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The Rockefeller University

THE ROCKEFELLER UNIVERSITY

news and notes

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13 Receive Ph.D.s, Brooke Astor, Mabel Bright, James Hirsch Honored as Alumni Celebrate 25th Anniversary

Commencement, June 12. Seated, left to right, Purnell Choppin, David Rockefeller, Brooke Astor, Maclyn McCarty, Mabel Bright, Joshua Lederberg, James Hirsch, Zanvil Cohn, William O. Baker, Clarence Connelly. On the steps, Ph.D. recipients and their presenters.

President Lederberg presented the Ph.D. degree to 13 men and women on June 12 at commencement ceremonies that capped a two-day reunion celebration of the 25th anniversary of the first degrees awarded by the University in 1959.

He also conferred three honorary degrees. Brooke Astor, president of the Vincent Astor Foundation and the first Rockefeller Life Trustee, and Mabel Bright, former executive assistant to the late Detlev W. Bronk, received honorary doctor of laws degrees. Adjunct Professor James G. Hirsch, president of the Josiah Macy, Jr. Foundation and former Rockefeller scientist and dean of graduate studies, received an honorary doctor of science degree.

As is the University's custom, the proceedings were limited to talks by faculty presenters who explained the significance of the degree recipients' work before an audience of friends, family, and colleagues, which this year included 168 returning Rockefeller alumni. Mrs. Astor was presented by David Rockefeller, chairman of the executive committee of the board of trustees, Mrs. Bright by Professor Maclyn McCarty, and Dr. Hirsch by Professor Zanvil A. Cohn, with whom he shared leadership of the laboratory of cellular physiology and immunology for many years.

Brooke Astor became a Rockefeller trustee in 1972. In 1974, as president of the foundation named for her late husband, she endowed two Vincent Astor Professorships at the University, held by Gerald M. Edelman and James E. Darnell, Jr. In 1980, a Vincent and Brooke Astor Professorship was established with part of a $5 million grant from The Astor Foundation for new programs in the neurosciences. Held first by Professor Carl Pfaffmann, now emeritus, the chair was awarded to Torsten N. Wiesel, 1981 Nobel laureate for his work in the neurobiology of vision, shortly after he joined the Rockefeller faculty in 1983. Astor Foundation funds also help support the graduate studies program.

Last fall, a new category of Life Trustees was established to honor "exceptionally meritorious service to the University." Mrs. Astor was unanimously elected by the board as the first holder of the title.

Detlev W. Bronk, president of the University from 1953 to 1968, once called Mabel Hanson Bright a "co-founder of The Rockefeller University." She came to Rockefeller in 1942 and after serving as secretary to several of the Institute's leading scientists, she became Dr. Bronk's executive assistant shortly after he was appointed president. She also assisted him in his capacity as president of the National Academy of Sciences and of the National Science Board and was assistant secretary to the University's board of trustees. She retired in 1977 and currently makes her home in Petersburg, New York.

Mrs. Bright brought to her tasks a style

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Alumni Reunion

"I am very happy to be here, at a place that has been so very important in the lives of my family, and to express my personal appreciation to all of you."

The speaker was David Rockefeller, chairman of the executive committee of the board of trustees, on the occasion of the plenary session in Caspary Auditorium on June 11 that opened the alumni reunion marking the 25th anniversary of the awarding of the first Rockefeller degrees.

In 1950 Mr. Rockefeller succeeded his father, John D. Rockefeller, Jr., as chairman of the board of what was then The Rockefeller Institute for Medical Research, a post he held for 25 years. Addressing the theme of the meeting, "The Rockefeller University and the Graduate Program," he summarized the events in the early years of his board chairmanship that led to the decision to transform the Institute to a degree-granting graduate university. He paid tribute to the dedicated trustees who worked with him, especially the late Detlev Bronk, who conceived the University's unique structure and served as its president for 15 years. He also expressed the affection and respect of those assembled for Mabel Bright, Dr. Bronk's longtime executive assistant, who received an honorary degree at commencement ceremonies the following day.

