

2009-2010 YEAR BOOK

# The President's Report

*July 1, 2009 - June 30, 2010*

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The Carnegie Institution was incorporated with these words in 1902 by its founder, Andrew Carnegie. Since then, the institution has remained true to its mission. At six research departments across the country, the scientific staff and a constantly changing roster of students, postdoctoral fellows, and visiting investigators tackle fundamental questions on the frontiers of biology, earth sciences, and astronomy.

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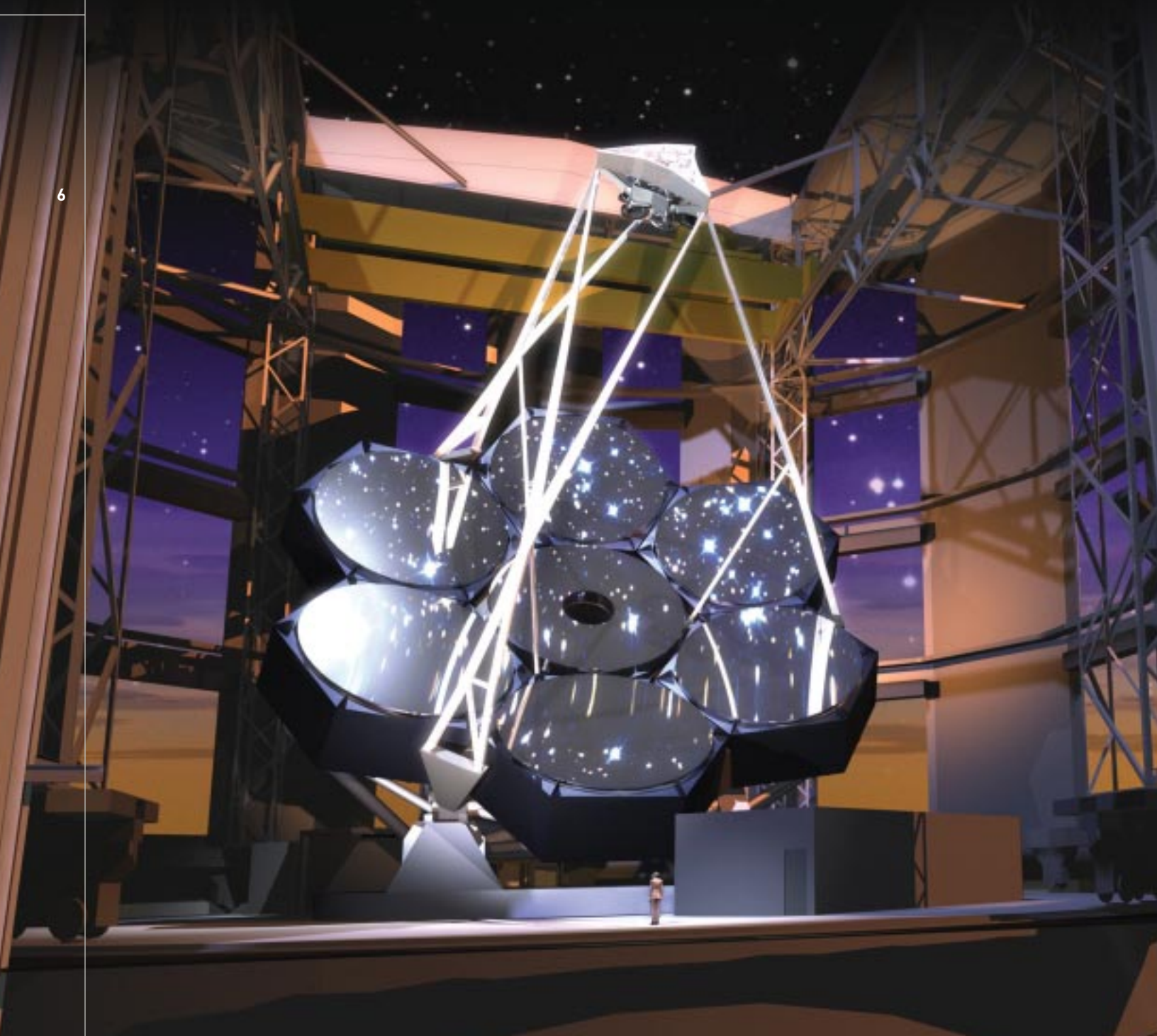


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# The President's Commentary

*Aspirations for the Future*





Carnegie president  
Richard A. Meserve  
*Image courtesy Jim Johnson*

The 25-meter Giant Magellan Telescope (left) will give astronomers unprecedented access to distant celestial objects enabling them to unravel some of the most vexing mysteries of the era, from the nature of dark matter and dark energy to how the universe evolved.

*Image courtesy the GMTO*

At the November 2010 meeting of our board of trustees, we heard from the institution's directors about their scientific aspirations for the Carnegie departments. This exhilarating meeting revealed the potential for paradigm-shifting discoveries in several scientific disciplines, albeit with significant challenges that must be overcome if we are to realize them. I share some of these discussions here, borrowing liberally from the presentations of the Carnegie directors.

In astronomy, we reviewed the findings of a new report by the National Research Council to identify a program that will “set the astronomy and astrophysics community firmly on the path to answering profound questions about the cosmos.”<sup>1</sup> Panels were established covering five scientific frontiers, resulting in the definition of 20 key scientific questions that should be pursued over the next decade. Carnegie scientists, in reviewing the report, noted that the Giant Magellan Telescope (GMT) project, which Carnegie is spearheading with institutions of higher education in the United States and entities in Australia and Korea, addresses fully 18 of the 20 key scientific questions and 4 of the 5 frontier areas. The GMT telescope, which has now completed its design phase, is a telescope with a primary mirror, made of segments, with an aperture of 25 meters—far larger than any telescope now in existence. It will have the capability to study distant objects with unprecedented resolution. It promises to have a major impact in key areas such as understanding the connections between dark and luminous matter, tracking the baryon cycle in galaxies and the intergalactic medium, and identifying the first objects to light up the universe. The GMT, which will be equipped with adaptive optics to compensate for the disruptive effects of the Earth's atmosphere, will also have the capability to identify and determine the properties of nearby planets outside our own Solar System.

