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The Rockefeller University

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# news & notes

October 14, 1994 Volume 5, Number 5

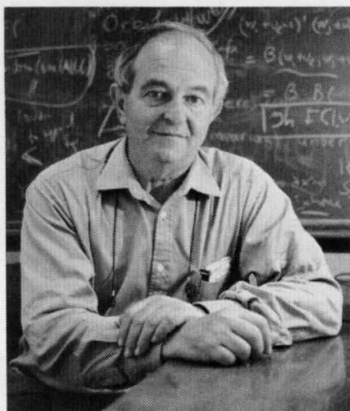
The Rockefeller University

## Physics and biology center to be inaugurated next Thursday with lecture by Libchaber

Professor Albert Libchaber will speak on "Physics and Biology: The Universal and the Specific" as part of the ceremonies inaugurating Rockefeller's new Center for Studies in Physics and Biology, Thurs., Oct. 20. Following the lecture, a reception to celebrate the opening will take place in the center, which is located in Smith Hall Annex.

According to the mandate of the physics and biology center, its mission is "to accelerate the contributions that physics can make to biomedical science. It has been designed to build bridges between the two scientific communities, which are now separated by steep barriers of language and technique."

President Torsten Wiesel said, "Scientists from many disciplines now believe that a coherent account of the basic processes of



Albert Libchaber will discuss connections between physics and biology, Thurs., Oct. 20.

everything from cellular growth to perception will require the theoretical, computational, and experimental perspectives of physics. Phys-

icists and mathematicians at Rockefeller have been increasingly active in the university's biomedical investigations, and with this center, we hope to further encourage the spirit of collaboration."

Toyota Professor Mitchell Feigenbaum is director of the new center. "The microscopic world is getting bigger and more complex. Physics can reveal order within this complexity," said Feigenbaum. "The Center's biologically minded physicists believe in the potential for discoveries in biology resulting from the observational precision and mathematical abstraction of physics. Our work may also open new directions in physics."

Initial projects of the center include study of the dynamics of biologically important molecules, such as motor proteins and protein folding, as well as the dynamics of the human brain and visual systems. The Center has a Fellows Program, modeled on the Institute for Advanced Study in Princeton, New Jersey. It gives exceptional young scientists three-year appointments at an advanced postdoctoral level. The first visiting fellow is John F. Marko, who works on polymer physics applied to DNA supercoil-

## RU investigator to lecture on telomeres

Assistant Professor and head of laboratory Titia de Lange will speak on "Tales of Telomeres: Unraveling the Structure and Dynamics of Human Chromosome Ends" at the Friday lecture today (Oct. 14).

Telomeres are specialized nucleoprotein complexes that cap the ends of all linear chromosomes. de Lange's research focuses on how telomeres protect and stabilize chromosome ends. In normal human cells, telomeres are gradually lost with each cell division. Today she will discuss telomere shortening in human cancer and her work on the DNA and proteins of mammalian telomeres.

"Titia has made important contributions to our understanding of the structure of the ends of chromosomes," said Vincent Astor Professor James E. Darnell, Jr., who will introduce de Lange today. "Today she will talk about how telomeres are maintained from generation to generation and about the proteins that bind specifically to them."

de Lange received a Ph.D. from the University of Amsterdam and

## President Emeritus Fred Seitz looks back on a remarkable life in science



Fred Seitz recounts tales of science, war, and RU in his new book, *On the Frontier*.

President Emeritus Frederick Seitz recently published his memoir, "On the Frontier: My Life in Science" (American Institute of Physics Press). Distinguished physicist, innovator, scholar, government advisor, university president, and national scientific leader, Seitz's extraordinary career has included tenures at the Carnegie Institute of Technology, the University of Illinois, the Defense Department, and NATO. He served as president of the National Academy of Sciences, as well as Rockefeller, and played a major role in many of the defining scientific moments of his era. Among his honors, he has received the Compton Medal, the National Medal of Science, two NASA Public Service Awards, the Vannevar Bush Award and honorary degrees from 32 universities worldwide. Last week Doron Weber of News&Notes spoke with Seitz about his career and his new book.

N&N: Why the title. "On the Frontier?"

