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Attributions

A Newsletter from the Director's Office
Institute *for* Advanced Study

"The Institute for Advanced Study has always been very fortunate in its friends, whose ongoing support has been critical to the success of this institution since its earliest days. Over the decades, friends have made vital contributions to the Institute in many different ways. They have helped it to grow and thrive, and to have an extraordinary impact on research and scholarship worldwide. This issue of Attributions *pays tribute to three couples who, as good Friends of the Institute, have shown consistent commitment to its work.*

Nancy and Duncan MacMillan are nurturing the young field of theoretical computer science with their support of the Professorship in Theoretical Computer Science in the School of Mathematics. As a member of the Director's Search Committee and Chair of the Institute's Development Committee, Nancy MacMillan is helping to define the Institute's role in the 21st century and strengthen the awareness of its purpose in the outside community.

Elena and Giorgio Petronio were introduced to the Institute twenty years ago by Enrico Bombieri, Professor in the School of Mathematics, and have been very active Friends of the Institute ever since. They are convinced of the importance of fundamental research and, in Giorgio's words,"we support the Institute in any way we can."

The longstanding relationship between the Institute and Peggy and Frank Taplin began over thirty years ago, and continues into the 21st century. The Taplins have endowed Memberships in the School of Natural Sciences. They have been tireless advocates for the Institute's conservation efforts and their generous support helped to make possible the preservation of nearly 600 acres of the Institute's woods and fields. As important as these contributions are, we also value greatly the less measurable contributions that good friends also make: those of perceptive insights, sound advice, constant goodwill, and the generous commitment of time and energy that helps goals become reality.

If a person is known by the company he or she keeps, an organization may be measured in part by the quality of its friends. In a time of unrest and change, we gratefully acknowledge and cherish our friends.

—Vartan Gregorian, *Board of Trustees*

Nancy S. and Duncan L. MacMillan: Leading by Example

Nancy and Duncan MacMillan have been Friends of the Institute for Advanced Study since 1993, and members of the Chairman's Circle of the Friends since 1997. Nancy joined the Board of Trustees in 2001 and currently serves as Chair of the Development Committee and as a member of the Search Committee for the seventh Director of the Institute. The MacMillans have made generous contributions in support of the Professorship in Theoretical Computer Science in the School of Mathematics.

Computers have played a significant role in the lives of Nancy and Duncan MacMillan. The couple first met in the operations research department of Bankers Trust in 1967, when working on financial modeling using computers. It was a first job for both of them. Nancy had just graduated from Connecticut College, with a B.A. in economics and mathematics, and Duncan from Rutgers University, where he studied mathematics, after having served in the Marine Corps for four years. "He thought he'd saved enough money in the service to finance college, but after six months he knew he hadn't," says Nancy. Duncan received a scholarship funded by the owner of the 21 Club in New York City. In 1995, he acknowledged his benefactor by establishing a scholarship at Rutgers that favors older students returning to train for new careers. "When he named the scholarship he put a little 21 in the name, in recognition of the help that he had received," Nancy recalls.

While working for Bankers Trust, Nancy earned her MA in economics from Hunter College in 1971. In 1977, she received an MBA in finance from Rider University. She is currently Publisher of the Princeton Alumni Weekly, and maintains a busy schedule, with commitments on the Board of Trustees of the American Repertory Ballet, and activities in support of the Auxiliary of the Medical Center at Princeton, as well as other local non-profit organizations.

Duncan went on to work for Salomon Brothers on Wall Street. In 1981, he and Salomon colleague Michael Bloomberg with two other associates formed Bloomberg LP to provide analytical services to investment and securities firms worldwide. Duncan designed many of the applications by which the company provides instantaneous access to real-time financial data. Since 1981, Bloomberg LP has transformed the securities business, and Mike Bloomberg has become Mayor of New York City. But, coming at a time when their children, Kevin and Alissa, were very young, Nancy admits to being apprehensive about the move from Salomon. "I thought he shouldn't leave since he was doing well at Salomon.

