» Swartz Foundation Partnership
» To Sleep, Perchance to Sing
» The Writing Life of James D. Watson
» 2005 Cultural Series Lectures
President’s Message

Computational Neuroscience: From Complexity, Simplicity

Understanding the structure and function of the human brain is one of the remaining great challenges for today’s biological and biomedical scientists. The structure itself is tremendously complex: A single human brain comprises an estimated 100 billion specialized cells (neurons) that form some 100 trillion connections among themselves via their threadlike projections (axons and dendrites). The total length of this biological “wiring” in a single human brain—about 300 million feet—is sufficient to circle the Earth more than twice.

Adding to this complexity is the fact that while networks of connected neurons in some regions of the brain are relatively stable, other networks—particularly those that underlie learning and memory—are extraordinarily dynamic and can be reshaped throughout our lifetimes. Several CSHL scientists explore the molecular, cellular, and behavioral aspects of learning and memory and are in fact world leaders in this field.

Fortunately, the complexity of the brain can be understood according to a finite number of principles and processes that CSHL scientists are beginning to discover. With transformative support from the Swartz Foundation (see “Connecting the Dots,” page 6), several “computational” neuroscientists here are making remarkable progress toward obtaining a comprehensive, integrated view of how the brain works. Moreover, this research is providing valuable insights concerning what goes wrong in a variety of brain diseases including autism, epilepsy, Alzheimer’s disease, learning disabilities, hearing disorders, Parkinson’s disease, and schizophrenia.

I find it strangely wonderful that human brains are working cleverly and ceaselessly at CSHL to understand...the human brain. But most importantly, I hope and believe that informed by this work, better therapies may soon be developed for the diseases of the brain that too often rob us of our ability to experience the richness of life.

PRESIDENT & CEO
Contents

p. 2 » To Sleep, Perchance to Sing
Researchers uncover surprising “one step back, two steps forward” effect of sleep on learning and memory
Christopher Mims

p. 4 » 2005 Cultural Series Lectures
Register now to attend free, public lectures on topics including genetically modified food, art & medicine, global warming, dolphin intelligence, and life on Mars

p. 5 » Alumni Corner
CSHL alumna and former trustee Susan Hockfield elected president of MIT
Peter W. Sherwood

p. 6 » Swartz Foundation Establishes Center for Computational Neuroscience
A landmark CSHL initiative spurs the exploration of brain structure, function, and disease
Jeff Picarello

p. 8 » Awards
Society for Neuroscience Young Investigator Award, AACR Award for Outstanding Achievement in Cancer Research, and Thomson-ISI “New Hot Paper” plus other awards and honors
Lisa M. Becker

p. 9 » The World is a Song
Creator of the Palm Pilot, director of the Redwood Neuroscience Institute, and CSHL trustee Jeff Hawkins dazzles Juilliard School audience with a lecture based on his new book, On Intelligence
Christopher Mims

p. 10 » Amaizing Marja Timmermans
The life and work of a CSHL plant developmental geneticist
Peter W. Sherwood

p. 12 » Exuberance
At the Dolan DNA Learning Center, author and Johns Hopkins University Professor of Psychiatry Kay Redfield Jamison outlines the psychology of the passion for living
Marisa Macari

p. 13 » Book Review
The Writing Life of James D. Watson, by Errol C. Friedberg
Alan Packer

back cover » Upcoming Events/CSHL Association

Front Cover: Sleeping zebra finches superimposed on diagram of a neural network involved in learning & memory (See “To Sleep, Perchance to Sing,” page 2). Zebra finch photo courtesy Sébastien Derégnaucourt, CCNY.
To Sleep, Perchance to Sing
Most of us are familiar with the boost in mental acuity that follows a good night's rest. Some of this increase can be attributed to our gaining ground on the epidemic of sleeplessness, but that's not the whole story. For learning and memory in particular, some of this brain boost comes from an active process that's unique to sleep. The process—known as “memory consolidation”—helps cement what we learn.

In a finding that adds a new wrinkle to our understanding of how sleep influences learning and memory, CSHL theoretical neuroscientist Partha Mitra (left) and his colleagues have discovered that sleep helps young birds master the art of song, but it does so in a surprising way.