Seitz: I've lived most of my life somewhere near the frontier of science and had the good fortune to

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3 Seitz's Zeitgeist

4 Concert news

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The newly renovated Brooke Astor Student Life Center in Sophie Fricke Hall was dedicated to its benefactor, trustee Brooke Astor (right), in a ceremony Tues., Oct. 11. As a gesture of appreciation for her generosity to the graduate student programs over the past 20 years, Firdaus Dhabhar (left) and Julie Miwa presented Mrs. Astor with a bouquet of roses.

## Interdisciplinary center plans to host visitors, offer new course, and reveal order within complexity

(continued from page 1)

ing. Senior faculty on sabbatical at other institutions may visit the center for a term or a year.

The Center is also developing a course for Rockefeller students entitled, "Physical Concepts in Biology," to be taught this winter by Libchaber and Assistant Professor Marcelo Magnasco. Other faculty members participating in the center are Assistant Professor Joseph Atick, Associate Professor David Callaway, Professor Emeritus E.D.G. Cohen, and Professor Nicola Khuri. Adjunct faculty are Eric Siggia, Cornell University, and Predrag Cvitanovic, Niels Bohr Institute, Copenhagen.

At the inaugural lecture, Libchaber will discuss the interplay between physics and biology using an historical perspective.

Libchaber accepted an appointment as professor at Rockefeller in April and arrived on campus this autumn. His laboratory is devoted to experimental condensed matter physics. He is interested in the physical forces basic to the life processes of cells; his current project is on the temporal behavior of microtubules and the actin myosin transport processes.

A pioneer in the study of nonlinear dynamics (popularly known as chaos), Libchaber did experimental work that complemented and advanced Feigenbaum's initial

theories about chaos. The two shared the 1986 Wolf Prize in Physics for this work. Libchaber has also contributed to low temperature studies and has won the Grand Prix de Physique of the French Physical Society and a MacArthur Fellowship.

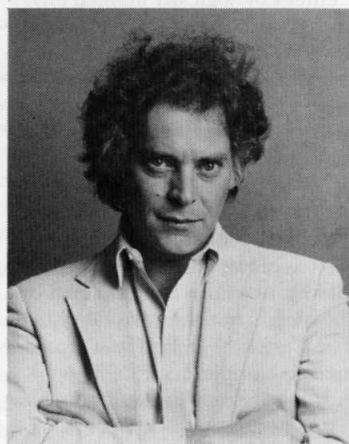
Of the several interdisciplinary centers projected in the administration's Academic Plan, which was approved by the Board of Trustees last spring, the physics and biology center was the first to be conceived. The Zachary and Elizabeth M. Fisher Center for Research on Alzheimer's Disease has also come to fruition, with a grant from the Fisher Medical Foundation and a matching gift from David Rockefeller. In the

planning stages are centers in human genetics, neurosciences, and infectious diseases.

"We believe strongly in the contribution of interdisciplinary centers to the work here at Rockefeller," said President Torsten Wiesel. "Laboratories across disciplinary lines have common interests, and interdisciplinary centers allow them to come together and work in new ways. We are fortunate that Albert Libchaber, a world renowned physicist, agreed to join his distinguished colleague Mitch Feigenbaum in the new center."

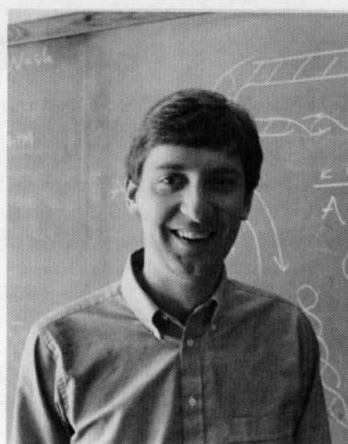
Libchaber's inaugural talk will be given in Caspary Auditorium Thurs., Oct. 20 at 5:00 P.M. The reception will follow, in Smith Hall Annex. All are welcome.

Ingrid Guttner



Toyota Professor Mitchell Feigenbaum (left) is the director of the new Center for Studies in Physics and Biology. John Marko, who studies DNA supercoiling, is the center's first fellow.

Joseph Bonner



## Ceremonies to honor long-time employees

Two traditional ceremonies next month will honor 78 Rockefeller employees for the longevity of their commitment to the university community. The Anniversary-Retirement Dinner will take place Thurs., Nov. 3 and the Employee Recognition Program will take place Thurs., Nov. 10.

The Anniversary-Retirement Dinner salutes faculty and staff who are retiring as well as those commemorating 25th, 40th, and 45th anniversaries at Rockefeller. Employees with over 25 years of service are invited to join the celebratory cocktail hour and dinner.

