forest soil known as the Q Microbe, which decomposes all the major components of biomass and produces ethanol as its primary fermentation product. Properties of the Q Microbe indicate that it is an ideal organism for use in a biomass conversion scheme in which production of enzymes, biomass decomposition, and fermentation to ethanol are all consolidated in a single step, yielding significant economic advantages.

BIOSKETCH

Susan Leschine is a professor of microbiology and Co-Director of TIMBR, The Institute for Massachusetts Biofuels Research at the University of Massachusetts Amherst. She is a founder and chief scientist at Qteros, a Massachusetts biofuels technology company. Dr. Leschine earned a bachelor's degree in biology and a Ph.D. in biophysics and microbiology at the University of Pittsburgh. She conducted postdoctoral research at the University of Massachusetts on microbial communities that decompose plant biomass. Dr. Leschine is acknowledged as a leading authority on the biology and diversity of cellulose-digesting microbes, their role in the global carbon and nitrogen cycles, and their industrial applications. She was named a Top Ten Woman in Cleantech by Earth2Tech and a 2009 "Woman to Watch" by Mass High Tech. The goal of her research is to discover energy solutions by tapping the natural diversity of the microbial world. Presently, her research focuses on bacteria that directly convert non-food biomass into fuels and other products.

MONDAY MORNING

SUSTAINABLE ENERGY CHOICES FOR RURAL INDIA: SCIENTIFIC AND PHILOSOPHICAL PERSPECTIVES

R V Ravikrishna

ABSTRACT

This presentation will be divided into two parts. The first part will focus on aspects of ancient Indian philosophy relevant to modern society, especially various ills plaguing society in the energy and environmental arenas. Specifically, the notion of *Vasudhaika Kutumbakam*—the entire world as one family—will be presented, including the prayers for world peace enshrined in ancient Indian thought. The concept of energy as *Shakti*—the female aspect of the divine—will then be discussed in detail, giving an entirely new perspective to the topic of energy. The application of ethical and religious motivations derived from these ideas will be delineated with respect to practical implementation of energy projects.

The second part of the talk will describe bio-energy projects currently being pursued by the speaker, specifically the development of small, efficient, biogas-powered engine generators in the 1–2 kW range, primarily as a source of electricity for rural India. The many advantages of bio-methanation technologies will be highlighted. Other successful bio-energy technologies developed at the Indian Institute of Science will be briefly reviewed. Small, affordable solar photovoltaic systems as a practical option for remote, unelectrified villages will also be considered. The talk will end by referencing an interesting trend toward using large-scale solar thermal systems in some Indian religious institutions.

BIOSKETCH

R. V. Ravikrishna obtained his B.Tech degree in aerospace engineering in 1992 from the Indian Institute of Technology (IIT), Madras, India. He obtained a master of science degree in aerospace engineering from the University of Alabama, USA, in 1994. He then moved on to the School of Mechanical Engineering at Purdue University, West Lafayette, IN, USA, from where he received his Ph.D. degree in 1999. During this time, he worked in the Flame Diagnostics Laboratory at Purdue University on nitric oxide production in laminar counterflow diffusion and partially premixed flames at atmospheric pressure and higher pressures using laser-based techniques. Immediately after this, he joined the faculty of the Indian Institute of Science, Bangalore, in the Department of Mechanical Engineering, where he has been teaching ever since. His research involves application of laser diagnostics in applied fluid dynamics and combustion research, numerical simulation using CFD, and biofuel-based energy systems. He is the recipient of the Indian National Academy of Engineering (INAE) Young Engineer Award for the year 2004, and has over sixty publications in international journals and conferences.

MONDAY EVENING

RENEWABLE ENERGY FOR SUSTAINABLE COMMUNITIES: CREDITS AND OFFSETS

George F Hoguet

ABSTRACT

As the scale of the climate crisis becomes clearer, the need for deploying multiple technical solutions in both the public and private sectors becomes more urgent. At the same time, national and local governments worldwide are strapped in responding to the already-present climate consequences, and slowing consumer growth has most corporations tightening their wallets. Resource wars for water and food are already looming, and many on the private side are either waiting-out compliance legislation or actively fighting it. Meanwhile, rural and low-income communities are particularly vulnerable to rising energy costs from peaking fuels, and many already suffer from the impacts of extreme weather. At issue is how such communities might increase self-reliance and sustainability now, and how community-based solutions can be integrated with and contribute to the larger need for carbon-free energy. In this talk, I will explain 1) what carbon credits and emission offsets are; 2) how they are assisting a number of communities in achieving sustainability and savings today, and 3) what obstacles exist in expanding this potential. Key to known community successes, particularly outside the United States, is the collaborative and cooperative attitudes within the communities; is there trust, is there openness and willingness to share? While these actions might happen within rather homogenous cultures with a common faith, we must consider if our religious communities, particularly in the multi-cultural U.S., foster such cooperative attitudes, or hinder them. Can we find common ground within our diverse faith beliefs and values that might actually energize, unite and fuel our communities in the transition to new ways of sharing energy and other resources. I intend to open up some ideas on that possibility.

BIOSKETCH

George Hoguet was awarded his B. S. in electrical engineering from the University of Dayton, Ohio in May 1970. He worked in the electrical power and controls industry from 1970 to 2000, advancing from field sales engineer through Vice-President of Marketing roles. In 2001, after reading *The Reinvention of Work* by Matthew Fox, he declared his lifework would be in advancing sustainable living. Since then, he has served as coordinator for the Million Solar Roofs and Cool Pennsylvania Programs, led the Energy & Climate Caucus at the 2003 Philadelphia Earth Charter Summit, and has been an active member of Citizens for Pennsylvania's Future, Penn Environment, and a Steering Committee member of the Sustainable Business Network of Greater Philadelphia. In 2004, he joined *Native*Energy to help develop the methodologies and market for carbon offsets from animal waste digesters on Pennsylvania family dairy farms. In 2007, he relocated to *Native*Energy's headquarters in Vermont, where he is responsible for expanding the company's marketing outreach with key business partners and non-profit organizations. He is a practicing Buddhist and a member of The Climate Project, one of the 2600 trained volunteer presenters for Al Gore's slideshow from the film, *An Inconvenient Truth.*

TUESDAY MORNING

CONSERVATION: ZERO NET-ENERGY HOMES FOR LOW-INCOME FAMILIES

Anne Perkins

ABSTRACT

Buildings in the United States use 48% of the country's annual energy load each year. Few people understand that if the buildings they use for residences, offices, institutions, and factories could be brought to zero net-energy status, the impact on climate change would be even more significant than driving a high-mpg vehicle. This truth has led to a new movement in the U.S. to build zero net-energy buildings, following the lead of the German Passive Haus Institute. The goal is to design and build buildings that have as low an energy load as possible, and then to use renewable energy sources to bring net use to zero. In addition to new construction, movement is also growing towards more complicated deep-energy retrofitting, so as to bring the existing building stock as close to net zero as possible. While high-end homes have previously been built to a zero net-energy standard, only recently have builders of homes for low and moderate income buyers become involved in the movement. By using "off the shelf" technologies, and by garnering public and private funding, it is very feasible to build such homes. The cost increase to construct buildings with very low heat and electric loads is only 1.5%. The cost increase to generate on-site electricity and hot water is 17.5%; however, deep subsidies are available in Massachusetts to help cover this increase and the projected energy savings are $2500 per year.

BIOSKETCH

Anne Perkins is the Director of Home Ownership Programs for Rural Development, Inc. (RDI), a nonprofit housing agency, in Turners Falls, Massachusetts. She has been a Licensed Construction Supervisor, a carpenter, and a contractor/developer specializing in solar and energy efficient construction for over thirty-five years, primarily focusing on affordable homes. RDI, which builds in Franklin and Northern Worcester Counties, has received a number of national "green" awards, including the inaugural Home Department Foundation *2005 Award of Excellence for Affordable Housing Built Responsibly* in the Homeownership Category. Over the years she has brought homes built by RDI to ever more energy efficient standards. A current RDI project is the twenty-home Wisdom Way Solar Village, a zero net-energy condominium project that includes mixed-ability and

mixed-income buyers. The homes in the Wisdom Way Solar Village to date have achieved LEED for Homes Platinum certification. Ms. Perkins has made presentations at a number of housing conferences. She recently served on the Massachusetts Zero Energy Buildings Task Force.