The study reveals that when zebra finches first wake up, they are actually dramatically worse singers than they were the day before. Moreover, individual birds that are the least tuneful during their “morning rehearsals” eventually become the best singers of all.

“We study birdsong as a way of uncovering neurological principles that might apply to brain development, learning, and memory across-the-board, including in humans,” says Partha.

The study examined the effect of sleep on song learning in young zebra finches. Individuals of this species are active in the daytime, do not sing in darkness, and develop their song during a critical window of “brain plasticity” between one and three months after hatching.

In order to learn to sing, it’s known that young birds must hear an adult song, and through practice, develop their own version of the tune by comparing their vocalizations to a memory template of the song that they “hear in their heads.” In fact, University of Chicago researchers have found that zebra finch brain regions involved in song learning are active while the birds are asleep (see front cover). Until now, however, there has been no direct evidence that sleep affects song learning, and if so, how.

“Sleeping birds may be dreaming they’re singing, but without actually hearing the result, it’s difficult for them to know what mistakes they’re making. In any case, by recording their singing when they are awake, we’ve learned quite a bit.”

To collect the data used in the study, City College New York behavioral neuroscientists Ofer Tchernichovski and Sébastien Derégnaucourt recorded every vocalization—approximately a million syllables per bird—made by 12 young male zebra finches over several months as the birds imitated and perfected their own renditions of recorded adult male zebra finch songs.

Typically, researchers collect and analyze only sporadic recordings of birdsong. “But some time ago, Ofer and I thought, ‘Why not record all of the songs and see what we find?’,’” says Partha. The team also wrote custom software for converting the huge quantities of data into simple measures of birdsong quality.

Surprisingly, instead of showing gradual improvement in which they might wake up each day and “pick up where they left off” in their vocal abilities, many of the birds displayed dramatic nighttime degradation in the quality of their songs. However, their song quality improved after intense morning rehearsal to the point where by the end of each new day, their singing was indeed better than the day before.

The study yielded another counterintuitive result, namely, that birds which ultimately learn to sing better than others actually awaken each morning as poorer singers than their ultimately less tuneful counterparts.

“We have more work to do to explain this ‘one step back, two steps forward’ effect of sleep on the brain circuits that govern vocal learning. But a useful analogy for now is the tempering of steel, in which to gain its ultimate structure and strength, the metal is first weakened,” says Partha.

Vocal learning in songbirds bears similarities to human speech acquisition: Novice birds go through a period of “screeching” before learning to imitate songs accurately (see images above), much as babies babble before grasping words. Therefore, to explore the significance of their birdsong discoveries to human development, Partha hopes to study the vocalizations of infant children.

“We won’t influence or disturb them in any way,” assures Partha. “We will simply record their vocalizations over time. Maybe we’ll see interesting sleep effects—who knows?” Only time, and a good night’s rest, will tell. Christopher Mims
2005 Cultural Series Lectures

The Cold Spring Harbor Laboratory Cultural Series is an annual tradition in which an eclectic mix of artists, filmmakers, writers, scientists, and other individuals present lectures that provide compelling glimpses of how we experience, discover, live in, and make sense of our world. Cultural Series Lectures are open to the public. Organized by Peter Sherwood, CSHL Director of Research Communications, their aim is to stimulate, inspire, and entertain. The lectures begin at 7 P.M. and are held in Grace Auditorium on the dates listed below (most but not all of which are Tuesday evenings in the spring and fall). They are free of charge, but due to seating limitations, reservations are required. To make your reservations for any of the 2005 Cultural Series Lectures listed below, call the Events Hotline at 516-367-5016.

