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The Rockefeller University

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June-July 1988
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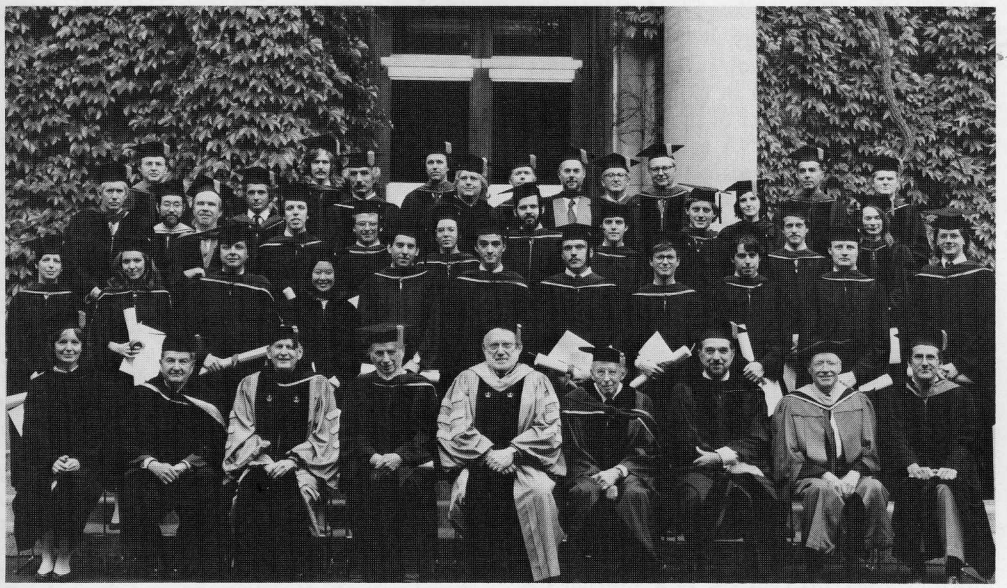
News and Notes

18 Awarded Ph.D.; Chase and Hotchkiss Receive Honorary Degrees



Front row, from left, Mary Rifkin, David Rockefeller, Maclyn McCarty, Rollin Hotchkiss, Joshua Lederberg, Merrill Chase, Anthony Cerami, William O. Baker, Ralph Steinman. On the steps, Ph.D. recipients and their presenters.

Two of the University's own research pioneers, Professors Merrill W. Chase and Rollin D. Hotchkiss, were awarded honorary doctor of science degrees and 18 doctoral candidates received the Ph.D. degree at the University's 30th commencement ceremonies on June 8.

As is the University's custom, the proceedings were limited to talks by faculty presenters who explained the significance of the work of the degree recipients to an audience of colleagues, friends, and families of the honorees. The degrees were conferred by President Lederberg.

Dr. Chase, a member of the Rockefeller faculty since 1932 and now professor emeritus, was honored for his contributions to cellular immunology and allergy research. His studies of the genetic differences that control sensitization in experimental animals led to production of a stock of guinea pigs of unusual susceptibility to experimental sensitization.

A native of Providence, Rhode Island, he received A.B., Sc.M., and Ph.D. degrees

(continued on page 2)

NEW PROFESSORSHIPS

Chua Is Mellon Professor

Nam-Hai Chua has been appointed Andrew A. Mellon Professor. He succeeds Christian de Duve, who held the chair from its establishment by the Andrew W. Mellon Foundation, in 1974, until becoming emeritus on July 1.

Dr. Chua began his research at Rockefeller with Professor Philip Siekevitz in the laboratory of cell biology and was a University Fellow in cell biology with support from the Mellon Foundation. Within 10 years he became a full professor in charge of his own laboratory of plant molecular biology. His work has helped to elucidate the mechanisms regulating the development of the photosynthetic apparatus.

Dr. Chua's current research is concerned with plant gene structure and regulation. Exposure to light triggers rapid and sizable increases in the expression of certain plant genes. His laboratory has made major progress in pinpointing the region of the genes

(continued on page 8)

Field Named Dreyfus Professor

Frank H. Field, head of the laboratory of mass spectrometry and gaseous ion chemistry, has been named to a new endowed professorship made possible by a $1.5 million grant to the University from the Camille and Henry Dreyfus Foundation.

Dr. Field has been a professor at Rockefeller since 1970. For more than 40 years, he has been a leader in the field of gaseous ion chemistry and of the development of mass spectrometry as a tool for chemical analysis, including the analysis of biological substances.

Mass spectrometry is a technique through which atoms and molecular fragments are separated by weight and electrical charge. Gaseous ions—electrically charged molecules or atoms that have lost or gained electrons—are produced in the process of mass spectrometry. Dr. Field and his group have

(continued on page 8)

Hirsch Fills Second Fairchild Chair

Jules Hirsch, leader of the Hospital's human behavior and metabolism laboratory, has been appointed to fill the second of two professorships at the University endowed by the Sherman M. Fairchild Foundation, which supports a variety of programs throughout the country in education, health, and science. (The other Sherman A. Fairchild Professor is Attallah Kappas, vice president and physician-in-chief.)

Dr. Hirsch, who has been at the Hospital since 1954 and professor and senior physician since 1967, is a leader in the study of the metabolic and behavioral factors that lead to obesity and the role of obesity in disease. He and his group are trying to learn more about how and why fat cells multiply and how they become concentrated in particular areas of the body, since the location of fat deposits appears to be an influencing factor in some

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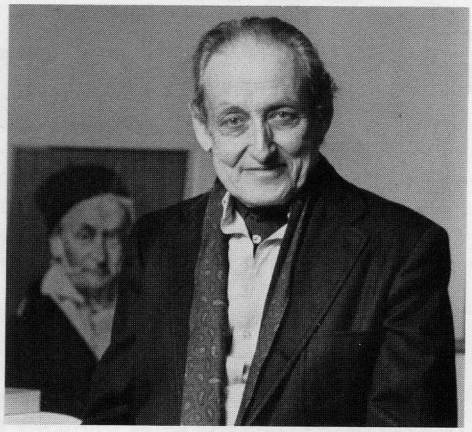


Morris Schreiber

Morris Schreiber 1926-1988

Professor Morris Schreiber, a mathematician on the University's faculty since 1963, died of heart and kidney failure on April 30 at the age of 61.

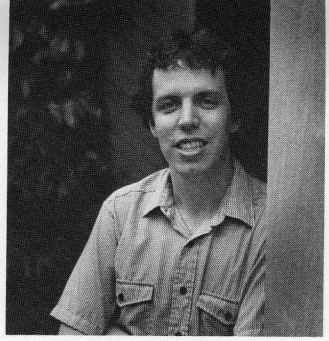
Dr. Schreiber was born in Cincinnati, Ohio on May 9, 1926. He completed his undergraduate and graduate studies at the University of Chicago, earning his Ph.D. in 1956. Before coming to Rockefeller, he was an assistant professor at Cornell University, from 1955 to 1961, and a fellow at New York University's Courant Institute of Mathematical Sciences.

His research was primarily in the fields of algebra, operator theory, "calculus and its elaborations," as he described it, and group theory. In recent years he had been working on the generalization of number theory to polynomials. In addition to his research, he lectured and gave courses and tutorials at the University and designed the mathematics requirements for the Ph.D. program.

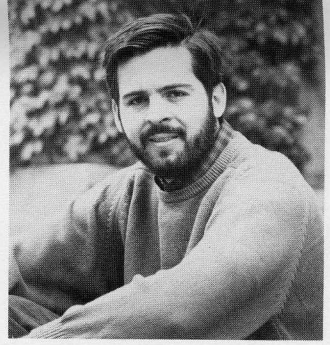
Dr. Schreiber's special gifts as scholar and teacher enriched both students and colleagues. In the words of Professor Bruce W. Knight: "Moe was always pleased to assist his fellow scientists with his unusual talents. Of the practical mathematics that I know, the deepest and most beautiful I learned from him."

Peter H. Sellers remembers that beyond his devotion to pure mathematics, Dr. Schreiber had a deep intellectual interest in a wider spectrum of science. "Moe and I shared a desire to strengthen the bonds between mathematics and the natural sciences, which he did principally by teaching mathematics to students of biology. I know so many who have had mathematics illuminated for them by his skill as a teacher."

Another of Dr. Schreiber's devotions was to music. The memorial services held for him included a piano concert, the final selection of which was a waltz he himself composed. "The beauty of this music," said Dr. Sellers, "was the best indication for the many non-mathematicians present of the intellectual excellence Moe strove for in his life work."



ALLEN



ALVAREZ-BUYLLA

18 Awarded Ph.D *(continued from page 1)*

from Brown University, which later awarded him an honorary D.Sc. He was elected to membership in the National Academy of Sciences in 1975. Among other honors, he received the 1979 Distinguished Science Award of the International Association of Allergology and Clinical Immunology and the 1969 Distinguished Science Award of the American Academy of Allergy.

Dr. Hotchkiss, also now professor emeritus, joined The Rockefeller in 1935 to work with Oswald T. Avery, leader of the team of scientists who identified DNA as the material of the genes. He developed methods for quantitative study of transformation, a natural process through which genes are transferred from one bacterium to another, investigated the mechanism by which DNA enters a cell and expresses its function, and evolved methods for following the fate of DNA during transformation.

Born in South Britain, Connecticut, he received B.S. and Ph.D. degrees from Yale University, which later awarded him an honorary D.Sc. He was elected to membership in the National Academy of Sciences in 1961 and has served on the scientific advisory committee of the National Cancer Institute.

As dean of graduate and postgraduate studies, Professor Anthony Cerami, head of the University's laboratory of medical biochemistry, opened the ceremonies. He expressed the University's sadness at the loss of Professors Rodney L. Cool, who died on April 16, and Morris Schreiber, who died on April 30. A moment of silence was observed in their memory.