With these big opportunities in astronomy come some big challenges. There are technical hurdles to overcome in constructing a telescope of unprecedented size and capabilities, difficulty in raising capital in a time of constrained private and public resources, and the need to forge an international partnership that harnesses the capacities of several countries and institutions. I am pleased that Carnegie and our partners are facing these challenges directly, and we are optimistic that we will meet and overcome them in the coming decade.

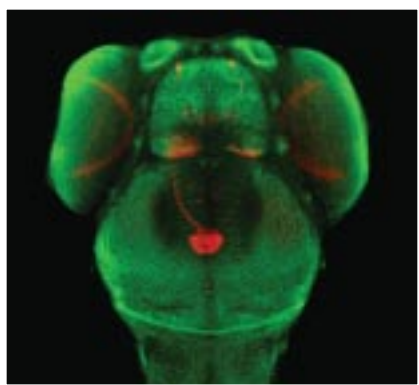
<sup>1</sup>Committee for a Decadal Survey of Astronomy and Astrophysics, Board on Physics and Astronomy, Space Studies Board, Division on Engineering and Physical Sciences, *New Worlds, New Horizons in Astronomy and Astrophysics* (Washington, D.C. National Research Council of the National Academies, The National Academies Press, 2010)



Carnegie's Department of Embryology seeks to develop a greater understanding of the fundamental mechanisms governing the development of living organisms. Its scientists expect, along the way, to find that some of the fundamental assumptions about the genome are incomplete. For example, they expect we will find that there are novel biological mechanisms using parts of the genome whose significance is not currently understood (only about 2% of the human genome constitutes genes). They seek to identify new ways in which the genomes of somatic cells systematically acquire differences during development from each other and from germ line cells. They seek to expand our understanding of the operation of stem cells. And they seek to discover new mechanisms for the regulation of genome replication, new means for information storage and retrieval in the neural system, and new mechanisms involved in cancer and evolution.

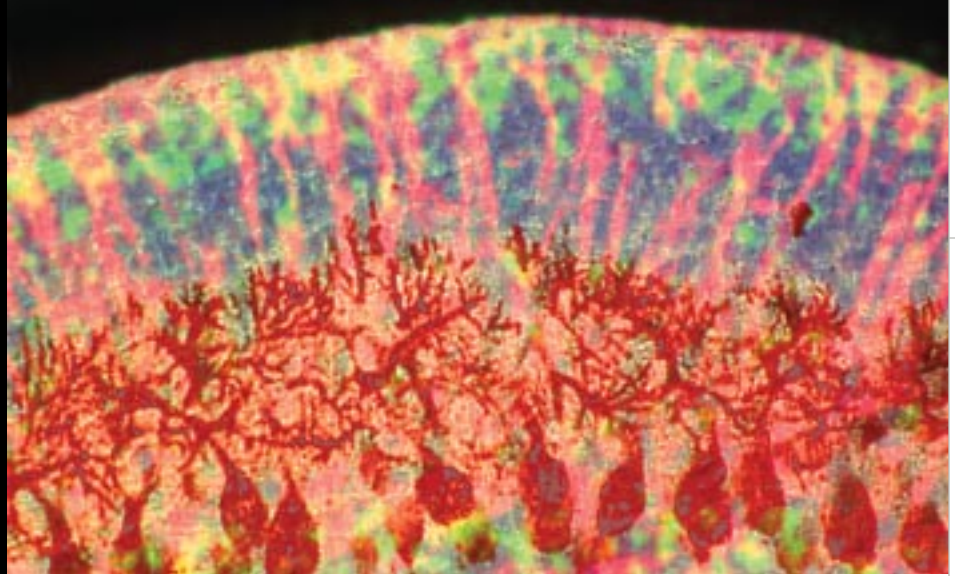
In addition to these revolutionary tasks, Carnegie scientists will continue to carry out more predictable research. They seek to understand the structure at single-cell resolution of all tissues (including the nervous system) of the model organisms (e.g., mice, fruit flies, zebrafish) that are the focus of the department's research. They seek to understand intercellular communication within tissues. They seek to develop new means to understand physiological cellular activities and metabolism. And finally, they seek to document the underlying unity of these various processes between species, as well as exceptions, in order to understand how the biological world evolved from a common Precambrian ancestor.

Department directors discussed their visions for their departments at the November board meetings. From left to right: Observatories' Wendy Freedman; Embryology's Allan Spradling; Plant Biology's Wolf Frommer; Global Ecology's Chris Field; the Geophysical Laboratory's Rus Hemley; and Terrestrial Magnetism's Sean Solomon.



The above image from Embryology's Halpern lab, shows molecular differences between left and right sides of a larval zebrafish brain in red.  
Image courtesy Marnie Halpern

Department of Embryology scientist Chen-Ming Fan uses the mouse as a model organism. The image (above right) is a developing cerebellum in a mouse. The top green layer is the proliferating granule stem cells; the blue cells below them are the differentiating granule cells. Pink fibers through the granules are the Bergmann glial fibers, which guide the differentiating granule cells to climb down into the inner chamber. The dark trees with bulbs are the Purkinje cells, to which the granule cells make connections. The yellow cells between the bulbs are the proliferating Bergmann glia stem cells. The granule cells and the Purkinje cells work together to modulate the body's fine motor activity.