TUESDAY EVENING

THE URGENCY OF CLIMATE CHANGE AND THE ROLE OF RENEWABLE ENERGY

Charles F (Chuck) Kutscher

ABSTRACT

There is solid consensus among the world's climate scientists that the burning of fossil fuels is causing a rapid and accelerating change in the Earth's climate and that this is having increasingly serious consequences in terms of sea level rise, drought, flooding, wildfires, destruction of species, and loss of mountain glaciers that supply drinking water. Special interests in the energy industry, political ideology, and even some religious beliefs have all played roles in delaying strong U.S. action against this major threat. Dr. Kutscher will discuss the latest evidence underscoring the urgency of this problem, the reasons why we have been so slow to act, and the various solutions that are available. In particular, he will summarize the results of a study he led for the American Solar Energy Society to determine the impact that efficiency and renewable energy technologies can have in the U.S. He will describe both the challenges and opportunities associated with making a rapid, large-scale transition from our traditional energy system to a sustainable, carbon-free future.

BIOSKETCH

Dr. Chuck Kutscher has led a wide range of renewable energy activities since joining the National Renewable Energy Laboratory in 1978. His projects have included the design and construction of a solar cooling-test laboratory, the production of a solar design handbook for industrial process heat, the modeling of advanced power cycles and cooling systems for geothermal power plants, and the development of transpired solar air collectors (which won an *R&D 100 Award* and a Popular Science "Best of What's New" award). He currently leads NREL's parabolic trough R&D activities. He served as chair of the American Solar Energy Society (ASES) during 2000–2001 and was general chair of the SOLAR 2006 national solar energy conference. He is editor of the 200-page ASES report, *Tackling Climate Change in the U.S.*, and writes a monthly column on climate change for *SOLAR TODAY* magazine. He is an adjunct professor at the University of Colorado at Boulder, where he recently developed and taught a course entitled, "Climate Change Solutions." He received the 2006 Charles Greeley Abbot Award, the highest honor given by ASES, for "outstanding contributions in the research and development of solar thermal technologies" and he recently received the 2008 Colorado Governor's Excellence in Renewable Energy Individual Award. He has published more than 70 papers and chapters in several books and has served as an Associate Editor for the journal *Solar Energy*. He has given many keynote presentations on renewable energy and climate change throughout the U.S. He has a B.S. in physics from the State University of New York at Albany, an M.S. in nuclear engineering from the University of Illinois at Urbana-Champaign, and a Ph.D. in mechanical engineering from the University of Colorado at Boulder.

WEDNESDAY MORNING

OVERCOMING ENERGY GLUTTONY: A PHILOSOPHICAL PERSPECTIVE

William B Irvine

ABSTRACT

We are energy gluttons. It isn't that we crave to consume energy itself; indeed, most of us are oblivious to how much energy is required to provide us with the lifestyle we find ourselves living. What we crave is consumer goods that, as it so happens, cannot be provided without considerable energy consumption. It would be one thing if getting the things we crave would satisfy us—if, after acquiring that SUV or McMansion, we would live happily ever after—but this is not the case. When it comes to consumer goods, we tend to be insatiable: satisfying one craving only gives rise to other, even grander cravings. This raises the two questions that I will address in my presentation. (1) Why are we this way? The short answer: our evolutionary past has (inadvertently) programmed us to be the way we are. In my presentation, I will explain how this happened. I will also examine the connection between our material desires and our social desires. It turns out that in many cases, our desire for consumer goods is instrumental: we want things not for themselves but because acquiring these things will make other people accept, admire, or—best of all—envy us. (2) Is there anything we can do to overcome our energy gluttony? It turns out that there is; indeed, philosophers and religious thinkers have, over the millennia, offered much advice on how we can accomplish the goal of wanting less. In my presentation, I will share some of this advice and will describe the effect that following it has had on my own life.

BIOSKETCH

William Irvine majored in mathematics and philosophy at the University of Michigan and did his graduate studies at UCLA, where in 1980 he received a Ph.D. in philosophy. Since 1983, he has taught at Wright State University in Dayton, Ohio. Dr. Irvine is author of several articles and books, most recently *On Desire: Why We Want What We Want* and *A Guide to the Good Life: The Ancient Art of Stoic Joy*, both from Oxford University Press. He has devoted the last decade to a study of people, with the goal of gaining insight into what he refers to as "the human predicament"—the

evolutionary process that implanted in us many of our desires was not concerned with our happiness; it was concerned only that we survive and reproduce, perhaps in misery. In the course of doing this research, Irvine found it necessary to reach beyond philosophy and see what theologians, psychologists, and neuroscientists have learned about human desire.

WEDNESDAY EVENING

ETHICAL AND RELIGIOUS VALUES IN ENERGY POLICY

James B Martin-Schramm

ABSTRACT

Energy choices, more than ever, are moral choices. My presentation will focus on ethical resources Christian communities have developed over the last forty years to grapple with the nexus between social justice and environmental issues. I begin by summarizing the ethic of ecological justice that emerged from discussions in the World Council of Churches during the 1970s and was developed further in various social policy statements of the Presbyterian Church (U.S.A.) and the Evangelical Lutheran Church in America from the 1980s through today. I trace the biblical and theological foundations for this ethic and its related moral norms of sustainability, sufficiency, participation, and solidarity. The second half of my presentation focuses on the application of this ethic and its related norms to U.S. energy options. In the fall of 2007 I was commissioned by the Presbyterian Church (U.S.A.) to draft a revised social policy statement on U.S. energy policy in the context of global warming. The study document and related recommendations were approved by the 218th General Assembly of the PCUSA in June 2008. I utilize the four ecojustice norms and twelve additional energy guidelines to conduct an ethical assessment of the traditional and alternative energy options available to policy-makers. In this paper I will summarize my assessment of the coal, oil, natural gas, and nuclear power sectors as well as the potential for energy efficiency and various forms of renewable energy.

BIOSKETCH

Jim Martin-Schramm holds a doctorate in Christian Ethics from Union Theological Seminary in New York City. Dr. Martin-Schramm is an ordained member of the Evangelical Lutheran Church in America and joined the Religion faculty of Luther College in 1993. He was recently awarded the first Research Chair in Luther's Center for Ethics and Public Life. Most of his scholarship has focused on issues related to ethics and public policy. He is the author of *Population Perils and the Churches' Response,* which was published by the World Council of Churches in 1997. He is also the co-author of *Christian Environmental Ethics: A Case-Method Approach,* published by Orbis Books in 2005. His most recent book, *Climate Justice: Ethics, Energy, and Public Policy,* was published by Fortress Press in January 2010. Dr. Martin-Schramm served as a member of the Population and Consumption task force of the President's Council on Sustainable Development during the Clinton administration. He served a six-year term on the board of the Division for Church in Society of the Evangelical Lutheran Church in America, and recently was elected to the board of the Iowa Wind Energy Association.

THURSDAY MORNING

FROM BELIEF INTO ACTION: HOW RELIGIOUS GROUPS CAN BECOME ENERGY LEADERS

The Reverend Fletcher Harper

ABSTRACT

Increasingly, the US population believes that climate change is real and that a response is required. However, turning that hard-won belief into meaningful action is difficult indeed, and many conventional information-based campaigns have proven largely ineffective. In this presentation, Fletcher Harper will share examples of successful efforts to promote measurable behavior change in energy consumption through religious groups, efforts which make use of replicable methods well-suited for nonprofit, religious, and community-based organizations. Drawing on GreenFaith's experience and on the work of environmental psychologists, he will describe several common beliefs about energy which GreenFaith encounters in its work with religious groups, along with several strategies which have proven effective at promoting energy-related behavior change in diverse settings and criteria for effective energy-related, behavior-change campaigns. Drawing on the writings of pastoral theologians and communications experts, he will suggest religious themes and approaches for religious leaders that support the strategies and criteria he proposes.