Professors Ralph M. Steinman, head of the University's M.D.-Ph.D. program, and Mary R. Rifkin, associate dean, served as marshalls, placing the University's blue and gold-trimmed hoods on the graduates' shoulders. Also participating were Dr. William O. Baker, chairman of the University's board of trustees, and David Rockefeller, chairman of the board's executive committee.

Condensation of the presenters' remarks follow. The degree recipient's name appears first.

DONALD L. ALLEN

Victoria N. Luine

Donald was awarded an N.S.F. fellowship to support his thesis research, which investigated neurochemicals that are altered by gonadal hormones and that, in turn, mediate the expression of feminine sexual behavior in rodents. He combined the classic neurobiological techniques of stereotaxic application of drugs and analysis of behavior with state of the art neurochemical and anatomical techniques. He showed that one way in which opiate neurotransmitters regulate sexual behavior is by altering another neurotransmitter, serotonin. His thesis provides a major contribution to a growing body of information that indicates that interactions between neurotransmitters provide an exquisitely sensitive and powerful mechanism for regulating brain function. To the McEwen lab, Donald brought a quiet scholarship and a penchant for fun and comradeship which will be missed. He grew up in New Jersey, graduated from Manhattan College in Riverdale, and will remain in New York after graduation. With a NIH postdoctoral fellowship, he will investigate the molecular biological regulation of opiates in the laboratory of Dr. James Roberts at the Fishberg Center for Neurobiology of The Mt. Sinai School of Medicine.

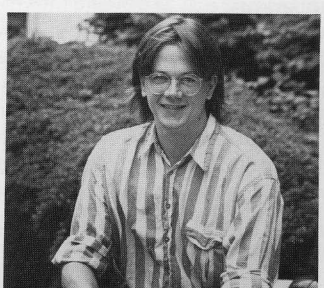
ARTURO ALVAREZ-BUYLLA

Fernando Nottebohm

Arturo Alvarez-Buylla, the son of Mexico's leading physiologist, Dr. Ramon Alvarez-Buylla, came to The Rockefeller University in the fall of 1983. He had a strong interest in embryology. By about that time my laboratory had observed the perplexing fact that new brain cells were constantly produced in the forebrain of adult birds, a phenomenon which until then was thought to occur only during development. This caught Arturo's imagination. His thesis work focused on just how this addition of new cells took place. He found that the new brain cells are added to the adult brain in much the same way as during development, but with this difference: they migrate much faster from their birth site in the ventricular wall to their final position in specific circuits. Since the new brain cells replace older ones, what we have here is a very dynamic process of brain rejuvenation. Arturo also discovered that some of the brain cells born in adulthood then grow long processes that link different regions within the brain, and this too was a surprise. The controlled generation of long projection neurons is one of the steps that will have to be mastered by those aspiring to reconstitute damaged brain circuits. Arturo is a very original anatomist and developmental biologist. His experiments are ingenious and telling. He is an artist at producing whatever gadget his work requires. He invents and modifies techniques until he achieves the desired results. If he had it his way, he would be heading back to Mexico to help bring about the scientific and intellectual Renaissance so desperately needed by developing nations, but until funding can be

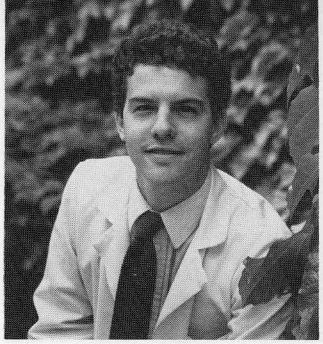
BREEDON

FLETCHER



BENNETT

BLUHM



BLUM

identified he will continue to describe the embryonic properties of adult brains here at The Rockefeller University.

ADRIENNE L. BENNETT

James E. Darnell, Jr.

When Adrienne Bennett came to me to discuss what scientific projects she might undertake in our group, it was clear she shared my growing conviction that our long history of studying gene control should be turned toward developmental biology. To my surprise and delight this didn't mean to Adrienne just examining the molecular details of, say, serum albumin, the major serum protein produced in the liver. For her, work on liver cell development meant dealing with whole cells—both adult and fetal. First she set out to map the cell surface by attempting to produce monoclonal antibodies to liver-cell surface proteins. For reasons we don't quite understand, relatively few of the monoclonals that resulted were against the cell surface. But care in execution and perspicacity in interpretation saved the day. Her antibodies, though not staining cell surfaces, did reveal very clearly that an old question in liver physiology might have a cleaner answer than before suspected: while all the hepatocytes, which belong to a single cell lineage, produce many proteins specific to liver, some antigens that are specific to liver cells were present in geographically distinct fashion. During the course of her work this approach became popular, and it is now clear that a geographically limited production of a number of products is characteristic of the liver. A greater scientific insight came from her greatest experimental wish: If we were going to understand how an adult liver came to make the proteins it does, we were going to have to study fetal liver cells — and Adrienne was very curious to see if she couldn't get fetal cells to function by carefully choosing culture conditions. She succeeded in this and reproduced numerically, if not spatially, the fact that all developing hepatoblasts produced such proteins as albumin, but only about one-half produced such proteins, and only one or two percent still others. These numbers matched those found for the geographically localized antigens from adult tissue. So the fetal cells were able to create the correct environment to carry out correctly this aspect of development. From these and other continuing studies we have a much deeper insight about geographical expression of genes in cells of the same lineage. Adrienne made a contribution to understanding "position effect," one of the most challenging and mysterious problems in developmental biology. During her last year in graduate school she entered, and has now completed, her first year at Yale Medical School.

ROBERT T. BLUHM

Louise Dolan

In theoretical physics, superstring theory is currently viewed as the most promising approach to the formulation of a quantum theory of gravity as well as to the realization of Einstein's dream of a unified theory of the fundamental forces of nature. This theory predicts, together with interactions, a specific content of elementary particles, some of which will be detectable only by the proposed new supercollider accelerator. It is a theory which lives naturally in ten space-time dimensions. We now believe the six extra dimensions may be the origin of the gauge group in our four-dimensional world; i.e. the symmetry that is responsible for the four fundamental interactions we observe. These ideas required the generalization of the Frenkel-Kac-Segal construction of affine Kac-Moody Lie algebras to the spinning string, and the observation that in the context of Type II superstrings this provides a correlation of the number of dimensions with the nature of the force laws that govern the fundamental interactions. Robert Bluhm is the first student here to write his thesis on superstring theory. In it he has developed many of these ideas about four-dimensional strings, which are now discussed and used throughout the subject. During his four years at Rockefeller, Robert was accepted into five of the leading international particle physics summer schools, including the School of Subnuclear Physics, in Erice, where he was awarded the James Chadwick Scholarship in 1985; workshops in Trieste and Dubrovnik, and the TASI (Theoretical Advanced Study Institute) in 1987, then held in Santa Fe. He will join the particle theory group at Indiana University as a postdoctoral fellow next year.

ANDREW S. BLUM

Colin J. Barnstable

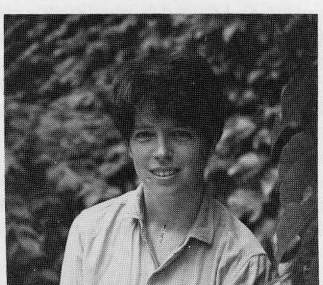
Understanding the ways in which the functional architecture of the mammalian nervous system is set up remains one of the greatest challenges in biology. Most of the molecular events occurring in the early embryonic neuroepithelium have yet to be discovered. For his thesis work, Andrew Blum asked a number of straightforward but very important questions. Are there molecules that appear transiently during neural development? Are there molecules that appear to demarcate neural regions before the mature cell types of those regions are formed? Are there molecules that show graded distributions across neural regions? Andrew was able to work with one molecule that answered all three questions positively. He used monoclonal antibodies to characterize a cell surface molecule that turned out to be a ganglioside modified by the acetylation of its terminal static acid. Andrew was able not only to define the structure of this molecule but also to show that it is the presence of the acetyl group itself that is under precise spatial and temporal regulation within the nervous system. Although we still need to know much more about the metabolism and function of this molecule, Andrew's work has given us valuable insights into early neural development and has raised important issues concerning the role of cell surface carbohydrates in development. Andrew joined the M.D.-Ph.D. program after graduating from Yale University with a B.S. in chemistry. He has now returned to Cornell University Medical College to complete his M.D. training and plans to specialize in neurology.