Mr. Rockefeller's remarks were followed by talks by two University alumni, Gerald M. Edelman, Vincent Astor Professor and head of the University's lab-

(continued on page 8),

THE PRESIDENT'S COLUMN

In the six years I have had the privilege of serving as president of this university, few events have given me more pleasure than the alumni reunion held this past June. It was a joy to see so many returning graduates and a special delight to discover that so many colleagues I have known and respected over the years made their start here. I want to thank the members of the reunion committee, co-chairmen John Hildebrand and Christopher Walsh, and John Bruer, Anthony Cerami, Alice Gottlieb, Darcy Kelley, David Luck, and Mary Rifkin, and all the many others on campus, more, I'm afraid, than I can mention by name, whose efforts helped make it such a memorable occasion.

This university has cause to celebrate. In terms of their scientific contributions, the distinction of the posts they hold, and the honors they have accrued in a mere 25 years, the tiny band of Rockefeller alumni

(continued on page 6)

that is all her own. (See story, page 6). As Dr. McCarty stated in his presentation: "Dr. Bronk transmitted to Mabel Bright his hopes and visions for a graduate university, and she was able to act almost as an alter ego in fostering the progress of his plans. She presided over the daily progress of the transition from Institute to University in a way that won the admiration, respect, and gratitude of the entire community.

James G. Hirsch, a graduate of Yale and an M.D. from Columbia University, joined the Rockefeller scientific staff in 1950 as a National Research Council Fellow. Working first in the laboratory of the late René J. Dubos, he supervised clinical studies that demonstrated for the first time that most tuberculosis patients receiving proper drug treatment do not require prolonged bed rest, a finding that resulted in major changes in treatment. Appointed professor and a senior physician of the Rockefeller Hospital in 1960, he spent more than 20 years studying phagocytes, the white cells of the immune system that seek out and kill invading microbes, and contributed importantly to the understanding of their structure and mode of action.

From 1972 to 1980, Dr. Hirsch served as dean of the University's graduate program, with major responsibility for the selection and guidance of Rockefeller students. In 1981, while retaining an appointment as adjunct professor at Rockefeller, he accepted his present post as president of the Josiah Macy, Jr. Foundation, where he supervises a program of support to schools and institutions concerned with medical care and education.

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

DANIEL R. BUSKIRK

John B. Zabriskie

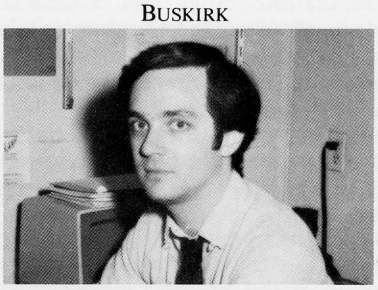
During our studies of viral infections of the central nervous system in mice, it was observed by Dr. Michael Lyons that certain survivors of the initial infection appeared normal for months after the initial insult, only to be followed by the appearance of gross obesity. The obvious question was, how did this happen? Did the virus persist in the brain? Were these abnormalities on the part of the host which would lead to this state? In short, what made the fat mouse fat? This was Daniel Buskirk's task and the results were quite startling. The virus had completely disappeared from the central nervous system. There was no evidence of immune abnormalities on the part of the host. Indeed, histological examination of the brain revealed it was entirely normal. In addition, Dan isolated certain substrains of the initial virus strain, which produced no obvious initial infection yet produced obese mice, indicating an inapparent infection was equally effective. A series of experiments were then carried out which indicated that there were indeed abnormalities in the hypothalamus-pituitary axis, which, although quite subtle, appear to have led to disturbances in the satiety control centers in the brain. While the exact nature of the lesions remains unsolved, the implication for human obesity as well as for other central nervous system disorders is obvious. During the years of our association, Daniel has demonstrated not only a wide spectrum of knowledge in the anatomy and biochemistry of the nervous system but has contributed significantly to our ongoing studies of the genetics of rheumatic fever and our studies of a nephritis-associated protein. He now enters the laboratory of Professor Nottebohm, where he hopes to elucidate some of the molecular mechanisms that underlie learning in song birds.