The Employee Recognition Program recognizes people celebrating ten and twenty years of service at Rockefeller. The event will take place from 3:00 P.M. to 5:00 P.M. in Abby Aldrich Rockefeller Lounge. Awards will be given, followed by refreshments and hors d'oeuvres. "Everyone on campus is invited to the celebration to join in recognizing those who have given many years of dedicated service to the university," said Virginia Huffman, director of Personnel.

Invitations have been sent. However, as Huffman noted, "If any employee believes he or she has reached a special milestone and has not received an invitation, please let us know. We don't want anyone to be disappointed."

For more information, contact the Office of Personnel, x8300.

## With silver bells and cockle shells

### Garden designer gives guided tour of Rockefeller landscape



Joseph Bonner



How does our garden grow? Rockefeller's gardens and grounds are being revitalized. Last week, Penelope Maynard (place), garden designer, led two visitors on a guided tour of the work in progress. She and Niloufar Leibel, campus horticulturalist, have been collaborating with Jim Sullivan (place), grounds supervisor, on restoring the intent of the original landscape architect, Daniel Kiley.

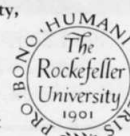
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# Fred Seitz: On the frontiers of science for six eventful decades

know many of the leading scientists during the last six decades.

Particularly at the National Academy of Sciences, which was a very exciting place in the 60s. And, of course, the title alludes to Vannevar Bush's book "*Science: The Endless Frontier*" which articulated the fundamental importance of science to society from the 1940s on.

**N&N:** How did you first become interested in science?

**Seitz:** As a boy in the 1920s I got interested in technical things such as radio. This was in the early days of crystal sets. At that time, I decided if I had the ability, I'd want to do something in the field of science.

**N&N:** After Stanford you went to Princeton for your Ph.D. in physics.

**Seitz:** Yes, my life would have been very different without that. I met people at the frontier, like Rabi, Condon, Van Vleck, and Oppenheimer, who had a tremendous influence on American physics.

**N&N:** Einstein was there as well?

**Seitz:** He came to Princeton in 1934 and occupied an office in my building. He was no longer very creative scientifically but loved to talk about the early work. He was inspiring. Einstein opposed the way quantum theory was developing. It was contrary to his view of nature because it was full of paradoxes—of 'spooky' contradictions.

**N&N:** And while a graduate student you developed the Wigner-Seitz method with Eugene Wigner?

**Seitz:** That was a way to calculate the cohesive energy of a metal, the first such calculation based on wave mechanics and the known properties of the atoms involved. Wigner—he's still alive—is a brilliant man. He introduced group theory into physics, which is now central.

**N&N:** In 1940 you published a textbook, *Modern Theory of Solids*, which was considered a major work.

**Seitz:** The field of solid state physics had been very fragmented but it deserved unity. I spent five years writing a book on it. This book got many people to move into the field.

**N&N:** During World War II you were a consultant to the Secretary of War and a government science advisor for the first time.

**Seitz:** I served as an advisor on defense problems. I did ordnance work, bringing back technology such as the production of armor plate to defend against projectiles and explosives. And then I became



**Fred Seitz graduating from Lick High School in 1928.**

involved in research with semiconducting silicon. It was the dawn of the silicon age. Finally, I was called into the Manhattan District because of concern about the large nuclear reactors at Hanford and their ability to withstand damage.

**N&N:** What was your connection to the Manhattan Project?

**Seitz:** I was with the Chicago laboratory where the big reactors at Hanford, Washington were designed. The work at Los Alamos was cut off from us by security but there was a grapevine link of a kind.

**N&N:** How did you feel when we dropped the atomic bomb?

**Seitz:** Secretary of War Stimson asked me to go to Europe in April 1945 to find out what the Germans were doing technically. I came back just as we were using the bombs. I felt that what we did was right under the circumstances. I guess I would have delayed longer between the first and the second bombs. You see, 15 percent of our losses occurred during our invasion of Okinawa, and it was pretty clear that the Japanese military was ready to sacrifice the last civilian. The best guess was that it would take us at least a year to conquer Japan and a million American casualties.

**N&N:** You became President of the National Academy of Sciences in 1962?

**Seitz:** Those were boom times for science: High energy particle physics, the Apollo program with its brilliant leader, James Webb, and the whole field of continental drift. There was a lot of excitement, not least in biomedical research.