RICHARD E. BREEDON

Konstantin Goulianos

In experimental high energy physics, questions about the basic structure of matter are answered through the study of subatomic particles. We learn about particles in the same way we learn about people: we observe their individual behavior or, most importantly, we study their mutual interactions. Particle interactions, like interactions among people, can be violent, resulting in drastic changes of direction, breakup, and production of new forms of matter; or can be very subtle, the particles barely "feeling" one another, the only result of the interaction being a slight change in direction. This last type of interaction, known as small angle elastic scattering, is the subject of Richard Breedon's thesis. Specifically, Richard compared proton-proton with antiproton-proton scattering, looking for small differences in the behavior of matter and antimatter. The forces responsible for small angle scattering are the well known electromagnetic force and the so-called strong force. Since the effect of the electromagnetic force can be predicted exactly, such experiments provide information about the strong force, which is primarily responsible for the architecture of the inner structure of the particles involved. Elastic scattering, although conceptually the simplest, is not necessarily the easiest experiment one can perform. The difficulty of an experiment depends on its accuracy. Richard's experiment is perhaps the most precise of its kind. He used apparatus designed and constructed here at the University, flown to Geneva, Switzerland, and installed at the world's largest particle accelerator at the time. The data collected were then flown back to Rockefeller for painstaking analysis. The entire process required diverse hardware and software skills, determination, and patience. It is these qualities that enabled Richard to produce an extremely precise and well-documented result, showing that the behavior of protons and antiprotons becomes more similar as their energy increases. Results like this are used to provide yet another notch in the key that will eventually unlock for us the structure of matter. Richard came to us with a master's degree from the University of Rochester via Alaska, where he spent some time at the Alaska

FREISTADT



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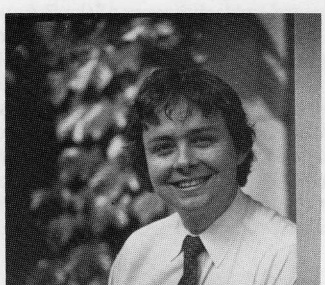

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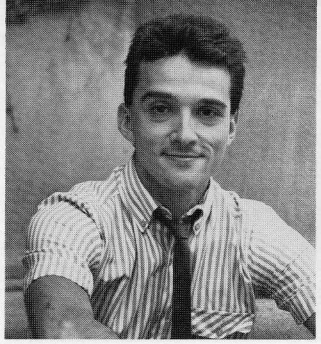
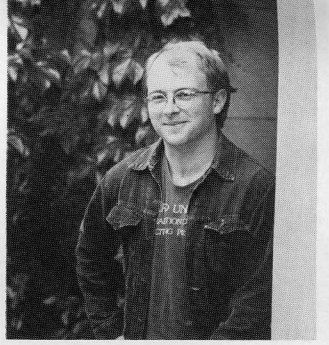


LEDIZET



LLOYD

Pacific University as acting director of public affairs. This versatility would not surprise the students of the yoga class he has been teaching at the University or those of us who see him racing his bicycle in Central Park. Richard will stay with the University another six months and then continue basic particle physics research at today's highest energy electron-positron collider, in Japan.

COLIN F. FLETCHER

Robert G. Roeder

Colin Fletcher received his undergraduate training at Dartmouth, where he majored in biochemistry and participated in a successful project on the cloning and regulatory analysis of a mammalian mRNA. Given his interests in the control of eukaryotic gene expression, he entered our laboratory to study the structure and function of mammalian transcription factors. After an initial attempt to clone the mammalian analog of an amphibian S gene–specific factor, Colin moved to a project more in line with his initial interest in working with regulatory proteins for RNA polymerase II–transcribed genes. Focusing on a cell cycle–regulated histone H2b gene, he purified to homogeneity a site-specific promoter-binding factor through which the S-phase induction of this gene is mediated, and he analyzed its regulation during the cell cycle. Quite significantly, this factor was shown not only to be a bona fide transcription factor, but also to serve as a DNA replication factor for the adenovirus genome. These studies have been of profound importance because they both identified an interesting multi-functional regulatory protein and provided the means to study its regulation—and thus some of the signals and pathways for cell growth and division. The availability of the protein has also permitted cloning of this corresponding cDNA for an analysis of structure–function relationships. Colin will remain at The Rockefeller University for postdoctoral work with Nat Heintz, and will pursue molecular genetics on a grander scale—namely, the genetic and physical mapping of mammalian chromosomes.

MARION S. FREISTADT

George A.M. Cross

Today is a special day for the Cross laboratory, from which Marion is the first graduating student. Equal credit is due to Dr. Hugh Robertson and members of his laboratory, who taught Marion much of what she has learnt. Most of us who work with trypanosomes would like to think that our work would one day change the course of the diseases they cause. In the meantime, we are having a scientific ball. This is because trypanosomes do many things differently from other cells, yet with sufficient analogy that they raise important questions about some of the general theories of cellular biology and genetics. It is in one of these areas that Marion worked for her thesis, defining the cap structure found on messenger RNA molecules. Trypanosome mRNAs turn out to have more complex caps than the mRNAs of other cells. Marion is someone who seems to go looking for challenges. That is evident not only in her approach to science, but also to recreation. An example arose at a lab picnic last summer, held 100 miles north of the city. Marion decided this would be a good test of her cycling stamina, and was somewhat reluctantly persuaded to take the train halfway: maybe because the train only ran the flattest part of the route, she knew she would not be cheated out of the challenge of Mohawk Mountain. For her postdoctoral studies, Marion will move to Columbia University with Dr. Vincent Racianello. This move sustains the developing ties of the fledging Cross lab alumni: Vincent is married to Doris Cully, a founding member of the lab.

GREGORY P. GASIC

Michael W. Young

Some very large proteins that control the differentiation of embryonic tissue carry short regions of homology to well-known, diffusable peptide hormones. Greg has shown that one such large protein (the product of the *Drosophila Notch* locus) is held at the surface of the cell, making it in effect a non-releasable hormone. For a cell carrying such a protein on its surface, making contact with its neighbor apparently allows it to send a hormone-like signal without effecting a response in cells even a few cell diameters away from the site of contact. Sets of restricted communication of this sort may be essential for appropriate differentiation within a tissue. Greg will now be performing postgraduate work at Yale University School of Medicine in the Section of Neurobiology. While he studied development of nervous tissue here at Rockefeller as a graduate student, he will now be looking at action at the synapse, as he is hoping to isolate and characterize an NMDA receptor from brain.

SARAH M. HANLY

Nathaniel Heintz

Some five years ago, when Sarah Hanly first came into my lab to study the regulation of histone gene expression during the mammalian cell cycle, we were laboring under the rather naive impression that our studies in this field were beginning to point to a rather simple solution. We thought that these genes, like all other well-behaved, coordinately regulated multigene families that had been studied at that time, would be controlled by a single molecular mechanism. During her tenure in the lab, and in large part due to Sarah's comprehensive analysis of the human histone H£ gene family and its regulation, this simple notion has been dispelled and replaced by more complex and interesting ideas. Sarah's in-depth analysis of DNA elements controlling expression of a histone H£ gene provided the first indication that the factors regulating this gene family are highly complex, and that one can achieve an identical program of regulation during the cell cycle using different molecular mechanisms. Her most recent efforts have led to the rather novel idea that the natural selection of the histone H£ gene family operates directly on the cis elements controlling expression of this family, rather than at the level of a single gene. Thus, a family of approximately 20 genes encoding an identical protein has arisen to accommodate the requirement for very high levels of expression in many cell types, rather than to fulfill a requirement for high levels of expression in any individual cell type. The general notion that arises from this work is simply that the transcription factor stoichiometries and activities in a given cell type can provide direct selective pressure for evolution of multigene families. Sarah's work has forced us to rethink several aspects of histone gene structure and regulation, and has led to a greater appreciation for the very complex nature of this seemingly simple problem. She will continue her training as a postdoctoral fellow in Dr. Warner Greene's laboratory at Duke University, where she will study molecular mechanisms involved in T cell activation and growth.

SUMI LYNN KOIDE

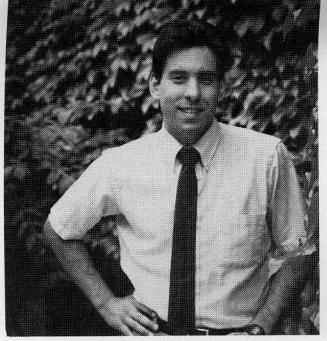
Ralph Steinman

When Sumi Koide began her thesis work, it was evident that foreign antigens induced strong immune responses when they were administered on the surface of dendritic cells. To account for this, Sumi first asked if dendritic cells could make interleukin-1. IL-1 was thought to be a necessary cofactor for the induction of an immune response, but surprisingly, IL-1 was not made by dendritic cells. Sumi confirmed that IL-1 amplified immunity, yet she found that this effect could be attributed quantitatively to an amplification of dendritic cell, rather than T cell, function. In a second set of experiments, Sumi discovered that dendritic cells in nonlymphoid tissues were the most efficient at picking up antigens. Antigen handling then was down-regulated as dendritic cells migrated to lymphoid organs. In this way, dendritic cells would arrive in the lymphoid tissues with a high concentration of those antigens present in the inflammatory site, and then initiate the immune response. This thesis provides essential information on the mechanism of action of dendritic cells, as well as new insight into the general problem of immunogenicity; i.e., what makes a foreign protein a strong stimulus of the immune system. Sumi now turns to medicine and infectious diseases, as she completes the combined M.D.-Ph.D. degree.

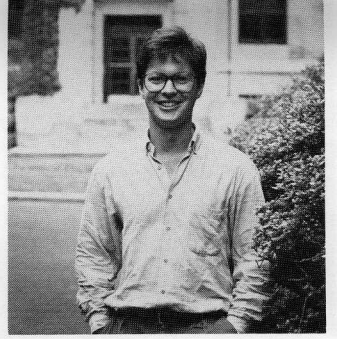
MICHEL E. LEDIZET

Gianni Piperro

Michel Ledizet graduated in 1983 from the École Normale de St. Cloud in Paris, obtaining a diploma which enables him to teach biochemistry in French universities. At that time he was already fluent in several languages, including Russian, he could play the piano nearly at a professional level, and he was strongly committed to continue his studies in biology. He came to this University in September 1983 with the double commitment of studying biology and serving his compulsory military duty. Somehow the French authorities thought that military service and life at this University could be the same. Michel devoted his research efforts to the investigation of microtubules, structures involved in intracellular movements and maintenance of cell shape in all eukaryotic cells. He found that stable and ordered arrays of microtubules are differentiated in their structure by the presence of a posttranslational modification that alters amino acid residue 40 of alpha-tubulin. This discovery opened a new field of investigation and was the object of three publications frequently cited by our colleagues. Following the activity of Michel outside the laboratory has been nearly as interesting as observing his development as an established investigator. Being a good marathon runner, a frequent cyclist, and a poor swimmer, he claimed several times that he was training for the "iron man" competition. While he was resting he would bake, cook, brew, and establish law and order in the cooking facilities at the student residence. He taught in a French-speaking class at the University, helped to organize a student center of computing facilities, and was a piano soloist in three concerts by Rockefeller students. One may wonder how he found the time



McDevitt



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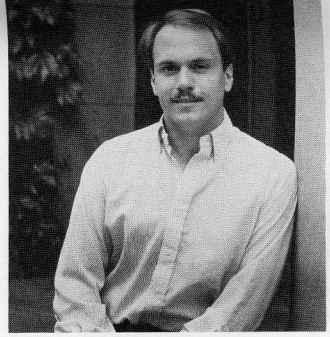


Romano

to perform experiments. In the fall, he will start a period of postdoctoral training at the Columbia University College of Physicians and Surgeons where he will study cellular and molecular biology of parasites.