FREDERICK R. CROSS

Hidesaburo Hanafusa

It is well established that when Rous sarcoma virus causes cell transformation, it is due to the action of a single gene called *src*. The *src* gene product has a protein kinase activity specific to tyrosine residues of substrates. However, the subcellular target for this enzyme, and hence the mechanism leading to neoplastic transformation, largely remained to be elucidated. Fred Cross came from Swarthmore College and spent two years in the laboratory of Dr. Darnell, where he obtained significant experience in molecular biology before moving to our laboratory. He focused his research on the analysis of the functions of this *src* protein. Thanks to recombinant DNA technologies, we can make mutations in vitro on the isolated DNA of a gene at various sites almost at will. Fred Cross, taking full advantage of this technique, made various mutant Rous sarcoma viruses and examined the effect of the mutations. First, he demonstrated that two major phosphorylations of the *src* protein are not essential for its enzyme activity nor for transforming activity. Then he produced a series of mutations in the region close to the amino terminus of this protein. His analysis of these mutants clearly showed that, while this amino terminal portion is not involved in the protein kinase activity, the region is critical for this protein to locate and associate with the plasma membrane of cells. This membrane association in turn seems to be crucial for the ability to cause cell transformation. These novel findings greatly contribute to our understanding of the function of the transforming protein. Based on these findings, Fred Cross has designed the next experiments to clarify the mechanism of cell transformation, which he will be pursuing as a postdoctoral associate in our laboratory.

BUSKIRK



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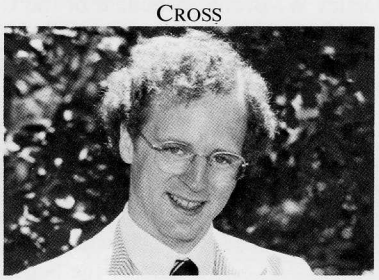
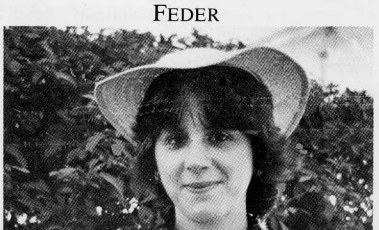


FEDER



ROSLYN FEDER

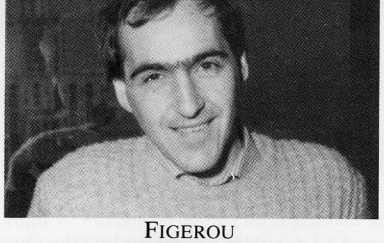
Ann H. Erickson

For Roslyn Feder, 1984 is a special year. She became a mother of a baby girl, she received an M.D. from Cornell, and she is now receiving a Ph.D. For her Ph.D. thesis, Roslyn chose to work on malaria, a disease which causes more than one million deaths a year in Africa alone. The disease is caused by a protozoan parasite with a complex life cycle in mosquitoes and in vertebrate hosts. Roslyn studied a major protein that is produced by a particular species of this parasite. This protein, termed the histidine-rich protein (HisRP), was discovered in 1978 by Araxie Kilejian in William Trager's laboratory and has been implicated to play a role in the infectious process. Using cell-free translation systems, Roz showed that the early biosynthetic forms of HisRP resemble those of secretory proteins. Thus, HisRP is synthesized with two transient amino terminal sequence extensions, a pre sequence which functions as a signal peptide to translocate the protein across the endoplasmic reticulum and a pro sequence of unknown function. In collaboration with George Cross' laboratory, she was able to clone the cDNA for HisRP. More recently, a genomic clone for HisRP was obtained in collaboration with Jeff Ravetch's laboratory. DNA sequencing of this genomic clone in Ravetch's laboratory permitted deduction of the amino acid sequence of pre pro HisRP. Its most striking features are numerous tandemly repeated units of up to 10 residues in length, composed of up to 9 histidine residues. This is the first complete amino acid sequence which has been established so far for any protein of any species of malaria parasite. Knowledge of its structure should now facilitate the study of its function.