BIOSKETCH

Fletcher Harper, an Episcopal priest, is Executive Director of GreenFaith, an interfaith environmental coalition based in New Jersey. An award-winning spiritual writer and nationally-recognized preacher on the environment, he has developed a range of innovative programs to make GreenFaith a leader in the fast-growing religious-environmental movement. A graduate of Princeton University and Union Theological Seminary, he served as a parish priest for ten years and in leadership positions in the Episcopal Church prior to joining GreenFaith. He was named 2006 Environmental Leader of the Year in New Jersey by Gov. Jon Corzine and N.J. Dept. of Environmental Protection Commissioner Lisa Jackson, and received a 2008 Trinity Transformational Fellowship from Trinity Episcopal Church, Wall Street. He has published chapters in religious and environmental volumes, and articles in diverse religious media. His work has been featured on PBS's Religion and Ethics Newsweekly, CBS National News, CNN, and in numerous regional newspapers nationwide. He serves on the Environmental Justice

Advisory Council to the New Jersey Department of Environmental Protection.

THURSDAY EVENING

ENERGY POLICIES AND RELIGIOUS VALUES: THE RECIPROCAL CHALLENGES

Larry I Rasmussen

ABSTRACT

Exiting the fossil-fuel interlude of human history means a long, hard transition, not only for energy sources, uses and policies, but for religious values as well. How do religious values account with integrity for the primal elements upon which all life depends and by which all energy is conveyed—earth, air, fire, water, light? What challenges do energy policies pose to religious values so that the latter might be judged to be truly Earth-oriented and Earth-honoring? Reciprocally, how do shared cross-cultural, interfaith religious values challenge present and prospective energy policies? How might value orientations such as asceticism, sacramentalism, mysticism, prophetic and liberative practices, together with wisdom traditions, influence energy practices and policies? The intention of this session is to surface, for discussion, these two-way challenges in our present debates on energy.

BIOSKETCH

Larry Rasmussen served as Reinhold Niebuhr Professor of Social Ethics at Union Theological Seminary in the City of New York from 1986 to 2004; professor of Christian Ethics at Wesley Theological Seminary, Washington, DC, from 1972 to 1986; and assistant professor of religion at St. Olaf College, Northfield, Minnesota, from 1969 to 1972. Postretirement, he served as St. John Distinguished Professor at the Lutheran Theological Seminary at Philadelphia (Spring Semester, 2006) and as visiting Professor of Environmental Studies at St. Olaf College (January Interim, 2008). A past president of the Society of Christian Ethics, he also served as comoderator of Unit III (Justice, Peace, Creation) of the World Council of Churches and as a member of the Dialogue on Science, Ethics, and Religion of the American Association for the Advancement of Science (AAAS). He gave a plenary address at the 2009 Nobel Science conference, Gustavus Adolphus College, and served as a panel respondent to other addresses. His books include *Earth Community, Earth Ethics* (Orbis Books and the World Council of Churches, 1996), winner of the 1997 Grawemeyer Award. Presently he directs the Ghost Ranch, New Mexico, decade project on *Earth-honoring Faith: A Song of Songs.* The June 21–27, 2010, seminar was "Water and a Baptismal Life"; the June 20–26, 2011, seminar will be "Envisioning Paradise: Beauty and Restoration."

FRIDAY MORNING

SPEAKERS' PANEL

ABSTRACT

The conference co-chairs and speakers will provide a summary of the week's journey and make a few closing observations. Conferees will have the opportunity to ask additional questions and offer their own comments.

IRAS SEMINAR

At many IRAS summer conferences we host an IRAS Seminar, at which we explore a recent book or manuscript written by a member of IRAS, followed by open discussion by all who would like to participate. This summer, our author will be J.C. Smith, Professor Emeritus at the University of British Columbia, Canada, who will be discussing his forthcoming book, *From Ardi to Us: Sexual Dialectics and the Evolution of the Soul*. The seminar will be chaired by Bob McCue and will feature responses and discussion by Stan Klein and Gene Troxell. If you have book downloads, bring them with you!

BOOK DESCRIPTION

From the moment that evolution was revealed to the world in that famous joint presentation to the Linnean Society of London by Alfred Russell Wallace and Charles Darwin, evolutionary biology has been split as to whether natural selection can account for the origins of the unique features of the human mind. Wallace believed in the existence of the immortal soul while Darwin did not. The Wallace-Darwin debate over this issue continues to this day between theistic evolution and atheistic evolution. Atheistic evolution is itself bitterly divided between evolutionary psychology and postmodern critical social theory and feminism constructed on the foundations of Nietzsche, Freudian and Lacanian psychoanalysis, and the semiotics of Ferdinand de Saussure and Charles Saunders Peirce. These intellectual wars are over the nature of subjectivity, the nature of being as in "I am," or, in other words, the human soul, those aspects of the human mind that animals do not possess. Is the soul a product of Darwinian selection or of divine intervention? Is it the I-of-being, or subjectivity, the final stage in the evolution of language, or is it the mental apparatus which evolved to generate language, mathematics and culture?

In 1992 a partial skeleton and the remains of a 4.4 million year-old species of a female dominant biped hominin, designated as Ardipithecus Ramidus, were found in Ethiopia. It has been suggested that the reason for the seventeen-year time span between this amazing find and its introduction to the world in October of 2009 was that the scientists involved realized that their conclusions could produce a radical paradigm shift in the formulation of the evolutionary history of our species, and they wished to provide as complete a picture as possible to defend their position. The finding of Ardi furnished the final conceptual piece that allowed J.C. to complete his manuscript on the evolution of metacognition.

BIOSKETCHES

J.C. Smith is the author of six books on legal philosophy and postmodern critical social theory, and was the founder of the UBC Faculty of Law Artificial Intelligence Research (FLAIR) Project. For the past twenty years J.C. has been working on a manuscript dealing with meta-cognition and the evolution of human consciousness. His principle argument is that Peirce's concept of "a sign of itself," Gödel's famous incompletion theorems, and Tarski's undefinability theorem may hold the key to understanding the self-reflective mind or, alternatively, the human soul.

Bob McCue is a tax attorney in Calgary, Canada, and a partner in one of Canada's largest law firms. He has a BA (Russian language major; religious studies minor), an MBA, and a law degree. His law practice is oriented toward mergers and acquisitions, public financings, and dispute resolution with Canada's taxation agency. Bob is a science neophyte who struggles to follow conversation while at the annual IRAS conference, and so asks lots of questions and takes copious notes. He then goes home and for months tries to figure out what he heard people talking about. After modest success, he gives up in time to come back the following year for another shot of growth-stimulating chaos.

Gene Troxell is emeritus professor of philosophy at San Diego State University, where he taught for 34 years before retiring in 2000. His major philosophic interests are in the later philosophy of Wittgenstein, and ethics, particularly environmental ethics, and during the last 20 years or so of teaching he specialized in teaching courses in environmental ethics.

Stanley Klein is professor of optometry, neuroscience and bioengineering at the University of California at Berkeley. His PhD from Brandeis University (disguised as Frankfurter University in Rebecca Goldstein's "36 Arguments for the Existence of God") was in theoretical physics on what became string theory. When string theory became too complicated he switched to human perception and neuroscience. His California license plate has been DUALITY since 1977 when he realized that the duality of quantum mechanics may also be relevant to the mind/body dualism, the science/religion dualism and even the modernity/social construction dualisms of the present book seminar. His present research investigates the neural correlates of consciousness using fMRI, EEG and MEG. He also spends a lot of time on IRASnet because of his belief that there are credible multiple sides to all important questions.

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.

FACING OUR ENVIRONMENTAL CRISIS ALONE: FINDING HUMAN SURVIVAL THROUGH A REINVENTION OF THE SACRED

Sunday, 3:40–4:30 P.M., Marshman

David Anderson

ABSTRACT

We are fast approaching the tipping point beyond which Planet Earth will be unable to support human civilization as we know it. The beginnings of weather changes and biochemical alteration are in evidence. Before the end of the present century, there could be a sudden and dramatic reversal of sustainability. This presentation gives a wake-up call for a change in human consciousness. It offers a new paradigm for humanity, one calling for the exploration of religious, philosophical and economic forms able to place our species in a new and different relationship with Planet Earth and the Cosmos. It suggests a way for us to connect to the eternal source of our being. It offers a way for us to survive through this millennium.