SETH LLOYD

Heinz Pagels

Seth Lloyd did his undergraduate work at Harvard University, an intellectual experience from which he never quite recovered. It reinforced his innate intellectual confidence to pursue his many interests. Seth has studied music seriously, and is an accomplished flutist. He also can write well, a skill rare, but not that rare, among scientists. While a graduate student at Rockefeller, he became one of the founding editors of the new Harvard Review, a literary magazine of high quality. He also loves the wilderness, whether it be the great outdoors where he hikes and canoes, or the jungle of the East Village. After he left Harvard, he went to Cambridge University, in England, to pursue his studies in both physics and philosophy. He settled on examining problems in theoretical physics and came to Rockefeller to pursue this end. Seth showed up at my office door two years ago to ask if he could work with me. I determined that, in spite of being cultivated, he was quite smart and highly motivated to do serious science. In short order, he turned out three good papers, one on the thermodynamics of black holes, a second on the quantum measurement problem, and the third added a new twist to the second law of thermodynamics. In my view, he was now qualified to do a dissertation, so I asked him the question—what is complexity? Resolving this question occupied us for over a year. Physicists understand ordered systems like the neat arrangement of atoms in a crystal or the completely disordered systems like atoms randomly bouncing around in a gas. Complex systems, like big molecules, cells, brains, roses and noses, lie somewhere between order and disorder. Can we assign a physical measure to their complexity? Seth and I showed how this could be done in a way that was both universal and unique. Complexity, it turns out, is a measure of how hard it is to put something together so that indeed roses and noses are more complex than crystals and gases. It has been one of the pleasures of my life to work with Seth. Seth has already achieved excellent notice for this work. After leaving Rockefeller, he will visit Los Alamos and the Center for Theoretical Physics at the University of California, Santa Barbara before settling into postdoctoral work with Murray Gell-Mann at Caltech.

MICHAEL A. McDEVITT

Joseph R. Nevins

I first met Michael McDevitt when he inquired about the possibility of spending a summer in my lab before starting his M.D.-Ph.D. training. After having done an undergraduate research project in enzymology, he was interested in learning molecular biology and he began an analysis of gene sequences involved in the formation of the 3' termini of eukaryotic messenger RNA. This simple project, which was in part intended to introduce him to research at Rockefeller, became his thesis research and ended just two months ago. During that first summer, he made a series of mutants that failed to define a phenotype. He came back the second summer and made more mutants, but still there was no phenotype. Finally, during the course of that fall, his second medical school year, mutants were generated that defined an element essential for the generation of an mRNA 3' end. He then decided to stay on and continue this work and, over the course of the next four years, he succeeded in advancing the state of knowledge of this important event in gene expression to a point far beyond where it stood when he began. This is truly the essence of training as a scientist—not just assimilating a set of facts that others have established but, rather, to establish a new set of principles for future students to learn and scientists to work from. In so doing Mike left his mark on science in general as well as our lab in particular. Throughout his work he was keenly interested in the basic mechanisms of gene expression but he also jumped at the opportunity to relate this to human disease. This turned out to be the case for factors that are critical for the RNA processing reaction as they also elicit antibodies contributing to autoimmune disease. Mike is the perfect M.D.-Ph.D. student, having the inquisitive mind of the scientist and the concern for health problems that makes an excellent physician. He has now returned to Cornell Medical School to complete his medical training.

R. CLAY REID

Robert Shapley

Clay Reid has worked on the neural basis of visual motion perception and also has done research on theories of brightness perception. This is completely appropriate. As all who know Clay Reid can testify, he is very bright and he is always in motion. His dissertation is about directional selectivity in neurons' responses to moving targets. Directional selectivity is defined as a neuron having a maximal response in one direction of motion, maximal compared to responses to all the other directions all around the clock. Direction selectivity arises in neurons of the primary visual cortex; it is not present in responses of cells of the lateral geniculate nucleus, the neurons that provide excitatory input to the cortex. How direction selectivity is produced from nondirection inputs is what Reid figured out. The explanation is that a cortical neuron receives not only excitation from geniculate neurons but also inhibition from interneurons. The excitation and inhibition have different visual field locations and different time courses. Inhibition persists much longer than excitation. Thus, differences between excitatory and inhibitory inputs in space and time are needed to produce directional selectivity for motion. He also worked on how we perceive the brightness of objects in a scene. The main determinant of brightness is the local contrast around the border of each object. However, there is a spatial spreading of brightness from the border of one object to the borders of nearby objects—presumably because of laterally spreading excitation between visual neurons. This spatial spreading we have called assimilation. In experiments with simple and complex scenes, Clay Reid defined the spatial scale of assimilation. Along the way, he helped demolish the old Retinex theory of Edwin Land, proposed in 1971. After graduation Clay will work with me at NYU as a postdoctoral fellow for a year and then plans to continue his medical studies at Cornell Medical School as an M.D.-Ph.D. student.

GARY J. ROMANO

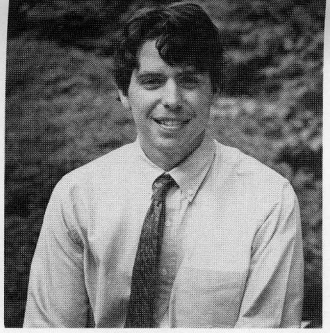
Donald W. Pfaff

Gary Romano came to Rockefeller with interests in endocrinology and the brain. He arrived at a time when it was becoming practical to apply molecular techniques to the nervous system. His work has shown an induction of the gene for an opioid peptide, preproenkephalin, by the steroid hormone estradiol. The estrogen induction works in females but not in males, and it is amplified by the steroid hormone progesterone. About two-thirds of the way through his work we received from Pierre Chambon a clone for the progesterone receptor itself. Gary has demonstrated expression of this gene by nerve cells, and an induction of the message for progesterone receptor by estrogen in the hypothalamus. His results not only include differential regulation of a given gene among nerve cell types, but also interesting differences among genes for neuropeptides and hormone receptors. Gary came to us from Trinity College with much experience in the laboratory and on the golf course. I am pleased to report that his golf game has gotten worse during these intense graduate student years. Back at the ranch house, his wife, Maura, has gotten her law degree from Fordham. While Gary is working for his medical degree at Hopkins she will pursue a career in public interest law, in Baltimore. Gary's medical education will allow him to make good on his deep interest in research contributing directly to understanding diseases of the nervous system.

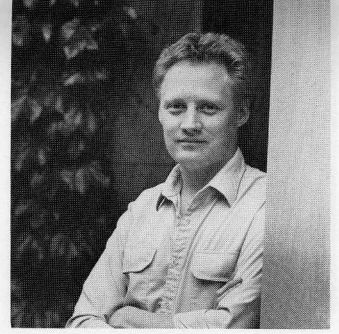
DAVID RUSSELL

Kensuke Horiuchi

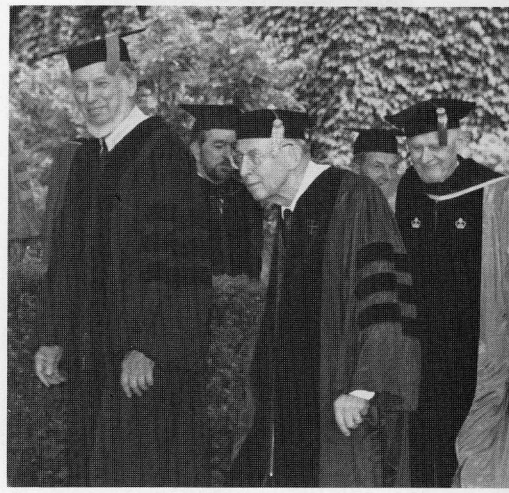
The significance of methylated bases to the function of DNA is an important and as yet incompletely understood subject. In the bacterium *E. coli*, the adenine residue in every GATC sequence is methylated by the action of DNA adenine methylase. Because of the symmetric nature of this sequence, both strands of the DNA molecules are methylated at each GATC site. Based on several lines of observation, it had been proposed that the methylated adenine residues are necessary for the initiation of DNA replication in *E. coli*. However, there was a paradox: mutants of *E. coli* that are defective in DNA adenine methylase exist, and they grow quite well. That means they must be able to replicate their DNA. The contradiction has been interpreted to mean that the mutants are incomplete and still contain some residual enzyme activity. David Russell disproved this interpretation by developing an extremely sensitive method to detect methylated adenine residues within the GATC sequence. The results of his measurements indicated that some mutant *E. coli* strains contain less than one methylated site per entire chromosome. He further showed that although the methylated DNA of certain plasmids fails to replicate in mutant cells that are defective in the DNA adenine methylase, unmethylated plasmid DNA does replicate in the same mutants. Based on this finding, David proposed a novel hypothesis; that it is hemimethylated DNA molecules, in which one strand is methylated and the other unmethylated, that fail to replicate, and that both unmethylated and fully methylated DNAs can replicate. To prove this hypothesis, he conducted an elegant experiment which demonstrated that when fully methylated plasmid DNA was introduced into mutant cells lacking the DNA adenine methylase, only one round of replication occurred. The resultant daughter molecules were hemimethylated, and



RUSSELL



THOMSEN



Front, from left, Rollin Hotchkiss, Merrill Chase, and Maclyn McCarty. Behind them, Anthony Cerami, and David Rockefeller.

could not replicate any further. This provides a mechanism to prevent reinitiation of replication on newly replicated daughter molecules. Thus, David's work showed that methylation of adenine residues can regulate DNA replication. David's potential as an independent scientist is already obvious from this achievement. Next year, he will be at Cornell Medical School completing the requirements for his medical degree.