Realizing these dreams will require new equipment for sequencing, microscopy, and biochemistry, along with some renovation and expansion of the department's animal facilities. This is a time of extraordinary advance in biology and the department is at the forefront.

The quest of the Department of Plant Biology is to unlock the mysteries of plant life, organisms that constitute the foundation for all life on Earth. They use advanced technologies in biology to address a myriad of mysteries: How sunlight is absorbed and used by plants to produce biomass, how inorganic nutrients are captured and converted into organic matter using the energy from light, how single cells and the plant body are formed, how the environment shapes plant growth and development and, in turn, how plants interact with and shape the environment. Our researchers seek to extend our knowledge of the fundamental biological mechanisms critical for plant growth and development through basic research, a hallmark of all Carnegie science. In addition, the department's scientists are pursuing several overarching research initiatives. They explore how plants evolved on Earth, focusing on the emergence of novel plant-specific features. And they are studying the "hidden" half of plants—namely, the underground root system—and its interaction with the environment. Finally, they seek to harness sophisticated bioinformatics tools to develop a deeper understanding of the genes that regulate critical plant functions. The opportunities are tremendous, yet, to achieve their goals, we must raise funds to renovate research facilities and to enhance technological infrastructure in the areas of advanced imaging and bioinformatics.

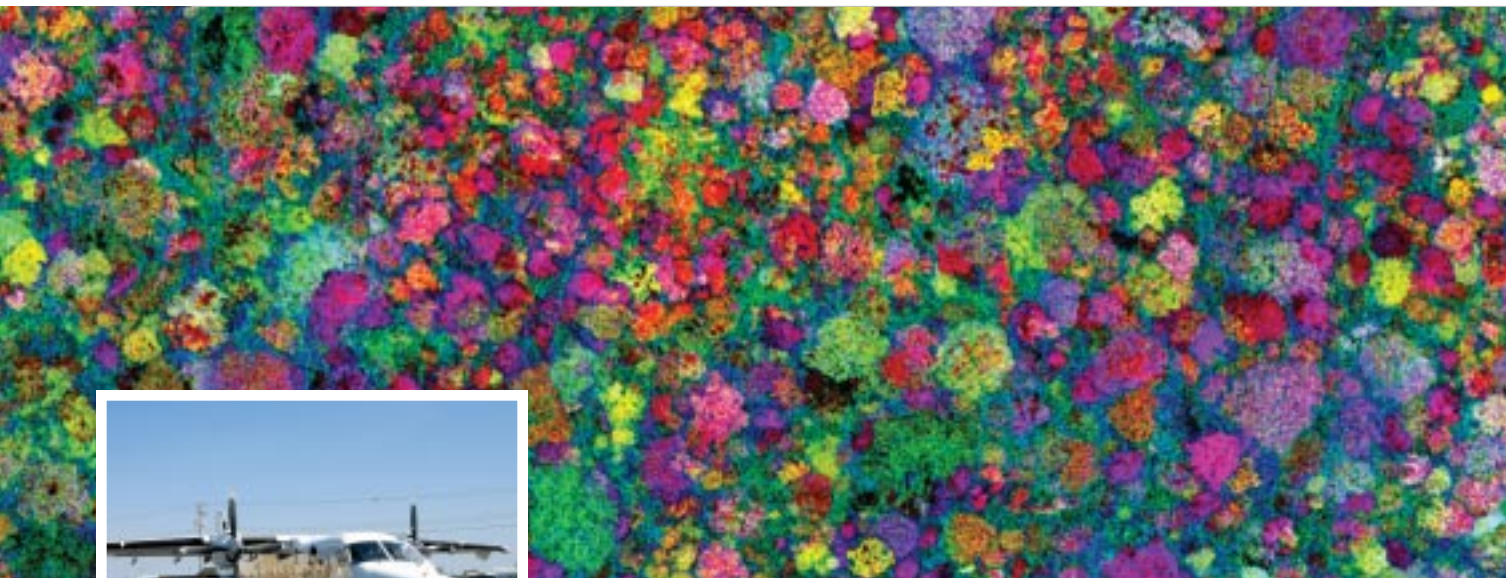


*Arabidopsis thaliana* (above left) is a tiny, mustard-like weed with a rapid 6-week life cycle making it ideal for studying development, photosynthesis, disease defenses, and plant behaviors. The genome sequence of this model plant was completed in 2000.

Plant Biology researchers use advanced imaging techniques, such as spinning disk microscopes (above) with superior sensitivity.

The Department of Global Ecology, founded in 2002, has already established itself as one of the leading enterprises pursuing integrated Earth-system science. Its aim is to answer fundamental questions about major components of the Earth's system, including such complex issues as the consequences of changes in the atmospheric concentration of greenhouse gases. It thereby seeks to establish the scientific foundations for a sustainable future for the planet. Some of the recent contributions of the department's scientists include a study of the impacts of recent global warming on agricultural yields, measurement by sophisticated remote-sensing techniques of the scale of global forest degradation, assessment of the impacts of ocean acidification, study of the impacts of various techniques to counteract some of the effects of growing greenhouse gas accumulation (termed geoengineering), and a study of the climate feedbacks resulting from changes in forests. The overall goal of this research is to understand the forces that shape the behavior of the Earth's systems. Our challenge is to build a department that has resources that are commensurate with the scope of the problems it is tackling.

One remarkable tool developed at Global Ecology is the Carnegie Airborne Observatory. This system, which is mounted on an aircraft, enables rapid broad-scale ecological assessments of the surveyed terrain. It combines a laser-ranging instrument that enables the measurement of canopy structure, along with a spectroscopic instrument that enables the remote identification of plant species. This tool could provide a critical and unique capability to understand the changing conditions in, for example, tropical forests.