BIOSKETCH

Over the last three years David's interest has turned to the underlying causes of the environmental issues facing human civilization and the need for a reinvention of the sacred to achieve this. He has approached this from his extensive cross-disciplinary experience in the fields of geopolitical, sociological and economic risk analysis which extends back into the Soviet period. He was one of the first to observe that the principal cause of world conflict was taking a new and dangerous turn; from the clash between utopian Marxist thought and Western capitalism to war within the Abrahamic religions.

IT'S THE FOOD

Wednesday, 2:40–4:30 P.M., Elliot

John A Ball

ABSTRACT

Humans are remarkably wasteful of the free energy provided by the Sun. Sunshine that falls on desert where nothing grows is almost all wasted. But, worse, we waste a large percentage of the sunshine that green plants catch on our farms. Instead of humans eating the products of these farmed plants, a large percentage is fed to livestock to produce meat, milk, and eggs for humans to eat. This is seriously wasteful: count the calories! The lost calories and nutrition go mostly into farm-animal feces. Care and feeding of these animals is also wasteful of human labor and other resources. But there's more: meat, eggs, dairy products, and processed foods therefrom make us sick. The so-called Western Affluent Diseases, including heart disease, stroke, diabetes, most cancers, and most autoimmune diseases are primarily caused by our Western affluent diet, now spreading worldwide. Many of us are addicted to this diet of meat and dairy and wouldn't consider changing until we get seriously sick. Sometimes that's too late, but some of these diseases can be reversed or even cured by going whole-plant-foods vegan. But there's even more: These farm animals, especially cattle, also contribute greenhouse gases, especially methane, that promote global warming and glacier melting. And their feces pollute streams, rivers, lakes, even ocean bays.

BIOSKETCH

John has a PhD in radio astronomy from Harvard University and he worked for Harvard in the Center for Astrophysics for some fifteen years as a research fellow and director of Radio Astronomy Facilities. Since 1984, he has been a research scientist in radio astronomy at the MIT Haystack Observatory in Westford MA. He retired from Haystack in 2006 but still works there part-time. He is also an adjunct professor in Worcester State College, Worcester MA, where he teaches astronomy. He has no credentials in lifestyle medicine or nutrition for health, hence the plethora of references to experts who do.

THE PROBLEM IS BIGGER

Tuesday, 3:40–4:30pm, Marshman

Robert Bercaw

ABSTRACT

The workshop will summarize the various aspects of the ineluctable problem of GROWTH, of population in the third world and of consumption in the first and emerging worlds, from the basic math of compound growth to various scenarios that may result from a failure to solve it. It will summarize the history of population growth and the varying attitudes concerning it. It will show that the current situation greatly resembles population explosions of simpler animals that we call plagues. The carrying capacity of the earth for humans greatly depends on our assumed standard of living. Given that the one billion people (14.7%) in high income countries consume 80.6% of the resources in dollar terms, it is easy to see that if we wish to live according to First World standards, the carrying capacity of the world is fewer than two billion people.

How will we accommodate the 2.5 billion Chinese and Indians who aspire to our lifestyle? This workshop will also mention some possible remedies and some hopeful efforts.

BIOSKETCH

Roberto received a doctorate in nuclear physics from Washington University in St. Louis in 1962. He came to NASA's Glenn Research Center on a military tour of duty and was able to continue his research on nuclear and pion physics. After his military tour, he continued at Glenn and was made a research supervisor. Since then he has worked on many technologies needed for future NASA's programs, including: space nuclear reactors, computerized data systems, magneto-hydrodynamics, lunar/planetary power systems, advanced energetics and spacecraft/aeronautical electrical systems. He retired in 1996 and is pursuing his interests in evolution, the origins of humanity (and how they shape our current attitudes), the dialog between science and religion, theater, video and travel. He is married to a successful artist, Ruth B. Bercaw, and has two grown children. He is president of the Cleveland Philosophical Club and the treasurer of IRAS.

THE TRANSITION TOWN MOVEMENT: SOLVING THE ENERGY CRISIS THROUGH GRASS-ROOTS COMMUNITY DEVELOPMENT

Thursday, 2:40–3:30 P.M., Newton Front

Roger L Brown

ABSTRACT

The Transition Town movement, which began in England about five years ago and is growing in the United States, is a grass-roots process to help towns and cities address both the energy crisis and global warming issues. The process develops local groups who help their town respond to the energy and global warming crises. The history and general philosophy of the movement will be presented in this workshop. Specific examples of how this is lived out in several towns in Vermont will also be presented.

BIOSKETCH

Roger is an Interim Ministry Consultant for Vermont Conference, United Church of Christ. He is presently the interim minister of the United Church of Northfield (UCC- and UUA-affiliated) in Northfield VT. He has served in twelve interim pastorates and has a professional interest in organizational transition management. He writes and lectures about the nature of healthy community, and views his ministry within congregations in one respect as a community builder. He has attended about fifteen summers on Star Island, and enjoys photography and music composition. His academic background includes a BSEE, an MS in physiology and biophysics, and an MDiv.

COMMUNITY AS KEY TO SOLVING THE ENERGY AND ENVIRONMENTAL CRISES

Sunday, 3:40–4:30 P.M., Elliot

Paul H Carr

ABSTRACT

From the Roman Empire to the Copenhagen Climate Conference, technology and economics impact the ethic "Love your neighbor as yourself." Why were slaves not considered "neighbors" with equal rights until the nineteenth century? Is it ethical to invest American dollars to make green jobs for our Chinese "neighbors," when one in five Americans is unemployed or underemployed? Technology and globalization play a role in addressing these questions. The UN Climate Conference in Copenhagen did raise ethical issues, even though it did not result in legally binding agreements to reduce carbon emissions. Of the 193 countries attending, the United States and China are among the thirty that are responsible for ninety percent of global warming emissions. Technical innovation can help us to obtain clean solar energy from heaven rather than polluting fossil fuels from hell. Wind and nuclear technology will be evaluated along with "clean" coal. (Coal now produces half of our electricity.)

BIOSKETCH

The Templeton Foundation awarded Paul grants for the philosophy courses "Science and Religion" he taught at U Mass Lowell, 1998–2000. This inspired his book *Beauty in Science and Spirit* (2006, IRAS Seminar 2005). From 1967 to 1995, Paul led a branch of the AF Research Laboratory, which investigated microwave, ultrasound, and surface acoustic waves. His eighty scientific papers and ten patents have contributed to new components for radar, television, and cell phones.

ALGAE AS A POTENTIAL SOURCE OF DIESEL FUEL

Wednesday, 3:40–4:30 P.M., Newton Front

Ursula Goodenough

ABSTRACT

Ursula's research laboratory is engaged in asking how algae produce triacylglyerides (TAGs) that can subsequently be converted into fuels for diesel engines. She'll provide an overview of the advantages and challenges of this technology and describe the particular experiments that her lab is doing.

BIOSKETCH

Ursula is professor of biology at Washington University, where she studies the unicellular green soil alga *Chlamydomonas*. She has been involved in the IRAS leadership since 1989. She's written a book on religious naturalism called *The Sacred Depths of Nature*.

MAPPING OUR DESIRES

Monday, 2:40–3:30 P.M., Marshman

William B Irvine

ABSTRACT

Workshop participants will be invited to answer a seemingly simple question: What do you want and why do you want it? It is a question that, once we attempt to answer it, can cause a radical change in our desires, which in turn can transform our behavior as consumers of things, and thereby affect our consumption of energy. Participants will be taught to map their desires. On making such a map, they will make several important discoveries. They will discover that most of their desires are instrumental: they want something not for its own sake but because obtaining it will enable them to satisfy some other desire. They will also discover the incredible extent to which their material desires are shaped by their social desires: if they didn't want other people to admire them—or better still, envy them—they would probably not want the cars, houses, and clothes that they likely find themselves craving.

BIOSKETCH

William is a professor of philosophy at Wright State University in Dayton OH. He is the author of several books, including, most recently, *On Desire: Why We Want What We Want* and *A Guide to the Good Life: The Ancient Art of Stoic Joy*, both from Oxford University Press.