DAVID GRAHAM

Nancy S. and Duncan L. MacMillan

I'm not a risk-taker." At Bloomberg, he worked 7 days a week for the first few years. Duncan still works for Bloomberg LP.

With their shared background in computing it is perhaps not surprising that the MacMillans were attracted to the opportunity to support the new field of theoretical computer science at the Institute. "When Phillip approached us with the proposal for the professorship in theoretical computer science, it seemed the perfect match for us," says Nancy. "It made sense because of my memories of the computer here, and because it is through computers and my husband's work that we are able to do this." The MacMillan's gift of $3 million established the Professorship in Theoretical Computer Science that is held by Avi Wigderson (see page 2).

"A sense of connection is a key element in giving," says Nancy. "Any substantial gift is about confidence in the organization and confidence in its people. When you can make a difference, you want to."

Nancy MacMillan's connection to the Institute for Advanced Study is deepened by the fact that her great-uncle Herbert Halsey Maass was instrumental in its founding. Attorney and close adviser to the Bambergers, Maass introduced them to Abraham Flexner, in the expectation that something great would result. Thus, Nancy's great-uncle was the catalyst that brought the Institute into being. As a Trustee from 1930 and President of the Board from 1942–1949, his wisdom and leadership helped shape the Institute from its inception until his death in 1957.

Although she was just 12 years old when her great-uncle passed away, Nancy had a warm relationship with

(Continued on page 2)

Avi Wigderson

Widely recognized as an authority in the developing field of theoretical computer science, Avi Wigderson's work advances an area last explored at the Institute during the tenure of John von Neumann. Professor Wigderson's particular research interests include randomness and computation, algorithms and optimization, proof complexity, quantum computation and communication, cryptography and distributed computation.

The practical use of computers, and the mathematical depth of the abstract notion of "computation," have significantly altered and expanded theoretical computing into a new science with its own paradigms. The field's foundations draw upon the fundamental disciplines of mathematical logic, pure mathematics and applied mathematics. In the last quarter century, the field has developed into one of the most vibrant and active areas of scientific study to attract talented young scientists.

Professor Wigderson was appointed to a newly-created faculty position in the School of Mathematics in 1999. He leads the special program in Theoretical Computer Science and Discrete Mathematics (TCS/DM) which works in close collaboration with Princeton and Rutgers universities, and research groups such as the Center for Discrete Mathematics and Theoretical Computer Science (DIMACS), and the NEC Research Institute.

Born in Israel in 1956, Avi Wigderson received his B.Sc. in computer science *summa cum laude* from Technicon-Israel Institute of Technology before undertaking M.S.E., M.A., and Ph.D. degrees in computer science at Princeton University. He has taught at the University of California, Berkeley. In 1995–96 he was a visiting Member in the School of Mathematics at the Institute. He is also a professor at the Institute for Computer Science of The Hebrew University, Jerusalem. In 1994, he received the Nevanlinna Prize, presented by the International Mathematical Union, for outstanding work in the field of theoretical computer science. He is also a recipient of the Yoram Ben-Porat Presidential Prize for outstanding Researcher. ■

From left, Phillip A. Griffiths, Institute Director, Nancy S. MacMillan, Trustee, and James D. Wolfensohn, Chairman of the Board of Trustees.

CLIFF MOORE

MacMillans *(continued from page 1)*

her great-aunt Hannah, whom she remembers as a very modest woman. At a time when few children had even heard of a computer, Nancy was aware of the importance that her relative attached to the Institute: "She would speak about how exciting it was and about the computer." As the wife of Herbert Maass, Hannah had observed the machine that was John von Neumann's Electronic Computer Project (ECP). Von Neumann was a Faculty member until his death, also in 1957. The year 2003 is the centenary of von Neumann's birth in Budapest, Hungary. His legacy was the focus of a public lecture by Director's Visitor George Dyson at the Institute on March 6. In "Von Neumann's Universe: 1903–2003," Dyson emphasized von Neumann's revolutionary work in computing.