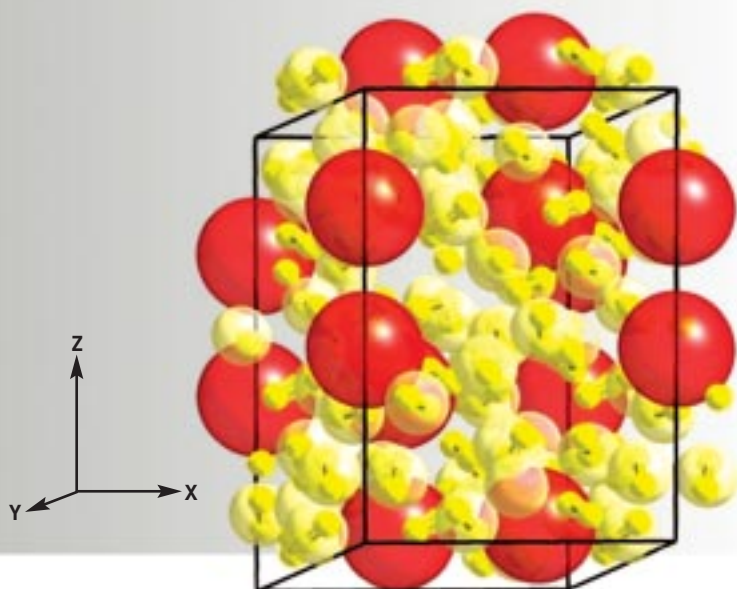
The Carnegie Airborne Observatory (inset) makes large-scale ecological assessments of tropical forests. At right is a high-resolution map of the chemical diversity of vegetation in Panama.

*Image courtesy Greg Asner*

The scientists at the Geophysical Laboratory have shown repeatedly that breakthroughs in our understanding of materials and of geophysics arise when we explore the behavior of materials under extreme conditions, such as extremes of temperature or pressure. They seek to explore fundamental questions: What new physics will appear when atoms are brought and kept extremely close together? What are the extremes of chemistry—i.e., reactivity, inertness, bonding, strength, and kinetics? How far can we extend the limits of material behavior and make new materials for efficient yet benign energy generation, conversion, and transfer? How can we understand the formation and evolution of Earth, super-Earths, and other celestial bodies in terms of the full range of their extreme environments? What is the fate of elements such as carbon deep within planets? What are the extreme limits of biology? What roles do extreme environments play in the origin and evolution of life? How do they enlighten our search for life beyond Earth's surface?

The Geophysical Laboratory pursues its research through a growing network of relationships, laboratories, and field sites. It has successful programs at Argonne National Laboratory, Brookhaven National Laboratory, and most recently, Oak Ridge National Laboratory, for the conduct of research using unique tools at these laboratories that were developed in partnership with Carnegie scientists. It seeks to expand these relationships and establish new ones in a network of observatories as it strengthens the instrumentation base and capabilities at our facilities on Broad Branch Road.

The Department of Terrestrial Magnetism pursues a broad sweep of questions that address the formation and evolution of planets, including our own. Scientists in that department are grouped in three broad areas—astronomy, geochemistry and cosmochemistry, and geophysics. Within these groups, fundamental theoretical and obser-

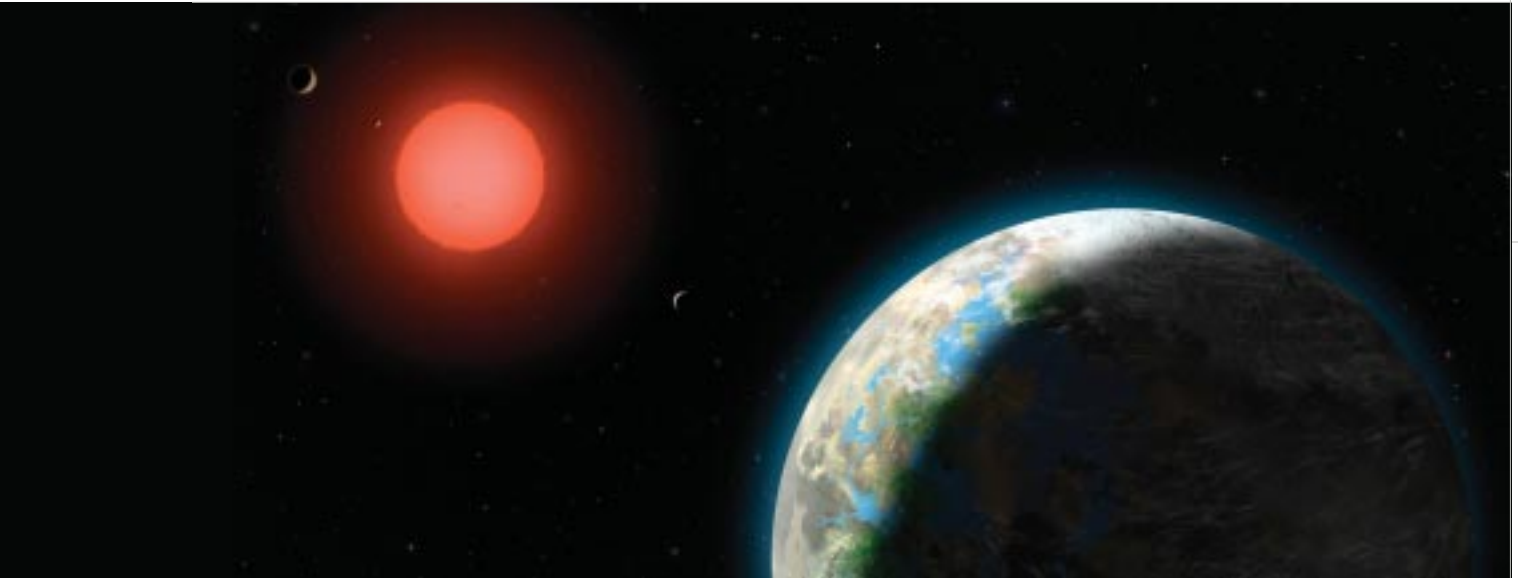


vational questions abound, such as the theory of formation of gas-giant, ice-giant, and rocky planets; the chemistry and chronology of early Solar System material, including meteorites, interplanetary dust particles, and samples from cometary and planetary bodies; and those aspects of Earth structure relating to the formation and evolution of continents. Challenges for that department include the need for additional fellows, equipment, computational resources, and skilled technical support.