GERALD H. THOMSEN

Robert G. Roeder

Jerry Thomsen received his undergraduate degree from the University of Tampa where he majored in both chemistry and marine biology. Soon after entering graduate school, he participated in the embryology course at Woods Hole, where an emerging interest in developmental biology was extended and solidified. Jerry's project of choice in our laboratory was an analysis of the structure and developmental regulation of histone genes in the amphibian *Xenopus laevis*. Beginning at the ground level on this project, he participated in the cloning and complete sequence analysis of two families of histone genes (some 24,000 base pairs of DNA), a project which provided hints of potential genetic control elements and genetic probes for further studies. After first determining the developmental expression of individual members of the gene families, a significant project in itself, he then defined a critical regulatory element for one specific gene, identified an interacting factor, and conducted a developmental analysis (through oogenesis and embryogenesis) of this factor. These studies were highly significant — providing general information regarding the structure and function of histone gene families and more detailed information on one gene-specific factor. Importantly, they have also set the stage for an analysis of the regulatory mechanisms employed for the atypical high level expression of histone genes in nondividing oocytes versus the normal cell cycle-regulated expression in somatic cells. As evidence of his deep-seated commitment to the study of vertebrate cell growth and differentiation, Jerry will undertake postdoctoral work with Doug Melton at Harvard University, where he will study the molecular events involved in mesoderm induction in early amphibian development.

HONORARY DEGREES

MERRILL W. CHASE

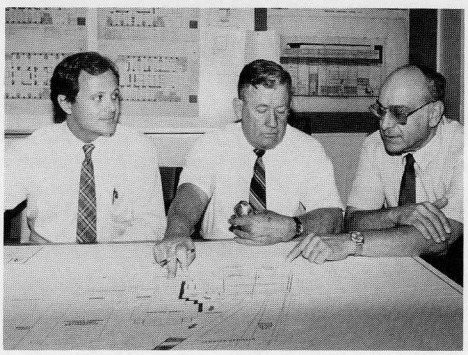
Ralph M. Steinman

It is helpful to recall the tenor of immunology when Merrill Chase began his research over 50 years ago. The importance of antibodies was appreciated, and antibody molecules were just beginning to be isolated. Here at the Rockefeller several labs were studying the chemistry of antigens. This included the laboratory of Karl Landsteiner with whom Dr. Chase came to work after obtaining a degree in bacteriology at Brown. Dr. Chase set out to study how simple chemicals would induce a type of immunity called contact sensitivity. This response is most familiar because it is the reaction one experiences when the skin makes contact with antigens in poison ivy. Much to the relief of everyone in the Institute, Dr. Chase realized he had to work out an animal model to study human contact allergy. Once needed methods were in place he could make major discoveries. He found that contact allergy did not require typical antibodies, which always had been the major focus of research in immunology. Instead immunity was mediated by living cells. It is now known that these responses utilize molecules, called lymphokines and cytolysins, that are very different from antibodies. He quickly realized that this type of immunity was not restricted to skin contact allergens, but applied to many other antigens. He showed this to be the case for proteins in the tubercle bacillus, and he wrote clearly that this kind of immunity was responsible for transplant rejection and for certain diseases. In short, Merrill Chase uncovered a whole new class of immune responses which we now call cell-mediated immunity. As his work progressed at the Rockefeller, Dr. Chase opened up one key area after another in allergy and immunology. If you had to pick one gift it was his experimental touch. Time and time again, he would figure out how to get things to work where in many instances, previous methods simply were not reproducible or not sensitive enough. What for us would be no more than a bothersome rash was for him the access to the great diversity of the immune system: the distinction between tolerance and immunity, cellular versus antibody-mediated responses, and the different functional classes of antibodies. He is a master of whole animal experiments, attending to every variable: dose, timing, route of administration, diet, even the season of the year; and most insightfully, the use of inbred animals, since he appreciated that immune responsiveness was under genetic control. Dr. Chase's rigor as an experimentalist would be hard to duplicate, but I fear that I have discussed him in a manner that is the reverse of his customary approach — I have mentioned the results first, then the methods. And in a sense, I have left the introduction to the end. Now we must acknowledge the role Merrill Chase and his wife Cynthia play as dedicated participants in University functions, always reminding us of the great freedom and potential we have here. With his skill in photography, Dr. Chase is accumulating a lively record of University personalities, equipment, and facilities. Along with his knack for choosing the right quotation for the right occasion, he continues to assemble a series of observations on University history, and we look forward to his future writings on our institution.

ROLLIN B. HOTCHKISS

Maclyn McCarty

The Avery laboratory in the Rockefeller Hospital was about at its peak in the 1930s. Along with the continuing clinical studies on the therapy of pneumococcal pneumonia, there were major research efforts during this period in the several areas representing the most important contributions of the laboratory. These latter include the continuing landmark work on the immunobiology of the pneumococcal polysaccharides; the beginning of the search for the identity of the substance responsible for the transformation of pneumococcal types; studies on the recently discovered human C-reactive protein; and the experiments of Dubos with soil bacilli that led to his discovery of the first antibiotics. Joining the laboratory in 1935, fresh from his Ph.D. in organic chemistry at Yale, Rollin Hotchkiss was destined to play an important role in each of these basic research activities. Initially he worked with Walther Goebel on the Type III pneumococcal polysaccharide, establishing the structure of the repeating unit. A fellowship year with Linderstrøm-Lang in Copenhagen in 1937-38 led him from polysaccharide to protein chemistry and set the stage for his collaboration with Dubos, not long after he returned to Rockefeller, on the chemical nature of the oligopeptide antibiotics, gramicidin and tyrocidin. Subsequently he carried out a series of other studies in biochemistry, bacterial metabolism, and the mode of action of chemotherapeutic agents, much of it as an officer in the Naval Medical Research Unit based in the Hospital. He was one of the least military of a generally unmilitary lot. Given to spending late night hours in the laboratory, he often looked as though he had been sleeping in his uniform, simply because he had. After the unit was decommissioned in 1946, Hotchkiss joined Avery in the research on pneumococcal transformation. He had asked to work on this problem some years earlier, but the timing was wrong. Now he made up for lost time by quickly making a number of advances that clarified the transforming reaction and addressed the criticism that the apparent activity of the transforming DNA must be due to contaminating protein. The long intractable problem of the nature of the serum factor that was required for transformation was explained in some of his earliest experiments. He answered the challenge of contaminating protein by further purification of the pneumococcal DNA without loss of activity until only minute traces of protein remained; and further by showing that even the small amount of the amino acid, glycine, that could be found in hydrolysates of the DNA was derived from the degradation of the purine base, adenine. As a result, all but the most hardened skeptics were convinced that DNA is the bearer of genetic information. In other experiments initiated at this time, he broadened the genetic implications of transformation by showing that traits other than capsule formation (e.g., antibiotic resistance) could be introduced by the transfer of DNA, and that two separate traits represented in the same DNA preparation were sometimes transferred independently while other combinations appeared to be linked. Thus, he and his colleagues succeeded in convincing the geneticists that transformation was clearly a genetic phenomenon. Indeed, Hotchkiss became a preeminent genetic biochemist, and as time went on his papers were as likely to appear in genetic journals as in those of biochemistry or molecular biology. Rollin has been associated with this institution for over fifty years and thus it is not feasible to touch upon all of his scientific contributions. Among his other achievements was the training of a number of younger colleagues who went on to become leaders in the field. They all revere him, as do his contemporaries, for his many fine qualities as exemplified by his warmth and generosity as a colleague and mentor, and his sparkling sense of humor. We also salute him for his modesty and lack of self-promotion throughout his scientific career.



From left, Wayne Tucker, Thomas McGinnity, and James Metalios

New Appointments in Plant Operations

James Z. Metalios has been appointed superintendent of operations and maintenance at the University and Wayne D. Tucker construction manager of the University's planned research building over the FDR Drive, two major new posts under the supervision of Thomas P. McGinnity, director of physical facilities and plant operations.

Mr. Metalios, who holds bachelors and masters degrees in civil engineering from City College, served for 21 years with the U.S. Army Corps of Engineers, where he rose to the rank of lieutenant colonel and twice received the Legion of Merit. His Army service included tours as an engineering operations officer in Korea and Vietnam. He built ATLAS missile silos in Kansas, and was deputy district engineer of the Los Angeles district. Fluent in Greek, he also served as procurement and engineer advisor in charge of the development and administration of the U.S. aid program to the Greek Army. As area engineer for the Eastern Province in Saudi Arabia, he had responsibility for $1.3 billion in construction projects.

After retiring from the military he managed a construction company in Saudi Arabia, and in 1980 he spent several months as a technical and training consultant to the Indonesian government. From 1981 until his appointment at Rockefeller he was facilities services director at Barnard College, where he supervised the construction of a $20 million, 400-bed dormitory.

In his new post, Mr. Metalios will have primary responsibility for the day-to-day management of the plant operation services and shops that are essential to the functioning of the University's research and support activities.

Mr. Tucker earned a B.S. degree in civil engineering from the University of Virginia and an M.B.A. at Vanderbilt University. Over the past 14 years, he has held a variety of major engineering and management posts: at the Bethlehem Steel Corporation; at Reynolds Metal Company, including 18 months with Reynolds International in Venezuela; as area engineer coordinating the construction of the Ananaconda Logan aluminum plant in Kentucky; and as project manager in charge of construction and renovation work at hospital centers in Louisiana, California, and Tennessee. Most recently, he has been project manager for Presbyterian Health Resources, Inc., in New York, in the construction of the 300-bed Allen Pavillion.