THE CLIMATE CRISIS: RELIGIOUS AND MORAL PATHWAYS

Monday, 2:40–3:30 P.M., Newton Front

Peter L Kelley

ABSTRACT

The scientist E. O. Wilson has said we must find ways to get human civilization through "the narrow part of the hourglass" in order to survive the threats of ecosystem collapse and runaway global warming with all it implies. Religions and moral authorities still offer the means of mobilizing vast numbers of people around common beliefs and a shared sense of purpose, surpassing even celebrity and nationalism. What pathways do they offer us through a "long emergency" and how do they offer hope of averting the worst effects that scientists now predict, but have been unable to persuade large numbers of people and civil institutions to address on the necessary scale? Participants will discuss their own hopes and fears for the future, and how their religious and moral views contribute to understanding and coping with an increasingly challenging climate.

BIOSKETCH

Peter is the principal in RenewComm, a public relations firm headquartered in Washington, DC that specializes in clean-tech, renewable energy, and global warming solutions. Clients include solar power and bioenergy innovators and the Scientists and Evangelicals Initiative at Harvard. Peter is a volunteer leader in The Climate Project, whose 3,500 members have been trained to present Al Gore's slide show from "An Inconvenient Truth." He holds a BA in government, with a minor in economics, from Harvard University and taught Public Communications Management as an adjunct professor at American University. He is an IRAS Council member.

THE CLIMATE CRISIS: DON'T BE SUCH A SCIENTIST

Monday, 3:40–4:30 P.M., Newton Front

Peter L Kelley

ABSTRACT

Scientists have always faced challenges in conveying urgent warnings to the public and, generally, in translating their work for an array of different world views. Al Gore has taken up this challenge in his Nobel- and Oscar-winning slide show, "An Inconvenient Truth," which last month got its first major revision. Gore has enlisted leading presentation trainers, such as Anthony Wilson of Executive Influence, in finding ways to keep scientific material persuasive and even entertaining. Oceanographer-turned-filmmaker-and-author Randy Olson (*Don't Be Such a Scientist: Talking Substance in an Age of Style*, "Flock of Dodos", "Sizzle") has a new blog, "The Benshi", where he writes and interviews people about science communication. We'll touch on these three sources—slide show, presentation theory and popular blogs—for tips useful in communicating about the latest global warming science, and the traps scientists fall into, such as becoming defensive towards skeptics. Blogger Joe Romm (climateprogress.org) claims that only one in 100 people has truly grasped what is headed towards us. Participants will discuss whether and how that will change and their own positions on the resulting spectrum of human experience of the threat.

BIOSKETCH

See biosketch for previous workshop.

ENERGY AND ENVIRONMENT: THE SEARCH FOR BALANCE

Note Time: Sunday, 1:40–3:30 P.M., Elliot

Normand M Laurendeau

ABSTRACT

This workshop offers a tutorial presentation on fundamental energy issues for those attendees who feel they could benefit from being introduced to those concepts most relevant to appreciating the scheduled speakers of this conference. The goal is to teach you basic definitions, ideas, problems, and strategies so that

you can feel comfortable learning and talking about the issues with our speakers. The presentation is divided into two parts. Part I identifies the major energy issues, including, for example, energy production, energy intensity, energy subsidies and externalities, the greenhouse effect, carbon emissions, and energy conservation. Part II considers various energy strategies, focusing on natural gas, energy efficiency, carbon sequestration, nuclear power, and renewable energy sources. The presentation will consider relevant aspects of science, technology, economics, and public policy, with particular attention given to peak oil and climate change.

BIOSKETCH

See biosketch in plenary sessions.

THE NEW FINANCIAL SERVICES LEGISLATION

Tuesday, 3:40–4:30 P.M., Newton Front

Ted Laurenson

ABSTRACT

This workshop will offer a description of the basic components of the two-thousand-page financial regulation legislation that was enacted earlier this month. Questions and discussion will be welcomed.

BIOSKETCH

Ted is the current president of IRAS. He practices corporate and securities law in New York City, with a particular focus on investment funds, investment advisers, and related financial transactions.

A ROAD NOT TAKEN: MY THIRTY-YEAR EXPERIENCE WITH THE ARCHITECTURAL REVOLUTION THAT COULD HAVE, AND MIGHT STILL, CHANGE THE FACE OF AMERICA'S RELATIONSHIP WITH ENERGY

Tuesday, 2:40–4:30 P.M., Elliot

Paul S Liscord III

ABSTRACT

Famed solar architect Edward Mazria has been on the speaking circuit of late with a presentation entitled, "It's the Architecture, Stupid." Mazria argues that 48% of America's energy consumption is related to our architecture, and that to turn the corner on such key problems as climate change and oil spills will require nothing short of an "Architectural Revolution." This workshop will present a "boots on the ground" personal history of Paul's involvement in the design and construction of homes with high-performance building envelopes from the early post-oil embargo Eighties to the oil-drenched estuaries of today. How can we as home owners and building users change from energy "supply siders" to "radical demand reducers"? The presentation will include a brief history of hi-perf building envelope work, some basic building science, photos of hi-perf homes, photos of details necessary to achieve good building performance, HERS studies showing how hi-tech buildings perform, plus case studies of "deep energy retrofits" of two existing buildings. Paul will also answer some specific questions from workshop participants relative to their own homes.

BIOSKETCH

Paul has a BA in English lit from Bates College, an associates degree in building construction from Southern Maine Tech, and studied Energy Efficient Residential Design at the University of Southern Maine's School of Industrial Technology. He is certified in Solar Thermal Design and Installation through Maine State OER, taught at Southern Maine Tech, worked for a small design firm in Southern Maine building Canadian double-wall houses, participated as a test contractor in Central Maine Power's Good Cents Home Program, studied at the Findhorn Foundation for Sustainable Living in Forres, Scotland, is a certified building performance analyst with the Building Performance Institute, and is a member of NESEA and NH Repa.

THE ROLE OF RELIGION IN ALLEVIATING GLOBAL WARMING

Monday, 2:40–4:30 P.M., Elliot

Peter H Meckl

ABSTRACT

This workshop will discuss the current state of knowledge about human-generated climate change and potential solutions from a religious perspective. Current energy balance data applied to the earth as well as historical data from previous climate fluctuations will be used to connect greenhouse gas emissions to climate change. The role of human activities, most notably power generation using fossil fuels, in increasing the amount of greenhouse gas will be highlighted. The bulk of the presentation will focus on a religious perspective, emphasizing the rationale for action as well as strategies to reduce greenhouse emissions. A care-based ethic will be used to justify action to be taken now. The overall discussion will be placed in the context of a course in Technology and Values, which Peter teaches to undergraduate engineering students.

BIOSKETCH

Peter obtained a PhD in mechanical engineering from MIT in 1988. He joined the faculty at Purdue University in 1988, where he is currently professor in the School of Mechanical Engineering. Peter's research interests are primarily in dynamics and control of machines, with emphasis on vibration reduction, motion control, and engine emission diagnostics. His teaching responsibilities include courses in systems modeling, measurement systems, and control. He received the Ruth and Joel Spira Award for outstanding teaching in 2000. He spent a semester in the Institute of

Measurement and Control Engineering at the University of Karlsruhe, Germany, in Spring 2005. He teaches a course on Technology and Values, looking at the intersection of technology with society, the environment and personal ethics. He currently serves as co-chair of the Engineer of 2020 committee in the College of Engineering at Purdue.

DOING RELIGION AND SCIENCE IN CONTEXT

Monday and Tuesday, 3:00–4:30 P.M., Marshman

Karl Peters

ABSTRACT

What are the various contexts in which we do science and religion—academic, religious communities, the society are large, our own personal quests? What are our purposes and goals as they relate to various contexts? How might our being aware of context help us clarify our work in IRAS? This workshop will provide an opportunity to discuss our own personal contexts and the contexts for IRAS as we engage issues in religion and science. The idea for the workshop is based on Willem Drees' new book, *Religion and Science in Context: A Guide to the Debates* (Routledge, 2009). It also will draw on Philip Hefner's essay "Discerning the Voice of *Zygon*: Identity and Issues" (*Zygon*, June 2010) and the IRAS Mission Statement.