As the foregoing shows, the scientific dreams of our staff are varied and exciting. It nonetheless is important to note that we do not aim to script our future projects in ways that constrain us. During our discussion, Allan Spradling, the director of the Department of Embryology, provided a view that I share: “[Our] departments do not exist to solve specific [scientific] problems . . . Instead, they strive to do the most important work in their field at a particular moment in time, work that will maximally advance the field’s internal development. Unfortunately, it is usually not clear what that work is until it is almost completed. . . . [T]he flexible Carnegie style has allowed small departments to have an outsized influence, and arguably has been the secret of the institution’s success over most of its history.” While constantly setting ambitious scientific targets, we seek to maintain the flexibility to pursue the unexpected. Indeed, it is the startling moment of clarity arising from a surprising result that often yields the greatest scientific advance.

Of course, the achievement of the ambitious dreams of our scientists requires resources. Our endowment is recovering from the economic decline of 2008, but not sufficiently as yet to enable significant new spending. We have fared well in support from the federal government and from foundations—a testament to the skills of our scientists—

Scientists at the Geophysical Laboratory (GL) found for the first time that high pressure can be used to make a unique hydrogen-storage material (left). They found that the normally unreactive, noble gas xenon combines with molecular hydrogen ( $H_2$ ) under pressure to form a previously unknown solid with unusual bonding chemistry. The discovery debuts a new family of materials. Other GL researchers were able to watch nanoparticles grow from the earliest stages of their formation (right). Nanoparticles are the foundation of nanotechnology and their performance depends on their structure, composition, and size. Researchers will now be able to develop ways to control the conditions under which they are grown.



Terrestrial Magnetism's Paul Butler and team find planets around other stars. Their ultimate goal is to find other Earths. This artist's rendition shows the potentially habitable Earth-sized planet his team recently found. It is one of two new planets discovered around the star Gliese 581, some 20 light-years away.

*Image courtesy NASA, artwork by Lynette Cook*

but we should not expect handsome future growth from these sources. We are clearly entering a period of fiscal stringency at all levels of government. And foundations are recovering from the same endowment declines suffered by Carnegie and most universities, so prudence in their future commitment of resources seems probable.

Nonetheless, I am optimistic that the expansion of our scientific reach will be achieved. I observe the remarkable success of Carnegie science, as revealed by the steady flow of remarkable discoveries from all our departments. (One measure of this success is the extensive listing of scientific publications in major journals that is set out elsewhere in this volume.) Despite our small size, we are very significant contributors in the fields in which we work. Given the important role of science in building a sustainable and productive future, I am confident that the necessary resources will be found.

Andrew Carnegie founded the institution with the intention that it shall "in the broadest and most liberal manner, encourage investigation, research, and discovery." We are filling the role that Andrew Carnegie intended for us. We will continue to enrich the storehouse of scientific knowledge on into the future, as we have in the past. As the conversation with Carnegie directors has revealed, we do not lack exciting new scientific terrain to explore.

*Richard A. Meserve*

# Friends, Honors & Transitions



# Carnegie Friends



## Annual Giving

### The Barbara McClintock Society

An icon of Carnegie science, Barbara McClintock was a Carnegie plant biologist from 1943 until her retirement. She was a giant in the field of maize genetics and received the 1983 Nobel Prize in Physiology/Medicine for her work on patterns of genetic inheritance. She was the first woman to win an unshared Nobel Prize in this category. To sustain researchers like McClintock, annual contributions to the Carnegie Institution are essential. The McClintock Society thus recognizes generous individuals who contribute \$10,000 or more in a fiscal year, making it possible to pursue the highly original research for which Carnegie is known.

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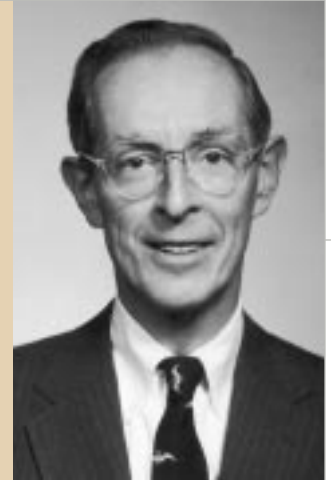
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 M. C. Gilbert  
 Kirsten H. Gildersleeve  
 Theresa L. Goedeke  
 James F. Goff  
 Ellen S. Gold  
 Cordelia M. Goldstein  
 David J. Goldston  
 John J. Govoni  
 Barbara Graves  
 Thomas and Josephine Greeley  
 Scott and Emma Gromacki  
 Timothy L. Grove  
 John J. Gurney  
 Necip Guven  
 William and Dorothy Hagar  
 B. Fenton Hall  
 Mildred V. Hallberg  
 Steven J. Hamilton  
 Paul A. Hanle  
 Jessica Hannah  
 Michelle R. Harmon  
 Walter A. Harrison  
 Stanley R. Hart  
 William K. Hart  
 Karl M. Hartmann  
 Steven A. Hauck  
 Erik H. Hauri  
 Gordon S. Hawkins  
 Gregory Head  
 Norris C. Hekimian

## Robert G. Goelet

Trustee Robert G. Goelet has been a guiding force on the Carnegie board of trustees for more than a quarter of the institution's existence. When he was elected in 1980, he was president of Goelet Realty Company, vice president of Goelet Estate Company, director of the Chemical Bank, and president of the American Museum of Natural History. His unique blend of business and nonprofit experience, along with his love of biology, made him a perfect fit for Carnegie.