As construction manager of the University's new laboratory building, Mr. Tucker will be working closely with the building's architects and construction personnel as well as the University's scientists to ensure the creation of an optimum facility for the University's research.

PIO Moves

The Public Information Office, including *News and Notes,* will move this summer to new headquarters on the second floor of the Nurses' Residence. Phone and box numbers will remain the same.

Van Valer, Imhoff Appointed

Robert L. Van Valer, formerly associate vice president, has been named a corporate officer and vice president for University relations. His new responsibilities include the University's fund-raising and public information programs. He has succeeded Barry W. Dress, who accepted a position as associate vice president and director of medical development at Stanford University Medical Center.

Mr. Van Valer came to Rockefeller in 1973 as director of trust and estate plans and was named associate vice president in 1983. Previously, he served in development and alumni relations positions at the Polytechnic Institute of Brooklyn, New York University, and Pace University, and was assistant to the president and secretary of Bloomfield College, his alma mater.

Maren E. Imhoff, formerly director of volunteer services and, more recently, associate director of development, has been appointed director of development. She has succeeded Mr. Van Valer in managing the University's development office and staff support for the University's fund-raising initiatives. Ms. Imhoff came to Rockefeller in 1984 from Union Theological Seminary, where she also served as associate director of development. She is a graduate of Dickinson College in Carlisle, Pennsylvania.

Honors and Awards

Professor **Paul Cranefield**, Cardiac Physiology, has been named the recipient of a MERIT (Method to Extend Research in Time) Award from the National Heart, Lung, and Blood Institute and its National Advisory Council.

Professor **Vincent P. Dole**, Biology of Addictive Diseases, was awarded an honorary doctorate from the medical faculty of Uppsala University, Sweden, at its conferment ceremony on June 2.

Professor **Jules Hirsch**, Human Behavior and Metabolism, received an honorary doctor of science degree from the State University of New York Health Science Center at Syracuse, at its commencement exercises on May 15.

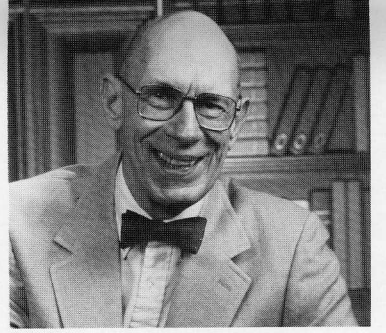
President Lederberg received the Columbia University College of Physicians and Surgeons Distinguished Service Award and gave the closing address at its commencement on May 10. He shared the award with two professors at the school, Elvin Kabat, Higgins Professor Emeritus of Microbiology, and Hamilton Southworth, Professor Emeritus of Clinical Medicine.

Maria B.-C. Lee, a summer student and guest in Professor William C. Agosta's laboratory of organic chemistry and physical biochemistry, won the New York University Sigma Xi Prize, which recognizes outstanding undergraduate research, for her thesis work "Correlation of ^{15}N NMR Chemical Shifts with Conformational Change in Apamin: A Two-Dimensional NMR Study," which was conducted here with Professor David Cowburn and Postdoctoral Fellow John Glushka.

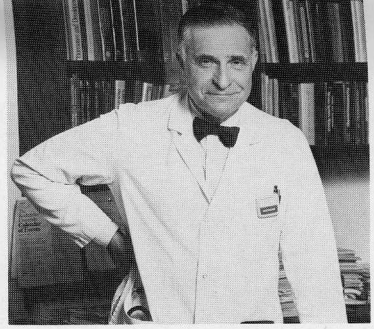
Professor **Abraham Pais**, Theoretical Physics, has been elected a Foreign Member of the Royal Danish Academy of Sciences and Letters.

Professor Vincent P. Dole receiving an honorary doctorate from the medical faculty of Uppsala University.

Nam-Hai Chua



Frank H. Field



Jules Hirsch

Chua *(continued from page 1)*

responsible for this regulation. He and his colleagues are also investigating the regulation of genes expressed only in specific plant organs and during specific developmental stages. Knowledge of such mechanisms could allow plants to be engineered so that specific gene products can be expressed only at the optimum time and place.

Presta Dies

Research Associate Elio Presta, 33, and his wife, Dr. Anna Maria Casullo Presta, were killed in an automobile collision on May 29, in Italy.

A graduate of the University of Naples Medical School, Dr. Presta had been a member of Professor Jules Hirsch's laboratory of human behavior and metabolism at the Hospital since 1985. He was working on adrenergic receptors in human adipose tissue, and was preparing to continue his academic career in Italy. His wife, Anna Maria, was a pediatrician who was also about to begin an academic career in Italy.

Editor Seeks Lost Birdwatcher

Some time ago, a member of the Rockefeller community came into the News and Notes office and announced that he had sighted a peregrine falcon in our skies, an event he felt sure—and we agreed—would interest other campus birdwatchers. Alas, old editors do not die, they just lose their notes.

Perturbed and embarrassed, there was nothing we could do but wait and hope our informant, whose name vanished with the notes, would reappear.

He didn't. But while we were waiting, a press release arrived at our desk. It stated that a falcon from the peregrine breeding program at Cornell University, in Ithaca, that had been released into the wilds of Maine two years ago had "incredibly returned to civilization." She had set up housekeeping with a mate in, of all places, another Cornell location, the 25-story "cliffs" of The New York Hospital-Cornell University Medical Center. There, on May 12, according to the medical center's release, she gave birth to two healthy baby falcons.

It is our earnest hope that the RU birdwatcher of the lost name will read this column so that he can learn of the blessed event. And get back to us, so that his sharp-eyed sighting may be duly credited in these pages.

Field *(continued from page 1)*

made discoveries concerning the ways in which gaseous ions react with other molecules that have, in turn, permitted wider applications of mass spectrometry.

In 1983, the American Chemical Society established the Frank H. Field and Joe L. Franklin Award for Outstanding Achievement in Mass Spectrometry in honor of Dr. Field and a former colleague. Dr. Field received the award in 1988.

The Camille and Henry Dreyfus Foundation awards grants in support of the advancement of chemistry, chemical engineering, and related sciences and has made a number of contributions for operating programs at the University since 1976.

In Print

An article, "Knowledge and Belief: The Impact of Einstein's Relativity Theory," by Professor **Abraham Pais**, Theoretical Physics, was published in the March-April issue of American Scientist. It was based on a talk he gave at the conference opening the celebration of the Ninth Centennial of the University of Bologna in November 1987.

The Annals of The New York Academy of Sciences, Volume 519, The Terminal Nerve (Nervus Terminalis): Structure, Function, and Evolution, coedited by Professor **Marlene Schwanzel-Fukuda**, Neurobiology and Behavior, has been published recently. It contains papers by Dr. Schwanzel-Fukuda, Professor **William C. Agosta**. Organic Chemistry and Physical Biochemistry, Professor **Donald W. Pfaff**, Senior Research Associate **Lee-Ming Kow**, and Postdoctoral Fellow **Kay Jorgenson**, Neurobiology and Behavior.

Red-Red, the New York Hospital–Cornell Medical Center peregrine falcon.

Hirsch *(continued from page 1)*

diseases.

In 1985, Dr. Hirsch served as chairman of the National Institutes of Health Consensus Panel on the health implication of obesity. In 1986, an NIH Obesity Research Core Center, of which he is co-principal investigator, was established jointly at The Rockefeller University Hospital and St. Luke's–Roosevelt Hospital Center.

Personals

Born April 30 to Radiologic Technologist **Valerie Gerena**, Hospital, and Painter **Samuel Gerena**, Paint Shop, a son, Devon.

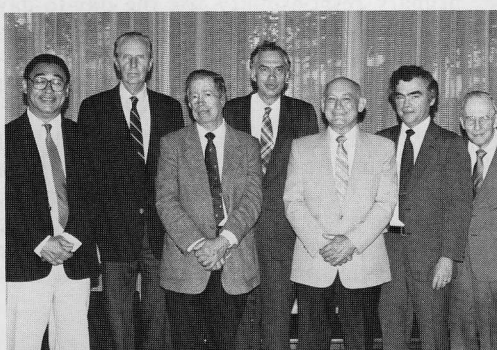
Graduate Fellow **Olaf Sporns**, Developmental and Molecular Biology, was married on June 11 to Deirdre Connolly, a student at the New York University School of Medicine.

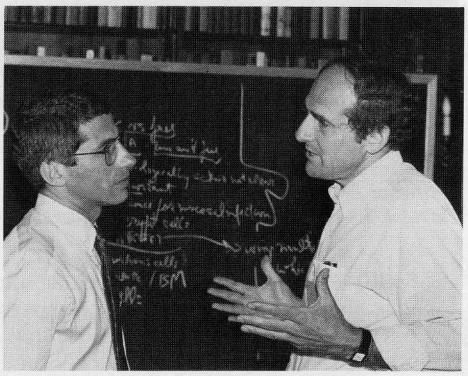
Recruiting Role Models

"Scientist in the School," a science enrichment program at neighboring P.S. 183 begun by Rockefeller scientists in 1979, is alive and growing, thanks to the continued participation of faculty members and students from the University and from the other area research and medical institutions.

As in past years, the school is seeking volunteers for the program to teach a few hours during the coming academic year. Those interested should write to Tanya Kaufman, the school's principal, at 419 East 66 Street, New York, NY 10021; or call her at 734-7719.

Ted Bella, retiring from the University after 41 years as microanalyist, at a farewell party on June 17 in the Faculty and Students' Club. From left, Professors T.P. King, Igor Tamm, Bruce Merrifield, Vice President David Lyons, Mr. Bella, Professors James Manning, Merrill Chase, and Vincent Allfrey.