**Mendel in the Kitchen: Myths & Realities of Genetically Modified Food**
Nina Fedoroff, Penn State University
April 19

**Discussion & Screening of the Film SPIN**
Don Axinn, Writer and Aviator
May 16

**Flesh & Machines: How Robots Will Change Us**
Rodney Brooks, Massachusetts Institute of Technology
May 17

**The Artist Looks at the Doctor: A Millennium of Clinical Observation**
Sherwin Nuland, Yale University School of Medicine
May 23

**The Heat is On: Present & Future Impacts of Global Warming**
Cynthia Rosenzweig, Columbia University Earth Institute
May 31

**Canines and Cancer: New Therapies From & For Man’s Best Friend**
William Li, The Angiogenesis Foundation (Cambridge, MA)
September 13

**Short People: Biological, Psychological, and Cultural Considerations**
Stephen S. Hall
*The New York Times Magazine*
September 20

**Exploring the Dolphin Mind**
Diana Reiss, Osborn Laboratories for Marine Science/New York Aquarium
September 27

**Life on Mars: Lessons from the Rovers Spirit & Opportunity**
Steve Squyres, Cornell University
October 11
Susan Hockfield

CSHL alumna and former scientific trustee Susan Hockfield was recently elected the sixteenth president of the Massachusetts Institute of Technology (MIT).

A noted neuroscientist whose research has focused on the development of the brain, Hockfield is the first life scientist to lead MIT. Before assuming the presidency of the Institute, she was the William Edward Gilbert Professor of Neurobiology and provost at Yale University. At MIT, she holds a faculty appointment as professor of neuroscience in the Department of Brain and Cognitive Sciences.

Hockfield earned a Ph.D. from the Georgetown University School of Medicine for the dissertation research she carried out at the National Institutes of Health. After completing a postdoctoral fellowship at UC San Francisco, she joined the scientific staff of Cold Spring Harbor Laboratory in 1980.

During the next five years, Hockfield and her CSHL colleagues, including Ron McKay, published a series of highly influential studies in which they used monoclonal antibodies to explore the structure and function of both invertebrate and mammalian nervous systems. “I learned a huge amount of neuroscience working with Susan. She had limitless energy and the ambition needed to change our understanding of the nervous system,” says McKay, who is Chief of the Laboratory of Molecular Biology at the NIH’s National Institute of Neurological Disorders and Stroke.

Hockfield joined the Yale faculty in 1985 and was named full professor in 1994. While at Yale, she played a central role in the university’s leadership, first as dean of its Graduate School of Arts and Sciences (1998–2002), and then as provost.

Unwilling to permanently depart Cold Spring Harbor for New Haven, concurrent with her post at Yale, Hockfield served as director of the CSHL’s Summer Neurobiology Program from 1985 to 1997. In addition, she served as a scientific trustee of Cold Spring Harbor Laboratory from 1998 to 2004.

During her tenure as graduate school dean at Yale, Hockfield revitalized the administration of the school and addressed longstanding problems in academic, extracurricular, and financial support for graduate students. As provost, she advanced Yale’s major initiatives in science, medicine and engineering, including a $500-million investment in new and renovated facilities for the sciences. She encouraged collaborative work throughout the university, bringing the humanities and the arts into new relationships and encouraging interactions between the humanities, social sciences, and the biomedical sciences.

Hockfield has been a strong advocate of the vital roles that science and technology play in the world, and brings to the MIT presidency an exceptional record of achievement in serving faculty and student interests. In addition to the many other “hats” she will wear at MIT, Hockfield hopes to accelerate the national discussion on improving K–12 education in math and science.

CSHL salutes Susan and wishes her the very best as president of MIT! Peter W. Sherwood
Swartz Foundation Establishes Center for Computational Neuroscience at Cold Spring Harbor Laboratory

A “real world” neural network (not drawn to scale): Dmitri Chklovskii (see below) and colleagues have uncovered the strengths (weak v. strong), directionalities (one-way v. two-way connections), and patterns of connections in a portion of the rat visual cortex, the part of the brain that processes visual signals.
In a landmark move to spur the exploration of brain structure, function, and disease, the Swartz Foundation has established a Swartz Center for Computational Neuroscience at Cold Spring Harbor Laboratory.

Dr. Jerome Swartz is co-founder, former chairman & CEO, and now chief scientist emeritus of Symbol Technologies, a global leader in barcode-based mobile and wireless data transaction systems. Fascinated by the unique and powerful information processing capacity of the human brain, in 1994, Swartz created a foundation dedicated to understanding brain structure and function through the application of principles from physics, mathematics, and engineering.