BIOSKETCH

Karl is professor emeritus of philosophy and religion at Rollins College, Winter Park, FL and was Editor of *Zygon* (1979–89) and Co-Editor (1989–2009). He has been attending IRAS Star Island Conferences since 1972, is vice president for conferences and a past president of IRAS, and is co-chair of the IRAS 2011 Annual Conference. He is also the current president of the Center for Advanced Study in Religion and Science, which is IRAS's partner in publishing *Zygon*. Karl has a BA from Carroll College in Wisconsin, an MDiv from McCormick Seminary in Chicago, and a PhD from Columbia University in New York. For more than forty years he has taught, lectured, and published on issues in science and religion, with a special interest in understanding how religion and science can be related to everyday living. Many of his reflections are in *Dancing with the Sacred: Evolution, Ecology and God* (Trinity Press, 2002), and in *Spiritual Transformations: Science, Religion, and Human Becoming* (Fortress Press, 2008). His most recent publication is "Why *Zygon*? The Journal's Original Vision and the Future of Religion and Science," *Zygon* (June 2010). Karl is married to Marj Davis, who has been active in IRAS since 1977 and is a past president of IRAS and the current vice president for religion. They live in Granby CT.

OTHER ACTIVITIES

SILENT MEDITATION

Every day from Sunday through Friday,
7:30–7:50 P.M., Marshman

Marlene Carlos Laurendeau

DESCRIPTION

Silent meditation practices exist in every faith tradition. Start each day before breakfast with your own practice for twenty minutes in a small group setting. Participants can bring pillows, though chairs will be available.

BIOSKETCH

Marlene received a Diploma in the Art of Spiritual Direction (DASD) from San Francisco Theological Seminary in 2005. She is also a clinical social worker with Mid-Coast Hospital in Brunswick ME.

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.

CHAPEL SERVICES

9:00–9:45 A.M.

ENERGY AND CATHOLIC SOCIAL TEACHING

Catholic Social Teaching consists in a body of statements by individual Catholic leaders and meetings of leaders on social questions of the day. They constitute a cumulative and coherent theology applying the insights of faith to the problems of contemporary society. The chapel talks will explain how the tradition has grown to include environmental issues and how it is being applied today to global climate change and energy ethics generally. The talks will treat: (1) the nature and themes of Catholic social teaching; (2) the relevance of pre-modern theological visions of the cosmos; (3) environmentalism in contemporary Catholic social teaching; (4) climate change: a test case for the religious community; (5) religious ethics and public science; (6) Teilhard de Chardin: the scientist as mystic and activist.

Father Drew Christiansen is a Jesuit priest and has served as editor-in-chief of the national Catholic weekly *America* since 2005. He has taught Catholic social ethics at the Jesuit School of Theology (Berkeley, CA) and at the University of Notre Dame. As director of the United States Catholic Conference Office of International Justice and Peace (1991-98) he was the chief staff person in the drafting of the 1991 bishops' pastoral statement on the environment "Renewing the Earth." In that capacity he also organized the conference's environmental justice program which promotes initiatives in parishes, institutions, dioceses and regions of the country, with special programs for diocesan social action directors and college faculty. He also has served as a consultant to the National Science Foundation for science education, for its Ethics and Values in Science and Technology Program, and for the Appalachia Technical Assistance Program. In recent years, he has lectured on climate change to the Pew Center on Global Climate Change, the National Catholic Rural Life Conference and the University of Notre Dame. He is co-editor with Walter Grazer of *And God Saw It Was Good: Catholic Theology and the Environment* (USCC, 1996).

CANDLELIGHT SERVICES

9:40–10:00 P.M.

To attend a candlelight service, line up on the front porch after the evening session, take a lantern, and walk in silence to the chapel. Each candlelight service will focus on a particular religious tradition, with music, readings or a reflection offered as determined by the various people leading each service.

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 our music director, Sam Mansfield, if you wish to participate in the IRAS choir.

PEOPLE

Conference Planning Committee

Norm Laurendeau	Co-chair
Larry Rasmussen	Co-chair

Michael Cavanaugh, Jeanie Graustien, Daniel Johnson, Peter Kelley, Karl Peters, Lynn Wilson

Conference Administrators

Conference Coordinator	Steven Gaudet
Registrar	Bonnie Falla

Conference Facilitators

Announcements	Steven Gaudet
Bookstore Order	Norm Laurendeau
Candlelight Coordinator	Katharine Houk
Children's Program Coordinator	Sandra Woodworth
IRAS Seminar	J.C. Smith & Bob McCue
Memorial Service	Ursula Goodenough
Music Director	Sam Mansfield
Program Book (Orange Book)	David Klotz
Social Hour Coordinator	Kent Koeninger
Star Beacon Editor	Jane Bengtson
Talent Show	Joan Hunter
Workshop Coordinator	Andrew Millard

Many other facilitators are recruited on the Island. A more complete list will be prepared for the banquet program pamphlet. The successful functioning of the conference is utterly dependent on the facilitators. If you would like to become 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 love to hear from you.

Scholars and Fellows

IRAS Scholar	Emily Houk
Griswold Scholar	Charles Frantz

IRAS Officers

Edwin C. Laurenson	President
John Teske	Immediate Past President
Marjorie Davis	Vice President, Religion
Solomon Katz	Vice President, Science
Ursula Goodenough	Vice President, Interdisciplinary Affairs
Karl Peters	Vice President, Conferences
Jane Penfield	Vice President, Development
Lyman Page	Secretary
Roberto Bercaw	Treasurer

Elected Council Members

Pat Bennet	Peter Kelley
Muriel Blaisdell	David Klotz
Barry Boggs	Norm Laurendeau
Donald Braxton	Bob McCue
Christopher Corbally	Andrew Millard
Jeff Dahms	Chip Ordman
Jack Dennis	Dan Solomon
Joan Hunter	

Other Council Members (Ex Officio)

Willem Drees	Zygon Editor
Karl Peters	CASIRAS Representative
Steven Gaudet	Conference Coordinator

Others with Official Responsibilities

Marjorie Davis	Historian/Parliamentarian
Michael Cavanaugh	Membership Coordinator
Jack Dennis	Newsletter Editor
Don Braxton	Webmaster

Honorary Officers

Philip Hefner	Honorary Vice President
Karl Peters	Honorary Vice President
Solomon Katz	Honorary Vice President

Committee Chairs

Archives	Marjorie Davis & Lyman Page
Awards	John Teske
Development	Jane Penfield
Finance	Bob McCue
Interest Group	John Teske
Internet	Don Braxton
Long-Range Conf. Planning	Karl Peters
Membership	Michael Cavanaugh
Newsletter	Jack Dennis
Nominating	Ursula Goodenough
Publicity	Marlene Laurendeau
Scholarship	William Falla

READING LIST

Each year, conferees are given a list of readings, provided by the speakers, which relate to the conference theme. There is no expectation that any of you will read all of them or, for that matter, any of them; in many cases, conferees prefer using the reading list to guide postconference learning on subjects that have particularly piqued their interest during the week. Reviews on books that sound interesting are often available at amazon.com. Many of the suggested journal articles, or at least their abstracts, can be found online. Those books identified by an asterisk have been ordered and thus should be available for sale at the Star Island Bookstore. Enjoy!

Laurendeau

Tertzakian, P. (2006) *A Thousand Barrels a Second*, New York: Mc-Graw-Hill.*

Northcott, M. (2007) *A Moral Climate: The Ethics of Global Warming*, Maryknoll, NY: Orbis.

Weiss, C. and Bonvillian, W. (2009) *Structuring an Energy Technology Revolution*, Cambridge MA: MIT Press.

Laurendeau, N. (2003) "Controlling Consumption: A Role for Christianity?" *Worldviews* **7:** 196-217.

Smil, V. (2009) "U.S. Energy Policy: The Need for Radical Departures" *Issues in Science and Technology* **25**(4): 47-50.

Abraham

Reijnders, L. and Huijbregts, M.A.J. (2009) *Biofuels for Road Transport: A Seed to Wheel Perspective*, London: Springer-Verlag.

America's Energy Future Panel on Alternative Liquid Transportation Fuels (2009) *Liquid Transportation Fuels from Coal and Biomass: Technological Status, Costs, and Environmental Impacts*, Washington, DC: National Academy of Sciences, National Academy of Engineering, National Research Council.

Hill, J., Nelson, E., Tilman, D., Polansky, S., and Tiffany, D. (2006) "Environmental, economic, and energetic costs and benefits of biodiesel and ethanol fuels" *Proceedings of the National Academy of Sciences* **103**(30):11206-11210.