Anthony Fauci, director of the NIAID, and Professor Ralph Steinman at the Seven Springs International Conference on the Immunological and Infectious Sequelae of AIDS.

AIDS Conference

The Seven Springs International Conference on the Immunological and Infectious Sequelae of AIDS, held May 17 and 18 at the University's Seven Springs Conference Center in Mount Kisco, New York, brought together leading investigators representing a range of basic and clinical disciplines to discuss the present status and future direction of AIDS research.

Organized by Professors Zanvil A. Cohn and Ralph Steinman of the University's laboratory of cellular physiology and immunology, the meeting focused on four major areas of concern: viral pathogenesis, T cell dynamics, therapeutic considerations, and protective immunity and vaccines.

Session chairmen were Anthony Fauci and Malcolm A. Martin, NIAID; Bernard Fields, Harvard Medical School; Irving Weissman, Stanford University of Medicine; Martin S. Hirsch, Massachusetts General Hospital; Barry Bloom, Albert Einstein College of Medicine; Hilary Koprowski, Wistar Institute; and Richard Lerner, Scripps Clinic Research Foundation.

Also participating were Jay Berzofsky, Samuel Broder, and Mikulas Popovic, National Cancer Institute; Dani P. Bolognesi, Duke University Medical Center; Edgar G. Engleman and Michael McCune, Stanford University School of Medicine; Myron Essex, Harvard School of Public Health; Siamon Gordon and Alan Williams, Sir William Dunn School of Pathology, Oxford; Emil Gotschlich, The Rockefeller University; William Haseltine, Harvard Medical School; David Klatzman, College of Physicians and Surgeons, Columbia University; Seymour Klebanoff, University of Washington School of Medicine; Jay A. Levy, University of California School of Medicine; J. Steven McDougal, Center for Disease Control; Henry W. Murray, New York Hospital-Cornell Medical Center; Robert North, Trudeau Institute; Michael Oldstone, Scripps Clinic and Research Foundation; and Alain Pompidou, French Ministry of Health.

Alumni Briefs

Richard Compans (1968), professor of microbiology at the University of Alabama at Birmingham, received the 1988 Gardner Award from the Alabama Academy of Sciences. Named for the founder of the Academy, the award is given annually to an Alabama scientist who has made outstanding contributions to his or her field of research.

Owen R. Floody (1974), has been promoted from associate professor to professor of psychology at Bucknell University.

Andrew D. Luster (1987), who received the M.D. degree this year under the joint Rockefeller University-Cornell Medical College M.D.-Ph.D. program, was one of three winners in the seventh annual Awards Program for Medical Student Research, sponsored by the Associated Medical Schools of New York, and presented at ceremonies at the New York University School of Medicine, May 5. The title of his paper was "Identification and Characterization of Novel Gamma Interferon-induced Genes."

Pierre van Moerbeke (1973), professor of mathematics, University of Louvain, Belgium, and visiting professor, Brandeis University, was presented with the 1988 Francqui Prize, Belgium's highest scientific award, by King Baudouin, on June 3.

Glenn L. Paulson (1971), formerly vice-president of Clean Sites, Inc., a nonprofit firm handling the cleanup of hazardous waste sites, has been named the first director of the Center for Hazardous Waste Management, a joint enterprise of the Illinois Institute of Technology (IIT). He has also been appointed Research Professor in the Pritzker Department of Environmental Engineering at IIT.

Peter Walter (1981), associate professor of biochemistry at the University of California, San Francisco School of Medicine, has been named the recipient of the 1988 Eli Lilly Award in Biological Chemistry, sponsored by the American Chemical Society Division of Biological Chemistry. The award is presented to a scientist under the age of 38 for research in biological chemistry of unusual merit and for independence of thought and originality.

RU Women's Association

The University's Women's Association announces its fall welcoming tea and coffee get-together, to be held on October 6, from 7 to 9:30 p.m., in Caspary 1A and 1B. All women associated with the University are invited to attend.

Another RU graduate. Barry Dress, right, recipient of the "degree" of M.D.-Ph.D. — "Master of Development" and "Professional in the Handling of Donors" — as announced by University Trustee Alexander Forger, left, at a farewell party on May 20. A member of the development office for 13 years, Mr. Dress has left Rockefeller to accept a vice presidential post at the Stanford University School of Medicine.

Pais Honored

Science and sentiment were combined on May 13 as friends and colleagues gathered at the University for a symposium in honor of Professor Abraham Pais, one of the University's — and the world's — leading theoretical physicists, who turned 70 on May 19.

Participants in the program, which was organized by Professor Nicola Khuri and opened by President Lederberg, included former scientific collaborators of Dr. Pais's and some of the most distinguished figures in modern physics: Val L. Fitch, Sam B. Treiman, and David J. Gross of Princeton University; C.N. Yang of SUNY, Stony Brook; James W. Cronin of the University of Chicago; Howard M. Georgi of Harvard University; T.D. Lee of Columbia University; Nicholas Samios of Brookhaven National Laboratory; and Martin Klein of Yale University.

The final talk of the afternoon, delivered by Robert K. Merton of Columbia University, a leading historian of science and a Rockefeller adjunct professor, explored "The Genesis and Complex Nature of the Word 'Scientist.' "

Dr. Pais, who worked for many years at the Institute for Advanced Study in Princeton, was appointed a professor at Rockefeller in 1963 and named Detlev W. Bronk Professor in 1981. His career, which began in his native Holland, very nearly ended during World War II. As a special surprise, one of the speakers at the symposium dinner was Dr. Tina Strobos, who hid Dr. Pais during the Nazi occupation.

Archive Symposium

"Children at Risk in America," a symposium sponsored by the Rockefeller Archive Center, a division of The Rockefeller University, was held May 25-27 at the University Seven Springs Conference Center in Mt. Kisco, New York.

The meeting, organized by Dr. Roberta Wollons of Case Western Reserve University's history department, brought together social historians, sociologists, psychologists, and educators from across the country to discuss some of the most pressing problems facing the nation, from teenage pregnancy to child protection and health, education, job training, and public policy.

The program opened with an introduction to the Rockefeller Archive Center by Dr. Darwin H. Stapleton, Archive director; Kenneth W. Rose, assistant to the director; and Archivist Melissa Smith, who spoke on "A Survey of Sources for the History of Child Studies at the Rockefeller Archive Center."

The final afternoon of the symposium was devoted to a tour of the Archive Center, located in Pocantico Hills, North Tarrytown, New York, which houses and makes available to scholars materials related to the philanthropic organizations founded by the Rockefeller family as well as the family's personal papers.

Cafeteria Manager Jean Alexander, right, and Rosa Barranco, food helper, with Jerry Barry, director of food services, at a retirement party on June 29, honoring their respective 19 and 10 years of service.

Briefs

Adjunct **Michael Brownlee** has been named to a newly endowed professorship in diabetes research and appointed one of two co-directors of the new diabetes research center at Yeshiva University's Albert Einstein College of Medicine.

Professor **David J.E. Callaway**, Theoretical Physics, gave an invited lecture, "Trivial Pursuit of the Higgs Particle," at the Lattice Higgs Workshop, in Tallahassee, Florida, May 16-18.

Adjunct Professor **Purnell W. Choppin**, president of the Howard Hughes Medical Institute, has been elected a member of the American Philosophical Society, the oldest learned society in the United States.

Professor **Vincent P. Dole**, Biology of Addictive Diseases, gave the keynote address, "How Can Laboratory Research Serve Society," at the Natural Science Student Symposium at the State University of New York, Purchase, on April 23.

Professor **David Gadsby**, Cardiac Physiology, was co-organizer of a U.S.-Japan Seminar on "Mechanisms Regulating Initiation and Conduction of the Cardiac Impulse," funded jointly by the National Science Foundation and the Japan Society for the Promotion of Science, and held in Okazaki, Japan, April 18-20, at which he gave a talk entitled "Voltage Dependence of Transient and Steady Current Generated by the Na/K Pump in Cardiac Cells," and chaired a session on "Regulation of Ca Channels." He also chaired a session on "Cellular Cardiac Electrophysiology" and was master of ceremonies at the celebratory banquet, during the "International Symposium on Basic Mechanisms of Arrhythmias," held in Tokyo, April 22-23. Both meetings were arranged in honor of Professor Hiroshi Irisawa, a recipient of the Purple Ribbon award from the Japanese government, on his retirement from the National Institute for Physiological Sciences in Okazaki.

Alexis Pia Gerlach, daughter of John Gerlach, of the laboratory of neuroendocrinology, performing at the tri-institutional noon recital at Memorial Sloan-Kettering Cancer Center's Sloan House on April 15. A cellist since the age of 7, she has performed at Carnegie Hall with the New York String Orchestra and other groups in the United States and abroad.

Trustee David Rockefeller, right, speaking at the 30th anniversary celebration of the Faculty and Students' Club on March 18. With him, from left, Professor Bruce Merrifield, Club president, and Professor E.G.D. Cohen and Vice President David J. Lyons, of the Club's board of directors.

Professor **Paul Greengard**, Molecular and Cellular Neuroscience, spoke on "Neuronal Phosphoproteins and Their Physiological Significance" at a symposium, Neurochemical Pharmacology 1988, A Tribute to B.B. Brodie, sponsored by the Fidia Research Foundation, in Washington, D.C., April 29-30.

President Lederberg spoke on "Inertia and Impulse in Microbiological Discovery" at a ceremony at the Waksman Institute at Rutgers University celebrating the 100th anniversity of Selman Waksman's birth.

Senior Fellow **William Lowrance**, Director of the Life Sciences and Public Policy Program, convened a symposium on Human Cancer Risk Assessment of Chemicals, at Wrightsville Beach, North Carolina, May 1-4.