Established by the Alfred P. Sloan Foundation and today directed and supported by the Swartz Foundation, a network of coast-to-coast Sloan-Swartz Centers for Theoretical Neurobiology has made major advances in the field of computational neuroscience (i.e. the study of how networks of neurons in the brain process information).

The recent establishment of the Swartz Center for Computational Neuroscience at CSHL adds a significant collaborator to the six other state-of-the-art centers operating with Swartz Foundation support. These centers—located at UC San Diego, UC San Francisco, the Salk Institute, Caltech, New York University, and Brandeis University—are now linked with Cold Spring Harbor Laboratory in an unparalleled “virtual institute” for neuroscience research.

Through its multi-year, multi-million dollar support, the Swartz Center for Computational Neuroscience is strengthening the collaborative, interdisciplinary work of CSHL faculty including Carlos Brody, Dmitri Chklovskii, Alexei Koulakov, Zach Mainen, Partha Mitra, and Tony Zador. These researchers are taking a variety of molecular, cellular, behavioral, computational, and theoretical approaches to studying the neural basis of cognitive processes including perception, learning, memory, motivation, decision-making, rational thought, and consciousness. In short, they are beginning to reveal how the brain makes us who we are. Significantly, their work is also providing valuable insights concerning what goes wrong in a variety of disease states including autism, epilepsy, Alzheimer’s disease, learning disabilities, hearing disorders, Parkinson’s disease, and schizophrenia.

“With this initiative, we have made a major commitment to the basic understanding of the human brain. And through this research, we hope to make meaningful strides against brain disease,” says Bruce Stillman, president & CEO of Cold Spring Harbor Laboratory.

The members of the Swartz Center for Computational Neuroscience could not ask for a more knowledgeable or involved benefactor. Dr. Swartz is a member of the National Academy of Engineering, a Fellow of the Institute of Electrical and Electronics Engineers, and holds more than 175 U.S. Patents. Under Swartz’s leadership as chairman and CEO, Symbol Technologies was awarded the National Medal of Technology in 1999.

Says Swartz, “We believe that combining theoretical, computational, and experimental approaches is a great way to solve the mysteries of the brain and we’re delighted to add Cold Spring Harbor Laboratory to this collaborative effort.” Jeff Picarello

American Association for Cancer Research (AACR)  
Greg Hannon has been named the 2005 recipient of the AACR Award for Outstanding Achievement in Cancer Research, which is given annually to recognize a young investigator on the basis of meritorious achievement in cancer research. Greg is building upon his studies of RNA interference (RNAi) to create powerful tools for probing gene function in mammals. Working with Steve Elledge at Harvard University, Greg has created collections of RNAi triggers that can silence each gene in the human and mouse genomes. These are being made widely available to researchers in both academia and industry, and Greg and his colleagues are using these tools to identify new molecular targets for cancer therapy.

Life Sciences Research Foundation  
Derek Goto, a post-doctoral fellow in Rob Martienssen’s laboratory, was one of 50 finalists (among 650 applicants) awarded a three-year Post-Doctoral Fellowship from the Life Sciences Research Foundation. Derek will apply this funding to his studies of how genes in specific regions of a chromosomes are either kept silent, or are instead maintained in an active state. In the belief that innovation and discovery occur in direct proportion to quality of training, the Life Sciences Research Foundation administers an international program of postdoctoral fellowships in all areas of the life sciences.

Society for Neuroscience  
CSHL neuroscientist Karel Svoboda was the 2004 recipient of the Society for Neuroscience Young Investigator Award. By studying the molecular and cellular basis of how new connections between neurons are formed and strengthened in the brain, and how other connections are severed or “pruned” as part of the normal brain development, Karel and his colleagues continue to pioneer the exploration of several fundamental neurological processes, many of which have implications for understanding what goes wrong during diseases of, or injury to, the brain. The prize is awarded each year to an outstanding neuroscientist who has received an advanced professional degree within the past 10 years.

Thomson-ISI Essential Science Indicators  
A recent publication in *Nature Structural Biology* by Leemor Joshua-Tor and her colleagues (“The crystal structure of the Argonaute2 PAZ domain reveals an RNA binding motif in RNAi effector complexes”) has been selected as a “New Hot Paper” by ISI Essential Science Indicators. New Hot Papers are identified by virtue of their being cited more frequently than 99.9% of all other studies in the numerous journals surveyed. According to ISI Essential Science Indicators, New Hot Papers serve as leading indicators of scientific advance and may signal important new trends in research.