VINCENT R. FIGEROU

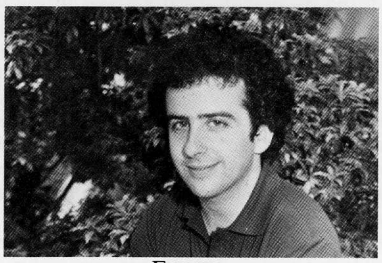
Nicola N. Khuri

As a young student in France, Vincent Figerou seriously considered becoming a mountaineering guide. A serious accident brought him to his senses and he chose a very safe profession—mathematical physics. But the important lessons of mountaineering are still with him today. Vincent's work and its genesis bring back to me an incident that occurred in 1961 at the American University of Beirut. Faced with a pile of undergraduate physics exam books, I reached for one that looked as if it belonged to another course. A note on the first page cleared the mystery. It read, "Professor Khuri: I could not solve any of the problems in your exam, so I have chosen three problems that I can do. I hope you find them acceptable." Being in the Middle East, we made a deal. I passed him (barely), but he gave his word that he would not apply to medical school. Twenty-two years later, I asked Vincent a mathematical question related to a problem in quantum field theory. This was supposed to be a first step towards his dissertation. The opposite of my experience in 1961 occurred. First he enlarged the question and put it in a much broader mathematical context. Then he proceeded to isolate a general principle which solves a whole class of similar questions. In the words of Professor Henry McKean, "his work will become a standard part of the subject of inequalities. . . a feat unusual for a beginner." Mr. Figerou's thesis has roots that date back to the so-called isoperimetric theorem known to the Greeks. This classical theorem states that of all plane figures with a given perimeter, the figure with the largest area is the circle. In physics, the first result in this sequence is due to Lord Raleigh, who observed that of all membranes with a given area, the circle has the minimum principal frequency. A whole sequence of similar but more intricate results follow in both mathematics and physics. Vincent's method will



FIGEROU

FISCHER



FISHER

add several more. He now goes to the California Institute of Technology as an instructor in the mathematics department.

HELENE FISCHER

Alexander Tomasz

The problem Helene Fischer chose to study in her thesis work has to do with the cell wall of pneumococcus. This structure is made up of two main construction elements. Relatively simple glycopeptide units are woven into a vast, multilayered net that covers the entire cell surface. The second building element, the so-called C-polysaccharide or teichoic acid, is attached to the glycopeptide network. These two polymers together make up the pneumococcal cell wall, which is the embodiment and macromolecular imprint of the shape of the bacterial cell. Looking at them from the dimensions of biochemistry, cell walls are giant supermolecules. Looking at them from the other direction, they are tiny architectural masterpieces reproduced with identical shape, size, and chemical composition in each cell division. Very little is known about how such a complex and gigantic macromolecular structure may be reproduced and molded into a unique shape. Helene was first interested to learn how the pneumococcus coordinates the production of the two macromolecular building elements. The only thing we knew was that glycopeptide and teichoic acid units produced in the bacteria at the same biosynthetic time somehow recognized each other, paired up, and became covalently linked to one another, forming a segregating unit that was then conserved through all subsequent cell divisions. Helene also wanted to know how this happened and how the construction units became "bolted on" to the old "beams" of the pre-existing cell wall. She developed experimental systems that allowed her to demonstrate points of coordination between glycopeptide and teichoic acid biosyntheses. She also managed to trick the bacteria into producing both polymers and releasing them into the medium without being able to link them up one with another or with the old cell wall. She applied a system of affinity chromatography for the separation and purification of these substances. Helene's work has advanced our knowledge of the chemical structure of the pneumococcal wall and led to new insights into the ways the assembly of such structures may be coordinated. Now she continues her training as a medical student at Cornell University Medical College.