**N&N:** You think the atmosphere for science today is less hospitable?

**Seitz:** There's admiration for some fields and then some trouble, as with the superconducting supercollider, Congress arbitrarily canceled it. That was a great mistake, terminating a long period of discovery starting with radioactive materials a hundred years ago, research that allowed us to probe the inner nature of matter. If we abandon science it will be the end of one of the main driving forces of our civilization.

**N&N:** Why don't we have the same support for science in Washington?

**Seitz:** We don't have leadership in critical positions anymore. For example, N.I.H. was brought to prominence by James Shannon, who knew how to go to Congress. People on the Hill don't have the vision they did in his time. Those who lived through the war saw how effective science could be. The people on the Hill today are lawyers, most probably had trouble with high school algebra. They try to cancel projects because they don't go to their own districts. Also there have been all these exaggerated descriptions of fraud, which is nonsense.

**N&N:** You started the M.D.-Ph.D. program at Rockefeller?

**Seitz:** Yes, Maclyn McCarty was the director of the hospital, and together we got help from the Commonwealth Fund and then from N.I.H. Today I think the M.D.-Ph.D. program has some of our best students.

**N&N:** You also opened the field center in Milbrook.

**Seitz:** Yes, it started because Peter Marler, Fernando Nottebohm and Don Griffin wanted to make special studies in the natural environment. Don wanted to determine how birds navigate in foggy weather. He needed a large area so we acquired the Beck estate.

**N&N:** What other memories do you have of your tenure here?

**Seitz:** I had a marvelous association with people such as David Rockefeller. We had a constructive board and started the first serious program of fund-raising.

**N&N:** Scientists today complain about getting funding.

**Seitz:** It's a national problem. Europe is more elitist. It picks institutions and funds them. If people land a position in those institutions, they're taken care of. Whereas here we're much more democratic with the result that funds get diluted.

**N&N:** You chaired President

Reagan's advisory committee on Star Wars and still have strong feelings on the subject?

**Seitz:** I think we ought to find out how well we can defend ourselves against oncoming missiles. The problem is simpler these days, because we no longer face a massive Soviet threat, but there are still isolated threats. Some dictator is going to get nuclear weapons and begin using them. We've got to learn how to countervene.

**N&N:** You have also been outspoken about environmental issues?

**Seitz:** The idea that we are destroying the earth has become a sort of religious cause with some people. The earth is resilient. Obviously we've got to be careful. But to do away with freons in airconditioners on the basis of the claim that the ozone layer is being destroyed is without adequate scientific foundation. It's also a fact that mean global temperature has been constant since 1979. We need time to study those things before taking irreversible steps.

**N&N:** What would you consider the most significant scientific advances of the century?

**Seitz:** Well, in the physical sciences—the theory of relativity and the evolution of quantum theory. And our understanding of plate tectonics. In the biological sciences the work done at Rockefeller is path breaking. The use of the electron microscope and the centrifuge and then the work Maclyn McCarty was critically involved with, shifting attention from proteins to DNA and eventually RNA, those are as important as Galileo's discoveries or Newton's.

**N&N:** You wrote that as a species our status in the world remains unclear?

**Seitz:** The whole picture is not decipherable at our level of intelligence. The big questions relate to matters concerning survival: Will we blow ourselves up or get destroyed by a meteor impact? I guess in a way I regard the next century as crucial. Either we'll pull ourselves together as a species and live in more harmony, or we'll just become insignificant. Society has to learn to use more logic and science. We've got an enormous population in the world to handle and you can't do it without increasing science. Right now, for example, the antibiotics are losing their effectiveness, we must go back and develop new vaccines. It's a question of our species showing more rationality.

## Potpourri

Christian Steiner



At the Tri-Institutional Noon Recital today (Oct. 14), Soprano Korliss Uecker (above) and pianist Alan Darling will perform songs and arias by Mozart, Clara Schumann, Schubert, Wolf, Poulenc, and J. Strauss. The concert, to be held in Caspary Auditorium at noon, is free. All are welcome.

### Friday film

*The Fourth Man* (Holland, 1983), directed by Paul Verhoeven, will be shown today (Oct. 14) at 7:30 P.M. in Caspary Auditorium. Admission is free.