Designed as a mathematical tool, the capabilities of the early computer were tested on problems drawn from dynamic meteorology. Some fifty years later, this ground-breaking work that led to advances in weather prediction is being recognized. In April, Franklin Medals in Earth Sciences were awarded to theoretical meteorologists Norman A. Phillips and Joseph Smagorinsky. Both scientists attribute their success to their early work at the Institute, which Smagorinsky has described as "the most important formative period of my career."

The MacMillans appreciate the fundamental nature of work carried out at the Institute. "This place creates a certain energy," says Nancy. "It gets attention because some key big names were here in the past. But even if those names were not associated with the Institute, it would deserve the same attention because of the work that goes on *now*."

As self-effacing as her great-aunt, Nancy prefers gift-giving to be anonymous and had to be persuaded otherwise by her husband, Duncan. "We live modest lives. But my husband believes very strongly about leading by example. He persuaded me that if having one's name associated with a gift encourages others to contribute then that is as important as the gift itself."

The MacMillans lead by example in their generous support for the McCarter Theatre, where Duncan is a member of the Board of Trustees. In 1999, the couple spearheaded a path for genetics research with a gift to Rutgers University. Their generosity to Rutgers stems from the affection Duncan feels for his *alma mater,* where he currently serves on the Board of Governors. Their generous support of the Institute stems from a first-hand appreciation of its special mission. "I hear repeatedly from Members that the Institute is unique in anticipating every need, so that a scholar's only concern is to pursue research for a period of intense creativity," says Nancy. Of her own visits to the Institute, she comments, "One comes here and feels refreshed and renewed and eager to learn something. It's a very calming atmosphere, but at the same time, you know all these wonderful thinkers are here, now as in the past."

During a recent visit, Nancy and her second cousin, Matthew Oristano, the grandson of Herbert Maass, learned more of their relative's role in the Institute's past and were introduced to some of the Institute's present Faculty and Members. "We met a cross section of the Institute community — somebody who was 30, somebody who was 70. Their energy and excitement about their research and being at the Institute was infectious," Nancy recalls.

Excitement for the pursuit of intellectual ideas is the hallmark of the Institute and of the relatively new field of theoretical computer science. The generous support of Nancy and Duncan MacMillan contributes to this vibrant and active area of scientific study that had its early beginnings at the Institute half a century ago and is attracting many of the best young scientists of today. ■

Leon Levy (1925-2003)

The Institute for Advanced Study is profoundly grateful for the life of Leon Levy.

Ways to Give

Charitable remainder unitrust

As a native of Trieste, Giorgio Petronio appreciates the international character of the Institute for Advanced Study perhaps more than most donors. He and his wife, Elly, came to the United States in 1979, when Giorgio was named group chairman of Johnson and Johnson. Socially, they met fellow Italian Enrico Bombieri, a professor in the Institute's School of Mathematics. As that personal relationship deepened, they came to learn more about the Institute's goals and purpose. They were particularly impressed by its global impact — the fact that each year nearly 200 scholars and scientists from all over the world come here to work under the guidance of the Institute Faculty, and then return to their home institutions, sharing what they have learned.

Elena and Giorgio Petronio

"I think this is fantastic," Giorgio stated. "I support this 100%."

Giorgio and Elly first demonstrated their support in 1984 by joining the Friends of the Institute. They started coming to the lectures and concerts, and "... the Dining Room was quite an attraction." Later, they were introduced to Director Phillip Griffiths and his wife, Taffy, whom they have come to admire and respect. Giorgio particularly identifies with Dr. Griffiths' defense of the value of "useless research," which often unlocks the way to unforeseen discoveries that can have a tremendous impact on our lives.

When the Petronios began to explore the idea of setting up a charitable remainder unitrust (CRUT), the choice of the Institute came naturally. They were already staunch supporters; when they read an Institute publication featuring an article about Professor Bombieri's positive experience in setting up a trust, they decided that a CRUT could fulfill some personal needs as well as satisfy their desire to increase their support for the Institute.