Deaths

Jean Goldman Todd, 66, a research biologist at the Veterans Administration Hospital in New York City, who was associated with the University in the 1950s, on March 28.

Correction

News and Notes is terribly sorry but unfortunately the captions for two photographs in the last issue were switched. Dr. and Mrs. William Trager and Drs. Virginia and Alan Littau were mistakenly identified as Mr. and Mrs. Rudolf Franz and Mr. and Mrs. Armondo Pelachier. And vice versa. Our apologies to all.

News and Notes is published five times a year from October through July. This is Volume 19, Number 5. Suggestions for articles are welcome and may be sent to *News and Notes*, Box 68, phone extension 8967. Photographs, page 1, 2, 3, 4, 5, 6, 7 left, 8 left, top center, bottom right, 9, 10, John Sholtis; page 7 right, Uppsala University; page 8 bottom center, New York Hospital; page 8 top right. Ingbet Grüttner; Printed in the United States of America.

June-July 1988

A View from the Dean's Office

Class of 1988: Incoming and Outgoing

At The Rockefeller University's 29th convocation ceremony, 18 candidates were awarded the Doctor of Philosophy degree. Four more students—Tobe Fisch, Todd Miller, Keith Purpura, and Lee Walters—are expected to complete their degree requirements by summer's end.

In September, Rockefeller will welcome 27 new students, including six biomedical fellows. Once again representing the international mix of the RU community, this year's incoming students come from six foreign countries, as well as Canada and the U.S. The new students will be introduced in the September/October issue of "A View from the Dean's Office."

Rockefeller/Oxford University Exchange Program

Oxford's grey spires again will delight RU students, as Satyajit ("Jitu") Mayor and Daniel Kessler take part in the Rockefeller/Oxford University exchange program. Begun in 1987 through an arrangement between Dean Anthony Cerami and Dr. Siamon Gordon, Oxford Fellow and RU alumnus, the program allows for up to four students to participate each year. The exchange program is open to all RU students through an application and selection process which occurs in March.

This year's Oxonians, Dr. Christian Larsen and Guy Major, have elected to work with Dr. Ralph Steinman in Dr. Zanvil Cohn's cellular physiology and immunology lab and in Dr. Torsten Wiesel's neurobiology lab, respectively.

Plans are underway to include the University of Geneva and the University of Stockholm in the exchange program in future years.

American Youth Hostels/ Citibank Bike Tour

Members of the RU community took to the streets on Sunday, May 1 in support of the American Youth Hostels. Fourteen Rockefeller students and postdocs joined 23,800 other participants in the 12th annual, five-borough,

(continued on page 2)

Idiomatic English 101

In January of this year, a new course was added to the RU roster: English As a Second Language. Attracting up to 25 students each week, the course is taught twice weekly by Ms. Ayala Fader.

Dr. James Tam, an associate professor in Dr. Bruce Merrifield's biochemistry lab, suggested the course, which is open to foreign-born students and postdoctoral trainees.

English as a second language class members: from left, first row, Ling Ren, Xiaohong Ke, Ayala Fader, Yuriko Murakami, Daniela Jabes. Second row, Li Mon Zheng, De-Xin Wang, Philippe Moreillon, and Yuangkang Ye.

Noting that these individuals "suffer in many respects because of their inability to communicate with their advisors and colleagues," Dr. Tam believed that both their research and personal experiences at RU would be enhanced through improved English language skills. He hoped that the course would serve as a "bridge" that would allow students to take part more fully in RU research and New York City life.

Daniela Jabes, a postdoctoral trainee in Dr. Alexander Tomasz's laboratory and class member, remembers her difficulties when she arrived at RU last September. "In the beginning, I would have liked to introduce myself into lab conversations," but usually she felt too shy because of her lack of facility in English. Often by the time she had translated her thoughts from her native Italian, she found that her colleagues had moved on to another topic.

Ayala Fader discovered that students often were well-grounded in grammar, but "lacked ease and variety in their language use." Through exposure to newspapers, poetry readings, video displays, and American humor, students have gained greater flexibility and precision in their expression. In the process, they have also acquired greater understanding of American life.

For many students, their lack of ease in speaking was a function of prior English instruction. One student, who had studied English for 15 years, remarked that he was tested on translation skills and reading comprehension. He was never required to converse in English. Thus, Ayala Fader's task may be seen as to teach English as a living language.

For Daniela Jabes the class has made a difference. Four months ago when she entered the class, her main concern "was to be understood." Now, she is working to improve her accent and vocabulary. Once, she would ask the lab secretary to intervene when forced to deal with impatient and often unsympathetic non-university people over the telephone. Today, she is ready to tackle telephone bureaucrats singlehandedly.

Van Tales

What is causing people to line up at 8:00 A.M. outside the Dean's Office at 202 Bronk? What has provoked cries of joy and sent others away in despair? Why do some postdocs resort to counting on their fingers to figure out dates? The answer is the Rockefeller University Van.

This past September, the Student Representative Committee, with the help of the Dean's Office, leased the seven-passenger Dodge Caravan mini-van. The van, which is outfitted with a ski and bike rack, is made available to students and junior faculty members. Drivers are required to have a U.S. license and sign-up for the van is not permitted more than 8 weeks in advance of the travel date. Seven is the official passenger load but, according to the SRC van guide, more can be accommodated if "comfort is not a high priority."

Over the past few months, the van has been put to multifarious uses. The sign-up log, which is housed at 202 Bronk, provides a detailed record of van use. "Pathmark, Queens" is an often seen travel destination, but "skiing in Vermont," "moving," "picking up animals at JFK" and "home for the holidays" have been other entries. In November, the van was utilized for a joint expedition to New Orleans by students from the Knight, Nottebohm, and Wiesel labs to attend the Neuroscience conference. The most heartfelt entry thus far was provided by Michel Ledizet, a Ph.D. candidate in biochemistry. His entry for February 18 was "Vermont—Thesis Talk Recovery."

Although the Dean's Office door opens at 9:00 A.M., the lineup outside has begun to resemble ticket sales for a rock concert. One student arrived at 7:00 A.M. one Friday only to find himself beaten out for a June weekend by an earlier rising fifth-year student. The disenfranchised student vowed as he was leaving, "Next time I'll bring my sleeping bag."

Relief, however, is in sight. The Dean's Office will lease a second van in July. The last task is to find a replacement for Richard Breedon, the "Vanguard," who will relinquish his duties in September when he begins a three-month postdoc position at RU.

Demonstrating the features of the RU van from left, Marion Freistadt, Robert Kovelman, and Chuck Epstein.

Youth Hostels *(continued from page 1)*

36-mile bike tour through New York City. The tour, cited in the Guinness Book of World Records as the world's largest, was sponsored by Citibank and raised over $40,000 to build a proposed youth hostel in Manhattan.

Among the students who cycled their way through the five boroughs were Richard Breedon, Lisa Croner, Chuck Epstein, Marion Freistadt, Hon Ip, Fumiaki Katagiri, Robert Kovelman, David Sternberg, and Jeffrey Yuan. The postdoctoral ranks were represented by Laura Davis, Kevin Gorman, Tom Meier, Anant Menon, and Talvinder Sihra.

The tour, which started at 8:00 A.M. at Battery Park City, finished in Staten Island around 2:30 P.M. when the exhausted riders were ferried back to Manhattan for free.

Seven hours after their journey started, the RU contingent began their long ride home.

Primo Vere Ball

The joyous face of spring is presented to the world. Winter's Army is conquered and put to flight.

—From "Carmina Burana" by Carl Orff

Revelers from Rockefeller, Cornell, and Memorial Sloan-Kettering put flight to winter on May 21 and welcomed spring with the First Annual Tri-Institutional Ball held at The Rockefeller University.

Derived from the centuries-old May Ball tradition at Cambridge University, the Tri-Institutional Ball was named after the poem by Carl Orff. Bedecked with spring flowers, white lights, and paper garlands, the Tower Building's lobby, cafeteria, and seventeenth floor were transformed. "Bill Conway and the Swing Express" held court in the main ballroom (a.k.a. the 17th floor dining room) while "Kid Java" and "Journey to the End of the Night" provided more thundering entertainment later in the evening. RU students volunteered their musical talents, with pianist Michel Ledizet and clarinetist Steve Devoto helping guests to boogey the night away with tunes from Duke Ellington and Benny Goodman. "The West Siders," a jazz group, featured the talents of students Dan Kessler and Keith Purpura and RU employees Leon Maleson, Bruce Fieldman, and Anthony King. Classical musical fare was provided by "The Tower Trio," comprised of Clay Reid, Barbara Kazmierczak, and Zenta Walther, while David Edwards and Todd Miller of "Bud and the Flea Bops" serenaded guests in the main dining room.

Michael Pollio

And the winner is.... Felix Grün, Karen Redlener and Lisa Glickstein announce the winners of the Primo Vere Ball charity raffle.

M.D.-Ph.D. student and Primo Vere entertainment director, David Edwards, assembled the cast of cabaret performers, musicians, and stand-up comics that performed throughout the evening. Christina Luedke, a biomedical fellow, acted as a Tri-Institutional liaison working with the Ball's organizers Felix Grün and Lisa Glickstein of Cornell. Anshu Vashistha, a Ph.D. student, solicited prizes for the charity raffle which ranged from a trip to Cambridge, England, to experience their May Ball, to sets of scientific textbooks from Barnes and Noble.

Proceeds of over $2,400 from the raffle and an auction were donated to "The New York Children's Health Project," a group servicing children in NYC welfare hotels. The project was founded by singer Paul Simon and Dr. Irwin Redlener and is administered through New York Hospital.

Attended by over 200 guests in full regalia, the black tie affair (with close approximations permissible) began at 8 P.M. and lasted until dawn when the surviving revelers greeted the sunrise over a champagne breakfast.