European Molecular Biology Organization (EMBO)  
Frances Balkwill, author of illustrated children’s books published by the Cold Spring Harbor Laboratory Press, is the 2004 winner of the EMBO Award for Communication in the Life Sciences for her “outstanding contribution to science communication for children.” Frances has authored 12 acclaimed children’s science books and has commissioned and edited many more. Balkwill’s books combine punchy narratives with colorful graphics that take readers on a journey of discovery through the wonders of biology. The EMBO Award for Communication is presented annually to a practicing life scientist in Europe who has made significant contributions to the public understanding of science.

American Library Association  
The CSHL Press book, *George Beadle, An Uncommon Farmer: The Emergence of Genetics in the 20th Century*, by Paul Berg and Maxine Singer was selected by the American Library Association for inclusion in its “Outstanding Academic Titles” (OAT) list for 2004. Outstanding Academic Titles are chosen from among more than 7,000 books reviewed “for their excellence in scholarship and presentation, the significance of their contribution to the field, and their value as important—often the first—treatment of their subject.” Comprising less than three percent of the 23,000+ titles submitted, the American Library Association judges its Outstanding Academic Titles to be “the best of the best.” Lisa M. Becker
Jeff Hawkins holds up a dinner napkin and tells his Juilliard School audience, “This is you. Everything you’ve ever thought or will think, all the things you’ve ever experienced—you’re entire world is in a brain structure that’s about this size and thickness.”

Creator of the Palm Pilot and the Treo smartphone, CSHL trustee, and director of the Redwood Neuroscience Institute, Hawkins came to Juilliard in February at the invitation of fellow trustee Nancy Marks to present a lecture entitled, “The World Is a Song: How Music Led to a Theory of Human Intelligence.”

Hawkins began by using the dinner napkin and other descriptions to illustrate a few basic properties of the “neocortex” or the outer layer of the mammalian brain that gives humans tremendous powers of reasoning, logic, foresight, and language. (“I always travel to lectures with this napkin...and with this,” said Hawkins, holding up a plastic model of the human brain. “If you want to guarantee you get stopped by airport security, put one of these in your carry-on!”)

Then, with a riveting, wide-ranging presentation based on his new book, On Intelligence, Hawkins presented his ideas about how the neocortex actually thinks, creates, and senses and responds accordingly to the world.

“The brain is a memory organ,” said Hawkins, who believes that the neocortex builds a memory-based model of the world that generates predictions with which new information is compared. “For example, you can probably predict what word is at the end of this (long pause) sentence,” said Hawkins. “Moreover, you can do that even though you’ve never heard that particular sentence before. Your brain is always predicting things and filling in information in this way, but you are not always conscious of it.”

In addition to describing why he first chose music to study how the neocortex works, Hawkins related now-amusing but initially frustrating tales involving the powers that be at Intel, MIT, and UC Berkeley, whose reactions to his desire to study how the brain functions ranged from “no” to “not interested” to “great idea, but you can’t do it here.”

Hawkins concluded by explaining his current interest in building truly intelligent machines based on the properties of human cognition. At the close of the question and answer period, a sonorous voice from the rear of the auditorium enquired, “What in music stirs emotion?” Hawkins’ reply: “I have no idea, but I’ll get back to you on that!” Christopher Mims
Amaizing Marja Timmermans

» Dutch National League basketball player...rock band lead singer...plant developmental geneticist. These are a few of the many sides of CSHL Associate Professor Marja Timmermans. After recently returning from the 47th Annual Maize Genetics Conference in Lake Geneva (Wisconsin, not Switzerland), Marja discussed her life and work with Harbor Transcript.

HT: Where did you start life?
MT: I was born in The Netherlands in a small town called Dongen. I’m the youngest of five, and I lived in Dongen until I was 19. After college, I came to the U.S., where I planned to stay for a year. That was 18 years ago.
MT: Tell me about your parents.