The appeal of a CRUT lies in the guarantee of receiving a certain percentage of interest each year, while permitting the avoidance of capital gains taxes on highly appreciated assets. Cash, securities, real property, or other assets are transferred into the trust. The trustee manages the trust assets and pays the donor a variable income for life or for a term of years. When the trust terminates, the remaining assets in the trust are transferred to the charitable institution. Giorgio views it as an ideal investment vehicle, in which one can "... say goodbye to $1 million, for example, but in return receive an income for life." This was attractive to Elly and Giorgio.

While enthusiastic about the benefits of a charitable remainder trust, which he described as "writing a will in advance," Giorgio cautioned that it is important to choose the method or investment vehicle that best meets your needs, particularly in this time of changed world circumstances. A CRUT provides payment of a percentage of the fair market value of the trust, which is re-valued annually. As the value of the trust increases or decreases, so does the payment, which can be a downside in today's uncertain market.

Giorgio maintains that it has been a pleasure to give to the Institute through a planned gift, rather than a more traditional bequest. "If it is right for your circumstances, such a gift can allow you to deepen your relationship with an organization you believe in, while you are around to enjoy it." Giorgio notes that, as a donor, it is important to be able to trust that one's gift is invested wisely. A particular appeal of the Institute in this respect is the caliber of people on the Institute's Board of Trustees, many of whom are well-respected names in the financial community. This extraordinary level of financial expertise is reassuring.

Members of the Einstein Legacy Society, the Petronios continue to be active Friends of the Institute. Elly is an avid gardener while Giorgio, now retired from a long and illustrious career with Johnson and Johnson, relishes the time and attention he can devote to "the pleasures of giving." ■

AMIAS-Sponsored Public Lectures

Six free public lectures sponsored by the Association of Members of the Institute for Advanced Study (AMIAS) drew a cross-section of the community to Wolfensohn Hall this term.

On January 30, Director's Visitor George Dyson inspired a young audience with "Project Orion 1957–65: An Illustrated Program for Ages Ten and Up." Together with Freeman J. Dyson, Professor Emeritus in the School of Natural Sciences (and the speaker's father), George Dyson spoke on the value of imaginative speculation to the development of science.

On March 6, George Dyson presented "Von Neumann's Universe: 1903–2003," describing the work that John von Neumann, one of the 20th century's most significant mathematicians, conducted at the Institute and which provided the blueprint for the modern computer.

The biennial AMIAS conference held April 4–5 featured four speakers. Jean Bourgain, professor in the School of Mathematics, presented "A Journey in the World of Differential Equations," on Friday, April 4. Professor Bourgain explored some recent developments in the field, and touched on the "somewhat controversial role of computers in the practice of pure mathematics."

In "Human Dissection and Vivisection: Science, Religion, and Politics in Ancient Greece," Heinrich von Staden, professor in the School of Historical Studies, discussed Herophilus and Erasistratus, two Greek physicians of the 3rd century BCE who were the first ancients to perform systematic dissections of human cadavers. "The uniqueness of their activities within the history of ancient science and medicine presents a series of challenging historical puzzles," said von Staden.

Diana Kormos-Buchwald, Director and General Editor of *The Einstein Papers,* and Associate Professor of History at California Institute of Technology, presented "Einstein's Legacy: A Quarter Century of The Collected Papers of Albert Einstein" on April 5. Described as "one of the most ambitious publication efforts in the history of science," the project comprises more than 50,000 Einstein and Einstein-related documents.

Also on April 5, molecular biologist Arnold Levine, visiting professor in the School of Natural Sciences, presented "The Human Genome Project: Where Do We Go From Here?" "The sequence of the human genome is now completed, and has given us new insights into human evolution, disease processes, and biological functions," Professor Levine observed. ■

Chairman's and Director's Circle Dinner

Patricia Hagan (left) with Rosanna and Charles Jaffin.

Annette Merle-Smith (left) with the evening's speaker, Robert Anderson, and Vera Kohn.