DAVID E. FISHER

Nicholas Chiorazzi

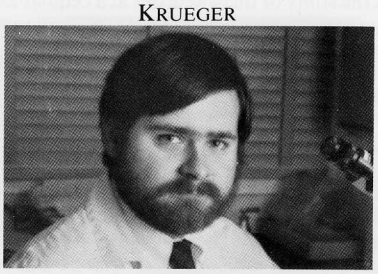
David Fisher arrived in the late Professor Henry Kunkel's laboratory in 1979 after receiving degrees in biology and chemistry from Swarthmore College and a degree in music from Curtiss Institute. At Rockefeller, he continued his musical exploits while tackling two research problems, working intimately with Dr. Kunkel on both. The first involved the definition of antigenic determinants recognized by autoantibodies from patients with the disease systemic lupus erythematosus. The second involved the structural aspects of the T lymphocyte receptor for antigen. To these two areas he applied a synthetic approach. He condensed concepts and technologies of immunologic analysis with those of molecular biology, the latter gleaned from his co-advisor Professor Günter Blobel, Professor James Darnell, and their colleagues. Using this approach and the disease-related antibodies, David studied structural aspects of the proteins contained in human small nuclear ribonucleoproteins, which are of considerable interest since they contain the RNA molecules involved in splicing phenomena. It was shown that one type of autoantibody recognized multiple peptides of the protein complex, whereas another type recognized only a select few. In addition, it was demonstrated that each protein was translated from a different RNA molecule, and that the assembly of the entire RNP particle was a two-step process, which could be accomplished in vitro. Patients were observed to undergo temporal shifts from one type of antibody recognition system to the other, lending clinical significance to these sophisticated laboratory parameters. In separate studies on the human T cell receptor for antigen, David used murine monoclonal antibodies specific for unique, idiotypic determinants and leukemic T lymphocytes, an approach analogous to that used by Professor Kunkel in the study of immunoglobulin molecules. Unique and common determinants of the T cell receptor were defined. In his spare time, David remained active in music, performing on his cello at the Kennedy Center in Washington, at the Philadelphia Academy of Music, and at Rockefeller. Recently, he placed first in the Artists International Competition, which sponsored a solo recital in Carnegie Hall. He is now completing his M.D. at Cornell University Medical College.

JAMES G. KRUEGER

Allan R. Goldberg

Jim Krueger entered my laboratory the summer after his sophomore year at Princeton and was accepted as a graduate student after his junior year. His first project was to determine the intracellular localization of the transforming gene product pp60^{src}, encoded by Rous sarcoma virus, an RNA tumor virus. Using cellular fractionation and immunofluorescence microscopy, he localized the transforming protein on the plasma membrane of Rous sarcoma virus-transformed cells. The two resulting papers satisfied his Princeton senior thesis requirements. From the beginning, it was apparent that Jim was not only a superb scientist, but an imaginative and talented chef, and his laboratory work was a veritable feast. For the appetizer, he prepared a model of transformation, hypothesizing that pp60^{src} interacts with plasma membranes as an integral membrane protein through a hydrophobic domain located within eight kilodaltons of its amino terminus. To test this idea, Jim, Ellen Garber, a postdoctoral fellow, and I collaborated with Dr. Hidesaburo Hanafusa. The result was the entree of the feast, the essential ingredients of which included two recovered avian sarcoma viruses encoding size-variant pp60^{src}s with alterations within the amino terminal hydrophobic domain. Jim's experiments showed that the src protein of these viruses did not bind to the plasma membrane as an integral protein, as did the wild-type pp60^{src} protein, but behaved as a peripheral membrane protein. It became clear that membrane binding of the src protein correlated with oncogenic potential. Conversely, those src proteins that were unable to bind to membranes as integral proteins were unable to maintain the transformed state or to form tumors in vivo. Jim demonstrated that lipid binds to the amino terminal portion of the src protein, and that the reduced oncogenic potential of the size-variant pp60^{src}s appears to correlate with decreased lipid bound to their amino termini and to their restricted membrane interaction. His results thus suggested that the structural membrane binding domain of pp60^{src} serves a functional role in cellular transformation. The dessert of the repast included the demonstration of in vitro phosphorylation reactions using isolated membrane fractions to show that pp60^{src} directly phosphorylates a number of membrane proteins on tyrosine residues. These results suggest that pp60^{src} may transform cells through phosphorylation of membrane substrates, leading to altered growth and differentiation of these cells. Jim began a collaboration with Dr. Martin Carter that has influenced his decision to enter the field of investigative dermatopathology on completion of the M.D.-Ph.D. program at Cornell.