HT: My parents are Piet and Riet Timmermans. My dad’s had a very interesting life. He was born just after WWI. That plus the fact that his father died when my father was still very young meant that my dad didn’t have many opportunities early in life. During the Nazi occupation of The Netherlands, he was a member of the Dutch Resistance. After the war, he did many different jobs. The best thing about my parents was that they wanted us to have a chance to pursue whatever we wanted to in life. But whatever it was, we had to give it our best.

HT: What are some of your fondest childhood memories?

MT: There were many kids that all played together in the neighborhood. During summer in The Netherlands, it stays light outside very late, so we would play Verstoppertje (“hide-and-seek”) for hours and hours. We lived close to the woods, so we spent a lot of time there too.

HT: Do you think all that time in the woods might have influenced your decision to become a plant developmental geneticist?

MT: I hadn’t thought about that until now. But I loved the woods, so yes, it’s possible that that had a subconscious effect on what I’m doing in the lab and in the cornfields these days.

HT: Do you remember any elementary or high school teachers having an impact on you?

MT: In elementary school, I enjoyed singing in the choir, so the music teacher was a big influence. This stayed with me a long time because when I was in graduate school at Rutgers, I was a lead singer in a rock band. We never got paid, but playing the clubs was a blast! Anyway, I had good interactions with all my teachers, but I did tend to speak my mind. Which was fine during elementary school, but in high school, this caused a few problems. In any case, during high school, I became very involved in basketball. I played throughout high school and college, and in the Dutch National League. Basketball was certainly part of the reason I came to the U.S.

HT: You always seemed tall to me. How tall are you, and what position did you play?

MT: (Laughs) I’m 5’8”—not the shortest on my teams but close to it. I played forward. At Rutgers, I played intramurals and I practiced with their Division I basketball team. My height does come in handy nowadays. I often get asked to help whenever someone in my lab is too short to easily reach the “tassels” of the corn plants we work with. (Editor’s note: Standing less than 5’ tall, legendary maize geneticist and CSHL Nobel laureate Barbara McClintock avoided this problem by using maize varieties that were significantly shorter than other types.)

HT: Let’s talk about your research.

MT: Sure. I did phage (bacterial virus) research during my last year in college, so when I told my advisor I wanted to go to the U.S. to work for a year, he recommended three phage labs here. One was Jo Messing at Rutgers, which is where I ended up. I soon realized I wouldn’t progress much further without a Ph.D., so I applied to various graduate programs and I completed my thesis work at Rutgers in 1996. Then I was a postdoc at Yale for two years before I came here as a Cold Spring Harbor Fellow in 1998. About halfway through my graduate studies, I came to appreciate the extraordinary power of genetic analysis...the idea that even simple genetic crosses can be used to clearly define a complex biological pathway in the context of the whole organism. You might not always get the answer you expect, but there’s no doubt about it.

HT: What one might call the inescapable logic of genetics...

MT: Exactly. Plus, because maize plants are so large, you can easily see some wonderfully subtle but highly informative phenotypes.

HT: What are you working on now?

MT: Two major things. We’re interested in how unspecialized plant “stem cells” become specialized organs like leaves. We also study how patterns of organs are established as plants develop, such as how the top and bottom surfaces of leaves come to have very different properties. One of the maize mutants we’re studying with a really fun phenotype is called “leafbladeless.” It’s leaves are “all bottom.” Instead of being broad and flat like the blade of a sword, they look like long pine needles. That might sound trivial, but by understanding it—and through our other findings—we’ve made some important insights. For example, by studying leaf development, we’ve discovered that “microRNAs” might be “movable signals” that specify all sorts of patterns during plant development. And because microRNAs act via “RNA interference” in wide variety of organisms—including humans—what we’re discovering in plants has broad implications.

HT: Any parting comments?

MT: I’m a “plant developmental geneticist” but I’ve never taken a course in plants, development, or genetics! So careers in science can be more flexible than is often expected. Like someone said to me recently about Cold Spring Harbor, it doesn’t matter how you get your foot in the door. It’s what you do after that that counts. Peter W. Sherwood
Believing that they were “miracles of beauty,” Vermont farmer Wilson Bentley dedicated his life to taking photographs of snowflakes. One winter, a particularly fine specimen melted before Bentley could capture it on film. Years later, he was moved to tears while describing this loss.