Lynn Johnston (left) with William and Tina Greenberg.

Elena Petronio and James Scott Hill.

On Tuesday, March 11, Phillip and Marian Griffiths hosted an evening at Marquand House in honor of the Chairman's and Director's Circle of the Friends of the Institute for Advanced Study. Historian of science Robert Anderson discussed "Issues Museums Face Today." A Member in the School of Historical Studies, Dr. Anderson was Director of the British Museum from 1992 to 2002. At the Institute he has been researching a book on the impact of museums on the lives of working people in the 19th century. Dr. Anderson's presentation was followed by dinner.

Phyllis Heilborn (left) with Ginny and Robert Loughlin (center) and George Heilborn.

PHOTOGRAPHS BY ANDREA KANE

Peggy and Frank E. Taplin, Jr.: When a man is tired of the Institute, he is tired of life…

In a small clearing in the woods behind the historic Thomas Clarke House stand four bronzed land markers. One records the history of the land, one commemorates its conservation, one acknowledges the hundreds of individuals involved in the preservation effort, and one is dedicated to the "foresight and generosity" of Peggy and Frank Taplin.

The Taplins are long-standing Friends of the Institute. Frank E. Taplin, Jr. has been a Trustee for more than thirty years. Since 1971, he has been articulate on behalf of the Institute's intellectual mission and tireless on behalf of its conservation efforts. In 1997, the Taplins' generous gift and Frank Taplin's personal leadership was vital in seeding the Institute's efforts to preserve 589 acres of Institute woods and fields in perpetuity. The Institute Lands form a vital ecological link in a network of open space between New York City and Philadelphia.

In the Princeton community, the Taplin name is synonymous with music and Princeton University's Taplin Auditorium. Frank Taplin has headed boards for nationally eminent musical organizations and earned a reputation for putting faltering arts organizations back on their feet: first, as a trustee of the Marlboro School of Music in Vermont, and subsequently as chief executive officer of the Metropolitan Opera Association, where he presided over an outstanding financial turnaround. While his success with the Met is perhaps his most public achievement, he has raised major support for a long list of civic and cultural institutions, including the Lincoln Center Chamber Music Society, the Cleveland Institute of Music, the Cleveland Orchestra, and Sarah Lawrence College. His successes are aided by the fact that he leads by example; his credibility, by the fact that he is an accomplished pianist in his own right. He has performed with first class professional musicians and, until lately, held a union card of the American Federation of Musicians (Local 4, Cleveland, Ohio).

While his musical talents are appreciated at the Institute for Advanced Study, where the announcement of "Frank Taplin at the Piano" draws an eager audience for the holiday party, it is his passion for science that comes to the fore here. "I've always been fascinated by anything to do with the cosmos, anything to do with the origin of things, with astrophysics, even particle physics." Of the Institute, where he regularly lunches and attends scholarly seminars, he remarks, "I have a very strong feeling of its importance as a place where gifted scholars have the opportunity to work at the frontiers of their discipline without the constraints of departmental or teaching requirements."

Frank Taplin's enthusiasm for the Institute recognizes its role as an independent institution unhampered by simplistic quantitative measures of productivity. "What worries me is the number of corporations, like Bell Labs, that used to emphasize the importance of fundamental scientific research and are now driven more by the desire for short-term results of their investment. I never question the importance of new knowledge. One never knows how it will ultimately be useful. When Bell Labs developed the transistor they had little idea of how it would be used. It replaced the vacuum tube," he says.

Peggy and Frank Taplin at home in Princeton.

Frank Taplin is equally passionate about the benefits to the Institute and to the intellectual community at large of mentoring young scholars and scientists. Believing that the interplay between visiting Members and permanent Faculty is a crucial element in the Institute's success, the Taplins responded to the opportunity to endow named Memberships. The Taplins' charitable remainder trust endowed two Frank and Peggy Taplin Memberships in the School of Natural Sciences, in particle physics and in astrophysics.