KRUEGER



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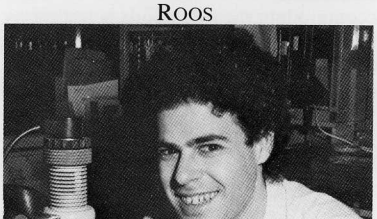


DAVID S. ROOS

Purnell W. Choppin

Cell fusion is an important event in many biological processes. For a number of years, our laboratory has studied how and why viruses such as measles cause cell membranes to fuse and what the consequences of that fusion event are. Cell geneticists had previously used the ability of viruses to fuse cells as a means of mixing the genes of two different cell types. Then, about a decade ago, a chemical, polyethylene glycol (PEG), was found to be very effective in causing cell fusion and became widely used. David Roos joined our laboratory because of our interest in the mechanism of cell fusion and he addressed the question of how PEG causes it to happen. With great effort and skill, he isolated a graded series of cell lines which exhibited increasing degrees of resistance to fusion. Thus, David had, for the first time, genetically stable cells derived from a single parental cell type which differed in fusibility. He then analyzed them for chemical correlation of their biological behavior. We had suspected that a difference in the proteins on the surface of the cells would be responsible. To our surprise, David found no consistent significant difference in cell proteins. What he did find was a striking difference in the lipid composition of the cells. Resistance to cell fusion by PEG correlated with a high content of saturated fatty acids, whereas susceptibility to

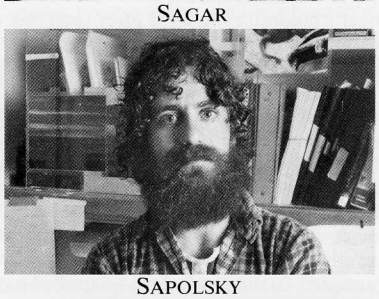
fusion correlated with a high content of unsaturated fatty acids. In a series of elegant experiments, he confirmed the importance of these differences by changing the fatty acid composition of cells and showing that he could predictably alter their susceptibility to fusion. He also found that resistance to cell fusion correlated with a high concentration of a mysterious lipid which he subsequently identified as an unusual ether lipid. In searching the literature, he learned that it had been found in several different types of tumors. This led him to study the ability of these cells to cause tumors, because he had in his hands a unique tool—a series of cell lines of known different lipid composition—which had been selected by a procedure totally independent of tumor formation. He injected the cells into mice and obtained striking evidence that the cells with a high concentration of the ether lipid induced more tumors, which grew much more rapidly, were more invasive locally, and spread to other organs. Thus, starting from an interest in cell fusion, David obtained conclusive evidence for a correlation between the lipid composition of cells and their ability to cause cancer. He also analyzed his cell lines for resistance to fusion by viruses and found a correlation between lipid composition and virus-induced cell fusion. Further, he obtained exciting preliminary evidence for a correlation between cell lipid composition and the control by the host cell of the process of assembly of the virus particle, which has opened another new avenue of research. David will go to Stanford for a postdoctoral fellowship.

ANURAG D. SAGAR

Pravinkumar B. Sehgal

Interferons represent a group of proteins called into play when viruses invade the body. Interferons render cells resistant to virus infection. In recent years, it has been realized that interferons may play an important role not only in the treatment of virus infections but also in the management of certain forms of cancer and even of AIDS. It has also become clear that there exist different kinds of human interferons with different efficacies in the treatment of different diseases. Thus, a great deal of effort has been put into the detection and characterization of the human interferons. Most readers of publications such as The New York Times, Newsweek, and Time are veritable experts on the molecular cloning and expression of human interferon genes. These experts will recall that all the classical interferon genes characterized using recombinant DNA procedures reside on chromosomes 9 and 12. Anurag Sagar's thesis research has added a new dimension to the study of the human interferon genes. Using simple and elegant experimental procedures, she uncovered evidence for the existence of novel interferon genes on chromosomes 2 and 5. Perhaps rediscovered is a better term. A rather exciting moment during the research came when she was able to tie in her experimental observations to those of Dr. Frank Ruddle, who 10 years ago had suggested that functional human interferon genes reside in chromosomes 2 and 5. She then went on to help clone a piece of DNA corresponding to the interferon locus on chromosome 2, and in the process uncovered yet another interferon-related DNA clone that resides on a chromosome other than 2, 5, 9, or 12. Her research demonstrated that the inventory of the human interferon genes is still incomplete. A major outcome of her research is the realization that DNA in the interferon locus on chromosome 2 undergoes somatic rearrangement in a B lymphoblastoid cell line. Although at the present time we do not understand the full ramifications of this observation, we do know that it has already radically altered our thinking about the structure of human interferon genes. Prior to coming to Rockefeller, Anurag was a Fellow of