Searchinger, T., Heimlich, R., Houghton, R.A., Dong, F., Elobeid, A., Fabiosa, J., Tokgoz, S., Hayes, D., and Yu, T.-H. (2008) "Use of U.S. Croplands for Biofuels Increases Greenhouse Gases Through Emissions from Land-Use Change" *Science* **319**:1238-1240.

Van Vliet, O.P.R., Faaij, A.P.C., and Turkenburg, W.C. (2009) "Fischer-Tropsch Diesel Production in a Well-to-Wheel Perspective: A Carbon, Energy Flow and Cost Analysis" *Energy Conversion and Management* **50**:855-876.

Leschine

Ehrenberg, R. (2009) "The Biofuel Future: Scientists Seek Ways to Make Green Energy Pay Off," *ScienceNews* **176** (3): 24.

Hill, J., Nelson, E., Tillman, D., Polasky, S. and Tiffany, D. (2006) "Environmental, Economic, and Energetic Costs and Benefits of Biodiesel and Ethanol Biofuels" *Proc. Natl. Acad. Sci. USA* **103**: 11206-11210.

Hill, J., et al. (2009) "Climate Change and Health Costs of Air Emissions from Biofuels and Gasoline" *Proc. Natl. Acad. Sci. USA* 106: 2077-2082.

Lee, H., Clark, W.C., and Devereaux, C. (2008) *Biofuels and Sustainable Development: Report of an Executive Session on the Grand Challenges of a Sustainability Transition*, San Servolo Island, Venice, Italy: May 19-20, 2008. (Sustainability Science Program, center for International Development, Harvard University, Cambridge, Massachusetts, 02138 USA)

Tillman, D., (2009) "Beneficial Biofuels –The Food, Energy, and Environment Trilemma" *Science* **325**: 270-271.

Ravikrishna

Ringwald, Alexis (2008) *Momentum for Renewable Energy in India*, Saarbrücken, Germany: VDM Verlag.

Capra, Fritjof (2000) *The Tao of Physics: An Exploration of the Parallels between Modern Physics and Eastern Mysticism*, Fourth Edition, Boston, MA: Shambhala Publications.

Ranganathananda, Swami and Nelson, Elva Linnea (1991) *Human Being in Depth: A Scientific Approach to Religion*, Albany, NY: SUNY Press.

Ranganathananda, Swami (1979) *Science and Religion*, Hollywood, CA: Vedanta Press.

Hoguet

Lynn, K. (2009) *Climate Change, Rural Communities and Landscapes,* Rural Voices for Conservation Coalition, www.sustainablenorthwest.org/rvcc

Hopkins, R. (2008) *The Transition Handbook*: *From Oil Dependency to Local Resilience,* Green Books, U.K.

Best, E. (2005) *Power Failure: How the World Bank is Failing to Adequately Finance Renewable Energy for Development,* Friends of the Earth, U.S.

Bullock, S (2009) *A Dangerous Distraction: Why Offsetting is Failing the Climate and People,* Friends of the Earth, U.K.

Trexler, M (2006) *Selling Carbon Neutrality,* The Environmental Forum (March/April), Environmental Law Institute, Washington, DC.

Perkins

Mazria, E. (2007) "It's the Buildings, Stupid!" *Northeast Sun*, Spring 2007.

Low-energy building design, www1.eere.energy.gov/buildings/building_america/index.html, see publication list.

Wisdom Way Solar Village, www.ruraldevelopmentinc.org/Media/press.htm, articles in *Energy Design Update* and *Home Energy Magazine*.

Kutscher

Hansen, J. (2009) *Storms of My Grandchildren*, New York, NY: Bloomsbury.*

Henson, R., (2008) *The Rough Guide to Climate Change*, 2nd Edition, Rough Guides, New York, NY: Penguin Books.

Kharecha, P., C. Kutscher, J. Hansen, and E. Mazria, June 2009, "Options for Near-Term Phaseout of Coal Emissions in the United States," www.columbia.edu/~jeh1/2009/UScoalphase-out_draft.pdf.

Kolbert, E., (2006) *Field Notes from a Catastrophe: Man, Nature, and Climate Change*, New York, NY: Bloomsbury.

Kutscher, C., Ed. (2007) *Tackling Climate Change in the U.S.: Potential Carbon Emissions Reductions from Energy Efficiency and Renewable Energy by 2030*, American Solar Energy Society, www.ases.org/climatechange.

Irvine

Irvine, W. (2006) *On Desire: Why We Want What We Want*, New York: Oxford University Press.*

Irvine, W. (2009) *A Guide to the Good Life: The Ancient Art of Stoic Joy*, New York: Oxford University Press.*

La Rochefoucauld, F. (1959) *Maxims*, London: Penguin.

Seneca (1932) "On the Happy Life" and "On Tranquility of Mind" in *Moral Essays*, Vol. II, Cambridge, MA: Harvard University Press.

Thoreau, Henry David. *Walden* (especially chapters 1, 2, and 18).

Martin-Schramm

Martin-Schramm, J. (2010) Climate Justice: Ethics, Energy, and Public Policy, Minneapolis, MN: Fortress Press.*

Northcott, M. (2007) A Moral Climate: The Ethics of Global Warming, Maryknoll, NY: Orbis.

Evangelical Lutheran Church in America. (1993) Caring for Creation: Vision, Hope, and Justice, Chicago: ELCA Division for Church in Society. See http://www.elca.org/What-We-Believe/Social-Issues/Journal-of-Lutheran-Ethics/Portfolios/Social-Statements-of-the-ELCA/Caring-for-Creation-Vision-Hope-and-Justice-A-Social-Statement-on.aspx.

Presbyterian Church, U.S.A. (2009) The Power to Change: U.S. Energy Policy and Global Warming, Louisville, KY: The Office of the General Assembly, Presbyterian Church (U.S.A.). See http://www.pcusa.org/acswp/pdf/ga218/energy-resolution-012007.pdf.

U.S. Energy Information Administration. (2009), *Annual Energy Review 2008*, Washington, D.C.: U.S. Department of Energy. See http://www.eia.doe.gov/aer/pdf/aer.pdf.

Harper

McKenzie-Mohr, Doug and Smith, William A. (1999) Fostering Sustainable Behavior: An Introduction to Community-Based Social Marketing, Gabriola, CA: New Society Publishers.

Kearns, Laurel and Keller, Catherine (2004) Ecospirit: Religions and Philosophies for the Earth (Transdisciplinary Theological Colloquia), New York: Fordham University Press.*

Enderle, Emily, Ed. (2007) Diversity and the Future of the U.S. Environmental Movement, New Haven: Yale School of Forestry & Environmental Studies Press.

Rasmussen

Brock, Rita Nakashima and Parker, Rebecca Ann (2008) Saving Paradise: How Christianity Traded Love of This World for Crucifixion and Empire, Boston: Beacon Press.

Hobgood, Mary Elizabeth (2009) Dismantling Privilege: An Ethics of Accountability, Cleveland: The Pilgrim Press.

McKibben, Bill (2007) Deep Economy: The Wealth of Communities and the Durable Future, New York: Henry Holt & Co.

Northcott, M. (2007) A Moral Climate: The Ethics of Global Warming, Maryknoll, NY: Orbis.*

Speth, James Gustave. (2008) The Bridge at the Edge of the World: Capitalism, the Environment, and Crossing from Crisis to Sustainability, New Haven: Yale University Press.

Christiansen

Himes, Kenneth R., et al. (2005) *Modern Catholic Social Teaching: Commentaries and Interpretations*, Washington: Georgetown University Press.

Christiansen, Drew, S. J. and Grazer, Walter (1996) "And God Said It Was Good": Catholic Theology and the Environment, United States Catholic Conference.

Toolan, David S. (2001) *At Home in the Cosmos*, Maryknoll, NY: Orbis.*

Johnson, Elizabeth (2010) "An Earthly Christology," America, April 13, 2010: 27-31.

Pope Benedict XVI, "If You Want to Cultivate Peace, Protect Creation" http://www.vatican.va/holy_father/benedict_xvi/messages/peace/documents/hf_ben-xvi_mes_20091208_xliii-world-day-peace_en.html.