A conversation with Frank and Peggy Taplin can be a heady affair, ranging from the scientific underpinnings of global warming to the Essays of Montaigne, whose famous remark "Mon métier et mon art c'est vivre," applies equally to Frank Taplin. Frank is as likely to sit down at the piano and play a Bach fugue as quote a Shakespearean Sonnet, and don't get him started on anyons, those strange little particles named by Institute physicist Frank Wilczek in 1982. Frank Taplin's witty "Anyons Anyone?" one of several high-spirited compositions inspired by the subatomic world, is included in his self-published chapbook series titled *Hot Doggerel (I-IV)*.

As reserved as her husband is outgoing, Peggy's interests are health and welfare of the young and the underprivileged. The couple celebrated a Golden Wedding Anniversary this year, on April 27. They met in 1951 when Peggy was a young widow with three daughters and Frank a divorcee with children of his own. "He very graciously took on four women," says Peggy. Together, the couple has raised six children.

Both Peggy and Frank Taplin, Jr. grew up in Cleveland, Ohio. Frank's father founded the North American Coal Corporation in 1913. Peggy's grandfather was the 19th century American portrait and landscape painter Joseph Oriel Eaton. Her sister is the painter Anne Eaton Parker. Their family had a deep appreciation for art and culture. Peggy recalls a summer spent in Florence as a child, where the sisters knew the Uffizi as well as their home.

In 1957, the Taplins moved to Princeton where Frank served as assistant to Princeton University President Robert Goheen, until 1959. Frank was not new to the University, however. He graduated Phi Beta Kappa with a B.A. in history with the class of 1937. Subsequently, he went to Oxford University as a Rhodes Scholar.

He left Oxford in 1939 with an M.A. in Jurisprudence and thence to Yale Law School where he earned his J.D. in 1941. From Law School, he volunteered for the Navy and served in naval intelligence during WWII. After four years in the Pacific, he returned to Cleveland where he practiced law for four years before deciding to devote his attention to civic affairs. Drawn to public service from an early age, he has been engaged in philanthropic work ever since, at the national and local level.

The Taplins are committed patrons of the arts who value fundamental research. Their numerous gifts of artwork to the Institute enhance the walls of the dining hall and common room. Two years shy of his ninetieth birthday, Frank Taplin expresses the Taplin philosophy. Citing the accomplishments of Verdi, who was over 80 years of age when he composed *Otello* and *Falstaff*, he says, "The worst thing that can happen to us as we get on in years is to shrink from challenge. For me, enjoyment of life is largely linked to the ability to keep one's curiosity, to keep in touch with what is going on in the world, what's being discovered and thought about. At the Institute, one is in touch with the finest minds … the Institute's permanent Faculty and its vibrant young visiting Members … Waking up one morning to learn that Kirk Varnedoe had joined the Faculty of the Institute was marvelous."

Adapting Dr. Johnson's famous quip, Frank Taplin substitutes "the Institute" for England's capital city and expresses his enthusiasm in a nutshell. ■

BIG IDEAS Dinner

At a celebratory dinner held on April 1, the Institute for Advanced Study and Thirteen/WNET New York marked the completion and release of BIG IDEAS, the four-part public television series in which several of the Faculty and scholars at the Institute present some of their ideas in conversation with science journalist Ira Flatow. The programs, titled "Exploring the Cosmos," "Einstein's Dream," "A New History of the World," and "Thinking Big," aired in the New York/New Jersey/Connecticut area on April 3, 10, 24, and May 1, respectively. The series is also showing in over 45 markets across the country; please check local PBS listings for air times and dates, or the BIG IDEAS website at www.thirteen.org/bigideas.

Institute Trustee Marina von Neumann Whitman.

Ambrose Monell and Rosalind P. Walter.

Professor Enrico Bombieri of the School of Mathematics, with BIG IDEAS Executive Producer Beth Hoppe (left), and Producer Larkin McPhee (right).

Bill Baker, President of Thirteen/WNET New York, with Mary Keating.

Ted and Mary Cross.

PHOTOGRAPHS BY ANDREA KANE

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