### Clinical Research Seminar

Victor D. Herbert, professor in the Hematology and Nutrition Research Lab, Mount Sinai and Bronx V.A. Medical Centers, will speak on "Most Free-Radical Injury is Iron-Related: It is Promoted by Iron, Hemin, Holoferritin and Vitamin C and Inhibited by Desferrioxamine and Apoferritin" at the Clinical Research Seminar Wed., Oct. 19, at noon in Nurses Residence 110B.

### Health and Wellness Lecture

Harry Shamoon, professor of Medicine at the Albert Einstein College of Medicine, will speak on "How to Prevent Diabetes" at the Health and Wellness Lecture, Thurs., Oct. 20 at noon in Caspary Auditorium.

### Harvey Society Lecture

Richard Losick, Maria Moors Cabot Professor of Biology at Harvard University, will speak on "RNA Polymerase Sigma Factors and Cellular Differentiation in a Simple Developing Organism" at the Harvey Society Lecture Thurs., Oct. 20, at 8:00 P.M. in Caspary Auditorium.

co-authored with Harold M. Schmeck, Jr., *The Hostage Brain*.

### New switchboard hours

The switchboard will now be open from 8:45 A.M. to 5:15 P.M. (Former hours were 8:30 A.M. to 5:30 P.M.)

### Morphology discussion

Anyone who uses or has an interest in morphological techniques or electron microscopy for research is asked to contact Hanh Huynh, e-mail hanh@rmslab.rockefeller.edu or x7985.

### Computing workshops

Spaces are available in the following Computing Services workshops:

Introduction to Windows: Fri., Oct.

21, 10:00 A.M. to noon;

On-Line Requisitioning: Mon. Oct

24, 10:00 A.M. to noon. (If you have special OLR needs, contact Toby Fishman, x8305.);

Word for the Macintosh: Part III:

Tues., Oct. 25, 10:00 A.M. to noon.

Word for Windows: Part III: Wed., Oct. 26, 10:00 A.M. to noon;

Wordperfect: Part III: Fri., Oct. 28, 10:00 A.M. to noon.

To register, please contact Joan Falciano at x8925 or leave voice mail at x7768.

### Science Outreach discussion

A panel discussion about the research conducted last summer by participants of the Science Outreach Program will be held Sat., Oct. 22 at 11:00 A.M. in Caspary Auditorium. The discussion will be moderated by Bonnie Kaiser, program coordinator. Professor Bruce McEwen will discuss his new book,

## Tenor to tender tunes Oct. 19 at evening concert

David Keetle



Stanford Olsen, tenor, will perform Schubert's *Die schöne Müllerin* at the university's evening concert Wed., Oct. 19 at 8:00 P.M. in Caspary Auditorium. Olsen, winner of the 1989 Walter W. Naumberg Award, will be accompanied by pianist Kenneth Griffiths. The originally scheduled performance by Robert Holl, Ellen Van Lier, and David Lutz was cancelled due to the late arrival of Holl and Van Lier's new baby. For more information, contact Cathy Rogers, x8437.

## Items for Calendar of Events

Submissions for The Rockefeller University Calendar of Events should be sent to Joseph Bonner in the Office of Public Affairs, box 68 or fax x7876. The deadline for submitting announcements is 2:00 P.M. the Tuesday before the calendar comes out. To ensure that an event is listed in two consecutive calendars, submissions must be received no later than Thursday two weeks prior to the event. For further information, contact Bonner, e-mail bonnerj or x8998.

## de Lange

(continued from page 1)



Assistant Professor and head of lab Titia de Lange lectures today (Oct. 14) on telomeres.

the Dutch Cancer Institute in 1985, where she studied antigenic variation in trypanosomes with Piet Borst. After receiving her Ph.D., she worked as a postdoctoral fellow in the laboratory of Harold E. Varmus at the University of California in San Francisco, investigating the human c-myc gene. While there, de Lange isolated human telomeric DNA and initiated her current studies on human chromosome ends.

In 1990, de Lange came to Rockefeller as assistant professor and was appointed head of lab in 1991. A winner of the Dutch Huygens Award and the Irma T. Hirschl-Monique Weill-Culier Trust Award, she has been a Lucille P. Markey Trust Scholar since 1987 and has published 30 papers.

The lecture will be held in Caspary Auditorium at 3:45 P.M. and preceded by tea in Abby Aldrich Rockefeller Lounge at 3:15 P.M. All are welcome.