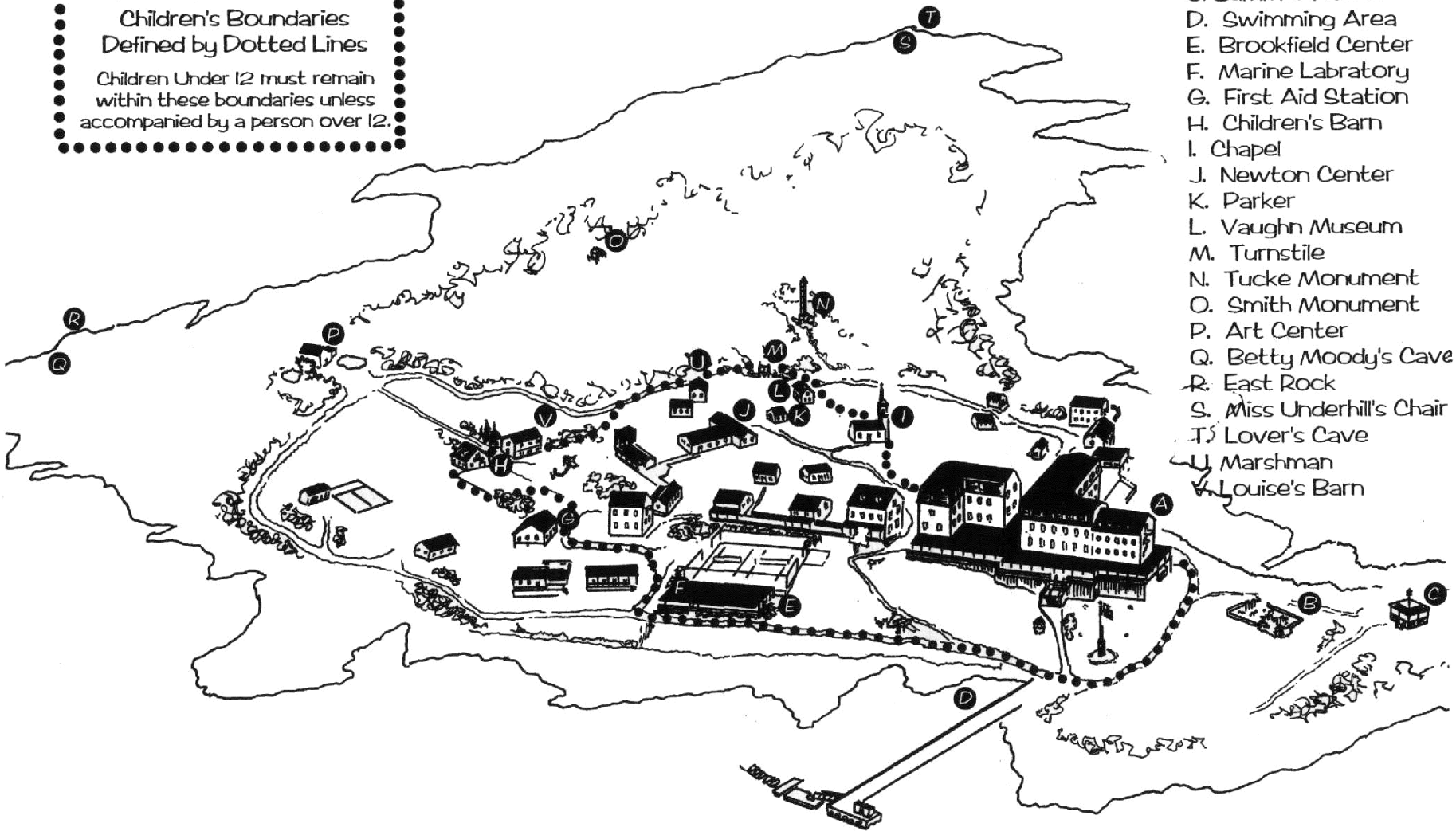
ACKNOWLEDGMENTS

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 week. In particular, thanks to Bonnie Falla (registrar), Steven Gaudet (conference coordinator), Dave Klotz (Orange Book) and Andrew Millard (workshop coordinator).

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, both those we were able to incorporate into the conference and those we could not.

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 also to the Star Island Corporation staff for all they do to keep this splendid facility available for our conference.

A Guide to Star Island



Annual IRAS Conference
Saturday, July 24 thru Friday, July 30, 2010

PERIOD	ACTIVITY	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Morning Activities: Chapel and Plenary Lectures								
8:00–9:00 A.M.	**Breakfast**[9]							
9:00–9:45 A.M.	**Chapel**	WELCOME TO STAR ISLAND	Drew Christiansen					
10:00–10:55 A.M.	**Lectures (El)**		John Abraham	R.V. Ravikrishna	Anne Perkins	William Irvine	Fletcher Harper	Speakers' Panel
10:55–11:15 A.M.	**Break**							
11:15–12:15 P.M.	**Discussion**							
12:30–1:30 P.M.	**Lunch**							
Afternoon Activities[1]: Recreation[2], Seminar, Workshops, Free University[3], and Socializing								
1:40–2:30 P.M.[10,11]	**Free University IRAS Seminar Annual Meeting**	ARRIVING, GETTING SETTLED, GREETING FRIENDS, EXPLORING	Norm Laurendeau (El)	IRAS Seminar (Ma)	IRAS Seminar (Ma)	IRAS Seminar (Ma)	IRAS Annual Meeting (El)	Memorial Service
2:40–3:30 P.M.[10]	**Session I Workshops**		Norm Laurendeau (El)	Meckl (El) Kelley (Nf) Irvine (Ma)	Liscord (El) Brown (Nf) Bercaw (Ma) Posters (Nb)	Raman (El) Brown (Nf) Posters (Nb)	Ball (El)	
3:40–4:30 P.M.[10]	**Session II Workshops**	MANDATORY STAR ISLAND ORIENTATION–4:30[4] PARENTS' MEETING–5:20[5]	Carr (El)	Meckl (El) Kelley (Nf) Peters (Ma)	Liscord (El) Laurenson (Nf) Peters (Ma) Posters (Nb)	Raman (El) Goodenough (Nf) Posters (Nb)	Ball (El)	
4:40–5:20 P.M.	**Group Meetings**							
5:30–6:30 P.M.	**Happy Hour[9,12] (Newton)**							
6:30–7:30 P.M.	**Dinner**					Lobster Dinner[6]		Banquet
Evening Activities: Plenary Lectures, Candlelight Services, and Late Evening Activities								
7:30–9:30 P.M.	**Lectures and Discussion**	Norm Laurendeau	Susan Leschine	George Hoguet	Chuck Kutscher	James Martin-Schramm	Larry Rasmussen Pelican Show[7]	Talent Show
9:40–10:10 P.M.	**Candlelight Services (Chapel)**							
10:10 P.M.– ?		**Movies, Snacks, Conversations, Dancing, and Socializing**[8]						Farewell Party (Newton)

[1] Room abbreviations: **El** = Elliott; **Ma** = Marshman; **Nb** = Newton back; **Nf** = Newton front
[2] There will be an excursion to Appledore Island on Tuesday afternoon. Please sign up on Sunday or Monday.
[3] Free University and other activities organized by conferees will be announced on the Island and scheduled for the 1:40 to 2:30 P.M. period.
[4] The Star Island Orientation, conducted by the Star Island staff starting at 4:30 P.M., is the one and only scheduled activity that is mandatory for all conferees.
[5] All parents with children in the Archi Pelagos program, and their children, are required to attend a brief meeting at 5:15 P.M. in Elliott.
[6] There will be a lobster dinner on Wednesday. Tickets must be purchased by Monday noon. **Lobster diners should be seated by 6:15 P.M.**
[7] On Thursday evening the plenary session discussion ends at 8:55 P.M., the Pelican show starts at 9:05 P.M., and the Candlelight Service begins as soon as the Pelican Show is over.
[8] Movies (when scheduled and as announced in the Star Beacon) will be shown in Elliot. The snack bar closes at 11 P.M. Socializing and informal discussions can continue until dawn.
[9] Yoga will take place Sunday–Friday 6:30–7:45 A.M.
[10] Art Barn from 2:00–5:00 P.M. Sunday through Friday at the Art Barn.
[11] The IRAS Choir rehearses in the Pink Parlor Sunday through Friday from 1:15–2:30 P.M.
[12] New Hampshire law prohibits persons under age 21 from attending Happy Hour.