Goelet is a member of the Finance Committee, a post he has held since 1981. In the early 1980s he was also a member of the Nominating Committee, chairing it in 1984. He has been an integral part of the institution's history and a contributor to its scientific prosperity, helping steer it through the business challenges of the Observatories' Magellan Telescope Project. He was involved with the relocation of the Geophysical Laboratory (GL) and the Department of Terrestrial Magnetism to one site, and has watched GL become a driving force in a half dozen major international research alliances and Terrestrial Magnetism evolve into a powerhouse for planetary studies. He saw the launching of Carnegie's educational programs, First Light and the Carnegie Academy for Science Education, witnessed the construction of the Maxine Singer Building at Embryology, and was party to establishing the first new department in over 80 years, the Department of Global Ecology.

For three decades, Goelet has consistently supported the institution's initiatives. He has generously contributed to every capital campaign, challenge grant, and annual fund drive, and he has supported instrumentation, buildings, the Global Ecology fund, and more. He is a member of the Edwin Hubble Society.



★ Robert Goelet

H. L. Helfer	Bobby R. Inman	Patrick Keys	Kathleen D. Lewis	Richard Marks
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Jutta Hicks	Daniel Janosik	Scott Kolonko	John and Jean Lively	Christopher McEniry
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Lisa L. Holt	Katina Kapellas	Joseph Kubicky	Harry Lustig	Chris McWilliam
Rush Holt and Margaret	Ellen K. Kappel	Arthur and Faith LaVelle	Peter B. Lyons	Lata Menon
Lancefield	Peter G. Katona	Samuel A. Lawrence	Steven R. Machlin	Carl R. Merrill
Wayne J. Hopkins	Annabel W. Kaufman	Harold H. Lee	Richard J. Mahler	Amy Meserve
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Sandra N. Humphrey	Charles Kengla	Frederick K. Leppele	Jane F. Mangold	Lowell and Ruth Minor
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## Carnegie Institution for Science

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John Mothersole	Milt Roney	Mack Taylor
Gary G. Mrenak	Ingrid Rose	Thomas M. Tekach
Manning Muntzing	Anne G. Rosenwald	Jerilyn Teplin
Charles G. Myers	Christopher Rubel	Mira Thompson
Ralph Nader	Doug and Karen Rumble	Norbert Thonnard
Ralph H. Nafziger	Raymond E. Ruth	Tom Thornbury
Claude Negre	Nadia M. Saad	Kristy Tiampo
Norman and Georgine Neureiter	Selwyn and Pamela Sacks	Peter A. Tinsley
Phillip and Sonia Newmark	Adam Sandler	Charles H. Townes
Richard L. Nielsen	Akira Sasaki	Mary S. Travis
Peter J. Nind	Martha K. Savage	Kay Tremaine
Adrienne Noe	Anne K. Sawyer	Jonathan Tuerk
Paul G. Nyhus	Maarten Schmidt	Michael S. Turner
Michael E. Ollinger	Wendy S. Schonman	Frits Van Beek
Peter and Janyce Olsen	Joyce R. Schwartz	Suzan van der Lee
Peter Olson	François and Linda Schweizer	W. K. VanNewkirk
Gilbert Omenn and Martha Darling	Malcolm Scully	Arthur H. Vaughan
Marcos Ortiz	Nobumichi Shimizu	David Velinsky
John Overholt	Ray Shoenfelt	Clayton Vickland
Vani Padmanabha	Walter Shropshire	Daniel and Eloise Vitiello
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David C. Parmelee	Randolph Sim	Jessica M. Warren
R. B. and Deborah Parry	Helen Simms	Linda Warren
Thomas H. Peebles	Mary E. Simon	Wayne H. Warren
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Joseph and Jean Platt	David W. Simpson	James H. Whitcomb
Thomas Prather	Virginia B. Sisson	Edward White
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Shirley Raps	Christine D. Smith	James E. Williams
Martin Ratliff	John T. Smith	Ian Wilson
Donald G. Rea	Michael Smith	Evelyn M. Witkin
Patrick Reavey	Jordan Sorensen	James A. Wood
Robin Reichlin and Steven Bohlen	Phillip K. Sotel	Julianne Worrell
Minocher Reporter	Jean Stadel	Michael J. Worth
Yaron Reshef	Seth Stein	Frank K. Wyatt
Benjamin Richter	Erich W. Steiner	Robert Yamartino
Herman H. Rieke	Susan Strain	Charles Yanofsky
Kathryn L. Ries	Nathan Strug	Irving and Carol Yoskowitz
Grace Risetto	Joan T. Suwalsky	Richard S. Young
Marianne Ritchie	Thomas H. Symons	Robert A. Young
	Kathleen Taimi	Violet K. Young
	Gary R. Tanigawa	Judith P. Zauderer
		Timothy A. Zimmerlin
		Wanna M. Zinsmaster

## Foundations and Corporations

**\$1,000,000 or more**

Anonymous  
Gordon and Betty Moore Foundation  
Alfred P. Sloan Foundation

**\$100,000 to \$999,999**

The Ahmanson Foundation  
The Gayden Family Foundation  
The Hearst Foundation, Inc.  
Andrew W. Mellon Foundation  
Ambrose Monell Foundation  
The San Simeon Fund, Inc.