Theodore Roosevelt and naturalist John Muir were similarly awestruck by nature, could not bear to see it threatened, and were thus compelled to act. Their contagious enthusiasm led to the creation of 150 National Forests and to a doubling of the number of National Parks.

Kay Redfield Jamison explores the psychology of these and other personae in her latest book, Exuberance. To a packed auditorium at the Dolan DNA Learning Center this winter, Jamison celebrated the nature of exuberance while relating how the study of this emotion has experienced “benign neglect” by the majority of today’s psychologists.

According to Jamison, exuberance is an ancient emotion and an addictive, irrepressible force that inspires and delights but sometimes aggravates others, and is responsible for many acts and aspects of human greatness. Those who are exuberant are invigorated by life and seduced by nature. Inquisitive, imaginative, extroverted, and fearless, exuberant persons have a penchant for novelty, adventure, and success, Jamison explained. They are “anxious to comprehend and incapable of indifference to the world around them,” she said.

According to Jamison, who is Professor of Psychiatry at the Johns Hopkins University School of Medicine, research suggests that exuberant temperament is coded in one’s genes but can be encouraged or stifled by one’s environment.

Jamison also explained that exuberance “sits in an uncomfortable place” between depression and acute mania. Manic-depressive illness is frequently characterized by exuberance. However, unlike simple exuberance, manic episodes are marked by extreme heights of optimism, enthusiasm, and energy. For many who develop manic-depressive illness, an exuberant mood is just a step along the way, said Jamison.

Fortunately, for most, exuberance is not a pathological state but rather an innate and uncompromising passion for life.

Marisa Macari
Man of Letters

A letter reprinted in Errol Friedberg’s *The Writing Life of James D. Watson* will likely strike a chord with many readers of a certain age, at it did with this reviewer. A high school senior wrote to Watson in 1977 thanking him for the inspiration of *The Double Helix*. As Watson had remarked at the time of publication that he wrote the book for “16-year-olds just going into science and wondering what it was like,” the letter prompted a gracious personal reply (see Excerpt).

Given the wealth of anecdotal evidence, it seems undeniable that *The Double Helix* did as much as any book since Paul de Kruif’s *Microbe Hunters* to persuade young people that science could be an exciting, heroic, even sexy vocation. And so we have Errol Friedberg’s assessment of Jim Watson’s career as a writer, which is justified not only by the impact of Watson’s œuvre, but also by the quality of his prose.

Friedberg gives a chronological account of Watson’s published writing, divided into chapters that are collages of text, photographs, facsimiles of letters and magazine covers, and highlighted quotations. If one sometimes wishes for a bit more analysis and close reading of Watson’s words, the format nonetheless works well as an introduction to his writing. And as Sydney Brenner remarks in his typically sharp-minded foreword, the rightful aim of any review is to direct one to the original work.

The book begins with an introductory chapter describing Watson’s childhood literary influences, and then moves on to each of Watson’s books, including *Phage and the Origins of Molecular Biology; The Double Helix; Genes, Girls and Gamow; Recombinant DNA; The DNA Story; A Passion for DNA; DNA: The Secret of Life*, and the landmark textbooks, *Molecular Biology of the Gene* and *Molecular Biology of the Cell*. The publication histories of *The Double Helix* and *Molecular Biology of the Gene*—the latter sporting what Brenner calls the now common “Massachusetts Declarative” style—are particularly helpful in shedding light on the political, legal, and literary challenges that had to be overcome in each case.

The real revelation in *The Writing Life*, however, turns out to be the richness of Watson’s archive of correspondence, which Friedberg expertly draws upon to give the reader a taste of the contemporaneous reception of each book. One hopes that a favorable response to this welcome volume will prompt the rapid publication of *The Collected Letters of James D. Watson*.

Dr. Packer is Senior Editor of the journal *Nature Genetics*.

**Excerpt**

Dear Dr. Watson: After reading your book, The Double Helix, it became apparent to me that the life of a scientist is not quite as rigid as I had once expected... (Wendy Coates, January 12, 1977).