SAGAR



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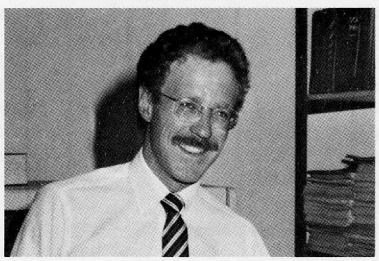


SNOW

the Indian Council for Agricultural Research at the Jawaharlal Nehru University in Delhi. It comes as no surprise then that she will now do postdoctoral training at the Carnegie Institute for Plant Biology at Stanford.

ROBERT M. SAPOLSKY

Lewis C. Krey

When exposed to different stressors, our bodies adapt by modifying the secretion of several hormones. One critical component of this endocrine response, elevated glucocorticoid release by the adrenal glands, results from the activation of the brain-pituitary-adrenal axis. Robert's thesis research focuses on the influences of aging on the stress response of this neuroendocrine complex. He finds that aged rats have difficulty turning off corticosterone secretion after a stress has ended. This dysfunction is but one aspect of a more generalized corticosterone hypersecretion syndrome, which results from the loss in ability of corticosterone to inhibit its own release. Using biochemical and autoradiographic procedures to examine cells that contain glucocorticoid receptors, he has traced the cellular origin of this endocrine deficit to the "death" of certain neurons in the hippocampus of the brain. The demise of these neurons is the consequence of cumulative exposure to glucocorticoids throughout life and is accelerated by prolonged periods of stress-induced corticosterone release. Hippocampal neurons containing glucocorticoid receptors were identified approximately 15 years ago. Robert's research provides the first definitive demonstration of their biologic functions: the physiologic control of adrenal secretory activity. More importantly, his findings suggest that the study of these neurons at a cellular level may provide information about the etiology of stress-induced pathologies and aging-related neuron death, biomedical problems of particular interest today. In addition to his thesis research, Robert has maintained a five-year field study to examine how psychoneuroendocrine factors and aging influence the endocrine functions of a troop of feral baboons living on the African veldt. That he was able to interdigitate the goals of these projects is a tribute to his scientific curiosity and initiative. That he was able to accommodate their demands is testimony to the seemingly boundless pool of energy he possesses. Robert will return to Africa and his baboons this summer and fall. Then he will join Dr. Wylie Vale's laboratory at The Salk Institute to study the influences of stress and aging on neurosecretory processes.

GREGORY R. SNOW

Konstantin A. Goulianos

The investigation of the properties of light has played a key role in understanding the physical laws of our universe. The controversy over the wave versus particle nature of light gave birth to quantum mechanics, and the discovery that the speed of light is constant, independent of the motion of the light source, led to the theory of relativity. In recent times, research on light has focused on questions concerning the internal structure of the quantum of light, the photon. For over 100 years, photons were thought to have no internal structure. They were viewed as quanta of energy with zero rest mass, traveling with the maximum speed allowed in the universe, and interacting only with electrically charged particles through the feeble electromagnetic force. However, on studying the behavior of very high-energy photons produced in modern particle accelerators, it was discovered that at the level of a fraction of a percent, they also interact strongly like protons, neutrons, and pions. Through their strong interaction, photons acquire internal structure; and although they are massless, in the presence of matter they can convert into particles with mass. The spectrum of these particles, the excited states of the photon, represents in some sense a snapshot of the photon's internal structure. A few of these states have been known for some time. In his thesis experiment, Gregory Snow studied the complete excitation spectrum of the photon. Careful analysis of this spectrum revealed important aspects of the structure of the photon and its interaction with hadronic matter. After such giants of physics like Huygens, Newton, and Einstein did their research on light, Greg still found something exciting to do in this field; and he did it well. As our first student, he became the life of our laboratory, and we felt unhappy as the time of his graduation approached. However, he offered to stay with us as a postdoctoral fellow and is now working on an experiment at the European Center for Nuclear Research, in Geneva, Switzerland.