**\$10,000 to \$99,999**

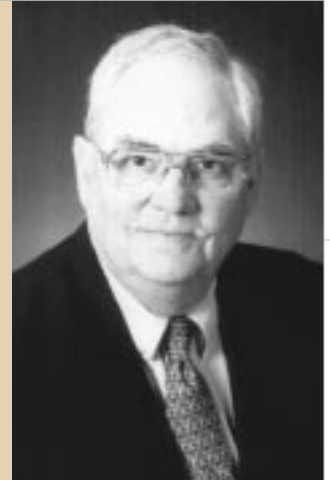
Anonymous (2)  
Association of American Medical Colleges  
Baltimore Community Foundation  
The Bodman Foundation  
The Brinson Foundation  
The Margaret A. Cargill Foundation  
Carnegie Institution of Canada/Institution  
Carnegie du Canada  
Chesapeake Bay Trust  
Dow AgroSciences LLC  
Fondation de France  
Herman Frasch Foundation for Chemical  
Research  
Golden Family Foundation  
Robert and Margaret Hazen Foundation  
Richard W. Higgins Foundation  
The Hoffberger Foundation  
The G. Harold and Leila Y. Mathers  
Charitable Foundation  
The McMurtry Family Foundation  
Shippy Foundation  
Sun Microsystems, Inc.  
Syngenta Biotechnology, Inc.  
The William and Nancy Turner Foundation  
The Sidney J. Weinberg, Jr., Foundation

## William K. Gayden

In 1998 David Swensen, then chairman of the Finance Committee, recommended that Bill Gayden, founder, chairman, and chief executive officer of Merit Energy Company, present information about his company to the board as a possible Carnegie investment. Merit, founded in 1989, is a privately owned oil and gas company that acquires and exploits mature petroleum reserves. Little did anyone suspect that Gayden harbored a passionate interest in astronomy and would later become a valued board member. Everyone on the Finance Committee was captivated by Gayden's presentation, not just because of the success of the company, but because they found him to be an independent and creative thinker.

Some years after Gayden's presentation, the Nominating Committee invited him to join the board. By that time Gayden had become familiar with Carnegie's high-risk, high-reward science—a natural fit for a successful entrepreneur. Gayden was elected to the board in 2002. Since then he has served as a member of the Research and Budget and Operations committees. He also served as a member and then chairman of the Audit Committee. His business instincts and insights were critical as he helped the institution navigate the rough waters it encountered as it modified its new business practices.

From the very beginning, Gayden has been a particularly strong advocate for the bold and ambitious Giant Magellan Telescope project. The one-of-a-kind venture, on course for completion in 2019, has benefited tremendously from his gifted counsel and support. Gayden has consistently supported other high-priority needs at Carnegie over the years. He is a member of the Vannevar Bush Society.



★ William K. Gayden

### \$500 to \$9,999

The Abell Foundation  
 Peter and Julia Brennan Fund  
 Cavalieri-Look Fund  
 Ernst Charities  
 Field-Chiariello Family Revocable Trust  
 Arthur and Linda Gelb Charitable Foundation  
 Michael E. Gellert Trust  
 Hicks Family Charitable Foundation  
 Incorporated Research Institutions for Seismology  
 The Marion I. and Henry J. Knott Foundation, Inc.  
 Laubach Family Fund  
 Linden Trust for Conservation  
 Maverick Capital Foundation  
 Robert W. and Gladys S. Meserve Charitable Trust

Mulago Foundation  
 Omenn-Darling Family Advised Fund  
 Pfizer Foundation Matching Gifts Program  
 The T. Rowe Price Program for Charitable Giving  
 Prince Charitable Trusts  
 Society for Developmental Biology  
 The Spradling/Griffin Charitable Gift Fund  
 The Lee and Carol Tager Family Charitable Fund  
 Unavco, Inc.  
 VWR Charitable Foundation  
 The Weathertop Foundation  
 YSI Foundation  
 Zimmer Gunsul Frasca Architects LLP  
 The Zoback Trust

### Government

#### Over \$1,000,000

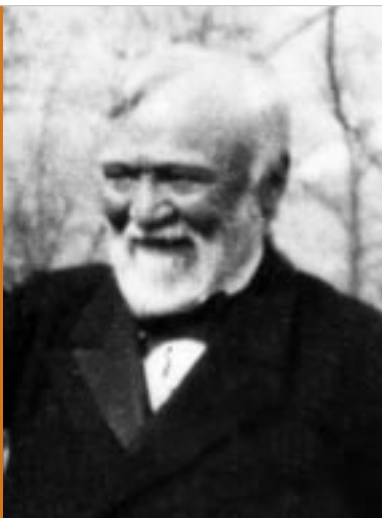
National Aeronautics and Space Administration  
 National Science Foundation  
 U.S. Department of Energy  
 U.S. Public Health Services-National Institutes of Health

#### \$100,000 to \$1,000,000

U.S. Office of Naval Research

#### \$10,000 to \$99,999

U.S. Department of Agriculture, Forest Service  
 U.S. Army

★ *Andrew Carnegie*★ *Edwin Hubble*★ *Vannevar Bush*

## Lifetime Giving Societies

### The Carnegie Founders Society

Andrew Carnegie, the founder of the Carnegie Institution, established it with a gift of \$10 million. Although he ultimately gave a total of \$22 million to the institution, his initial \$10 million gift represents a special level of giving. In acknowledgment of the significance of this initial contribution, individuals who support Carnegie's scientific mission with lifetime contributions of \$10 million or more are recognized as members of the Carnegie Founders Society.