Dear Wendy Coates: Now that I am back in Cold Spring Harbor, I can personally tell you how much I enjoyed your letter about my books. I find writing a most difficult task and am overjoyed when someone tells me the final result is exciting to read. (J.D. Watson, April 7, 1977).
## Upcoming Events

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Location</th>
<th>Time</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>May 7</td>
<td>Tour of Cold Spring Harbor Laboratory</td>
<td>Grace Auditorium, 10 AM</td>
<td></td>
<td>Reservations required, call 516-367-8455</td>
</tr>
<tr>
<td>June 4-5</td>
<td>Long Island 2-Day Walk to Fight Breast Cancer</td>
<td>Suffolk County</td>
<td></td>
<td>For more information, call 631-863-2329</td>
</tr>
<tr>
<td>June 14</td>
<td>Dolan DNA Learning Center Golf Tournament</td>
<td>Piping Rock Club</td>
<td></td>
<td>For more information, call 516-367-6886</td>
</tr>
<tr>
<td>June 18</td>
<td>Tour of Cold Spring Harbor Laboratory</td>
<td>Grace Auditorium, 10 AM</td>
<td></td>
<td>Reservations required, call 516-367-8455</td>
</tr>
<tr>
<td>April 19</td>
<td>&quot;Mendel in the Kitchen: Myths &amp; Realities of Genetically Modified Food&quot;</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
<tr>
<td>May 16</td>
<td>Discussion &amp; Screening of the independent film, SPIN</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
<tr>
<td>May 17</td>
<td>&quot;Flesh &amp; Machines: How Robots Will Change Us&quot;</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
<tr>
<td>May 23</td>
<td>&quot;The Artist Looks at the Doctor: A Millennium of Clinical Observation&quot;</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
</tbody>
</table>

## 2005 Spring Cultural Series Lectures

<table>
<thead>
<tr>
<th>Date</th>
<th>Lecture Abstract</th>
<th>Speaker</th>
<th>Institution</th>
<th>Time</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 19</td>
<td>&quot;Mendel in the Kitchen: Myths &amp; Realities of Genetically Modified Food&quot;</td>
<td>Nina Fedoroff, Penn State University</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
<tr>
<td>May 16</td>
<td>Discussion &amp; Screening of the independent film, SPIN</td>
<td>Don Axinn, Writer and Aviator</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
<tr>
<td>May 17</td>
<td>&quot;Flesh &amp; Machines: How Robots Will Change Us&quot;</td>
<td>Rodney Brooks, MIT</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
<tr>
<td>May 23</td>
<td>&quot;The Artist Looks at the Doctor: A Millennium of Clinical Observation&quot;</td>
<td>Sherwin Nuland, Yale University School of Medicine</td>
<td>Grace Auditorium, 7 PM</td>
<td></td>
<td>Reservations required, call 516-367-5016</td>
</tr>
</tbody>
</table>

## CSHL Association Directors

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Officers</td>
<td>Joseph T. Donohue</td>
<td>President</td>
</tr>
<tr>
<td></td>
<td>Henry E. Salzhauer</td>
<td>Treasurer</td>
</tr>
<tr>
<td></td>
<td>John S. Grace, Lynn M. Gray</td>
<td>Vice Presidents</td>
</tr>
<tr>
<td></td>
<td>Cathy Cyphers Soref</td>
<td>Secretary</td>
</tr>
<tr>
<td>Directors</td>
<td>David L. Banker</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Joyce Bertoldo</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pien Bosch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maria L. Brisbane</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Timothy S. Broadbent</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Barbara Candee</td>
<td></td>
</tr>
<tr>
<td></td>
<td>George W. Cutting, Jr.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E. Richard Droesch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Linda Ferrante</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Kate Seligson Friedman</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lori Garofalo</td>
<td></td>
</tr>
<tr>
<td>Honorary Directors</td>
<td>John P. Cleary, Esq.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mary D. Lindsay</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anne R. Meier</td>
<td></td>
</tr>
<tr>
<td>Director of Development</td>
<td>Diane Fagiola</td>
<td></td>
</tr>
</tbody>
</table>

For more information or to join the CSHL Association, contact Diane Fagiola at 516-367-8471 or fagiola@cshl.edu