Caryl P. Haskins\*

William R. Hewlett\*

### The Edwin Hubble Society

The most famous astronomer of the 20th century, Edwin Hubble, joined the Carnegie Institution in 1919. Hubble's observations shattered our old concept of the universe. He proved that the universe is made of collections of galaxies and is not just limited to our own Milky Way—and that it is expanding. This work redefined the science of cosmology. Science typically requires years of work before major discoveries like these can be made. The Edwin Hubble Society honors those whose lifetime support has enabled the institution to continue fostering such long-term, paradigm-changing research by recognizing those who have contributed between \$1,000,000 and \$9,999,999.

D. Euan and Angelica Baird

Michael and Mary Gellert

Robert G. and Alexandra C. Goelet

William R. Hearst III

Richard E. Heckert\*

Kazuo and Asako Inamori

Burton and Deedee McMurtry

Jaylee M. Mead

Cary Queen

Deborah Rose, Ph.D.

William J. Rutter

Thomas and Mary Urban

Sidney J. Weinberg, Jr.\*

## Second Century Society

### The Vannevar Bush Society

Vannevar Bush, the renowned leader of American scientific research of his time, served as Carnegie's president from 1939 to 1955. Bush believed in the power of private organizations and wrote in 1950, "It was Andrew Carnegie's conviction that an institution which sought out the unusual scientist, and rendered it possible for him to create to the utmost, would be worth while [sic] . . ." He further said that "the scientists of the institution . . . seek to extend the horizons of man's knowledge of his environment and of himself, in the conviction that it is good for man to know." The Vannevar Bush Society recognizes individuals who have made lifetime contributions of between \$100,000 and \$999,999.

Anonymous (3)  
 Bruce and Betty Alberts  
 Daniel Belin and Kate Ganz  
 Didier and Brigitte Berthelemot  
 Gary P. and Suzann A. Brinson  
 Donald and Linda Brown  
 A. James Clark  
 Tom and Anne Cori  
 Jean and Leslie Douglas  
 Bruce Ferguson and Heather Sandiford  
 Stephen and Janelle Fodor  
 William and Cynthia Gayden  
 Robert and Margaret Hazen  
 Antonia Ax:son Johnson and Goran Ennerfelt  
 Gerald Laubach  
 Lawrence H. Linden  
 John D. Macomber  
 Steven L. McKnight  
 Richard A. and Martha R. Meserve  
 Al and Honey Nashman  
 Evelyn Stefansson Nef\*  
 Vera C. Rubin  
 Allan R. Sandage\*  
 Christopher and Margaret Stone  
 William and Nancy Turner

The Carnegie Institution is now in its second century of supporting scientific research and discovery. The Second Century Society recognizes individuals who have remembered, or intend to remember, the Carnegie Institution in their estate plans and those who have supported the institution through other forms of planned giving.

Bradley F. Bennett\*  
 Richard Buynitzky\*  
 Eleanora K. Dalton  
 Nina V. Fedoroff  
 Kirsten H. Gildersleeve  
 Robert and Margaret Hazen  
 Paul and Carolyn Kokulis  
 Gilbert and Karen Levin  
 Evelyn Stefansson Nef\*  
 Allan R. Sandage\*  
 Leonard Searle\*  
 Maxine and Daniel Singer  
 John R. Thomas, Ph.D.  
 Hatim A. Tyabji

\* Deceased

*Members were qualified with gift records we believe to be accurate.  
 If there are any questions, please call Mira Thompson at 202.939.1122.*

# Honors & Transitions

## Honors

### Administration

Carnegie president **Richard Meserve** was appointed to the Blue Ribbon Commission on America's Nuclear Future by Secretary of Energy Steven Chu in 2009. He also received an honorary doctorate from Washington College.

**Toby Horn**, codirector of the Carnegie Academy for Science Education, received the 2009 Bruce Alberts Award for Excellence in Science Education from the American Society of Cell Biology in December 2009.

### Embryology

Staff member **Douglas Koshland** was elected to the National Academy of Sciences in April 2010.

Research technician **Dianne Williams** received Carnegie's Service to Science Award in May 2010.

### Geophysical Laboratory

Director Emeritus **Charles Prewitt** received the first IMA Medal for Excellence in Mineralogy from the International Mineralogical Association at the Goldschmidt Conference in 2009.

Staff member **Yingwei Fei** was elected a 2010 fellow of the American Geophysical Union.

### Global Ecology

Department director **Christopher Field** was elected to the American Academy of Arts and Sciences in April 2010. He was also awarded the Heinz Award in September 2009.

Staff member **Kenneth Caldeira** was elected a 2010 fellow of the American Geophysical Union.

### Observatories

**Frank Perez**, site manager/telescope engineer, received Carnegie's Service to Science Award in May 2010.

### Plant Biology

Director Emeritus **Winslow Briggs** was awarded the 2009 International Prize for Biology by the Japan Society for the Promotion of Science.

### Terrestrial Magnetism

Staff member **Steven Shirey** was elected a 2010 fellow of the American Geophysical Union.

## Transitions

Trustee emeritus **Richard Heckert** died in January 2010.

Staff member **Paul Silver** of Terrestrial Magnetism died in a car accident with his daughter on August 7, 2009.

Embryology staff associate **Judith Yanowitz** became an assistant professor at the Magee-Womens Research Institute in Pittsburgh in November 2009.

**Martin Jonikas** joined the Department of Plant Biology as a young investigator in 2010.



★ *Richard Meserve*



★ *Toby Horn*



★ *Douglas Koshland*



★ *Dianne Williams*



★ *Charles Prewitt*



★ *Yingwei Fei*



★ *Christopher Field*



★ *Kenneth Caldeira*



★ *Frank Perez*



★ *Winslow Briggs*



★ *Steven Shirey*



★ *Richard Heckert*



★ *Paul Silver*



★ *Judith Yanowitz*



★ *Martin Jonikas*