EDMUND K. WALLER

Edward Reich

Ned Waller came to Rockefeller from Harvard by way of the M.D.-Ph.D. program and joined our laboratory soon after his arrival. Here his research extended into a number of different areas: at first he showed, together with Dr. Jay Valinsky, that the neural transmitter acetylcholine was formed in early, nonneural tissues of the chick embryo. His next project was a study of proteins in blood plasma that act to inhibit the enzyme urokinase. The main body of his thesis research concerned tissue plasminogen activator, an enzyme that is now the focus of considerable attention. There is good reason to think that this enzyme could be used successfully to dissolve clots in serious forms of thrombosis such as those that produce heart attacks and strokes. The obvious commercial potential also makes this enzyme the golden fleece for virtually every recombinant DNA factory in the world. Waller purified the enzyme and prepared antibodies directed against it; he cloned the cDNA for the human enzyme and used it to isolate and study a cDNA clone for the homologous rat enzyme; and he investigated the way in which both some rat and human cells regulate the production of the respective enzymes. His work provides the starting point for more detailed studies on regulation. Ned is endowed with an unusual talent that makes intellectual tasks easy. He has a wide range of interests; he is versatile and adaptable; he has an open, receptive mind and a stimulating imagination. Most important, he is able to grasp a wide range of concepts and to integrate apparently diverse phenomena at different levels of complexity and

of biological organization. Ned will now return to Cornell, where he is completing the medical component of the combined program.

TAI WAI WONG

Allan R. Goldberg

Evincing the quiet confidence of the real pioneer, Tai Wai Wong left his home on the island of Macao after graduation from high school to come to the United States, to Muhlenberg College. He came to Rockefeller in 1978 and joined Bruce Merrifield's laboratory, where he learned peptide chemistry and completed the chemical synthesis of the peptide thymosin alpha$_1$. Striking out for new territory, he joined Dr. William Bowers' group to test whether the synthetic peptide possessed any interesting biological properties, carrying out experiments on the effects of thymosin alpha$_1$ on the physiology of T lymphocytes. He then became interested in the nature of the cancer cell and the genes and gene products responsible for maintaining the transformed state. This time his Conestoga wagon made a final move and encamped in my laboratory. Bringing to bear the considerable protein chemistry skills he had learned in the Merrifield lab, Tai synthesized by the solid-phase method a decapeptide fragment corresponding to the tyrosine phosphorylation site in the transforming gene product pp60^{src}, encoded by the RNA tumor virus Rous sarcoma virus. He raised antibodies to that peptide and demonstrated that they could recognize not only pp60^{src} but also the transforming protein p90 encoded by Y73, another RNA tumor virus. This result was unexpected because hybridization analysis had indicated that Rous sarcoma virus and Y73 virus share little nucleic acid homology. In addition, he showed that the antipeptide antibodies were reactive with a number of cellular proteins. It is likely that those proteins are either substrates of tyrosine protein kineses or kinases themselves. Tai devised new assays for tyrosine protein kinases using tyrosine-containing peptides that lacked serine and threonine as substrates. He then used these substrates to identify, purify, and characterize several tyrosine protein kinases from normal cells. For the first time, it was possible to identify such enzymes in cells by a non-immunological method. One such enzyme was purified to near-homogeneity from rat liver. Tai's efforts make it possible now to determine the metabolism of tyrosine protein kinases in normal cells and to investigate how tumor virus-encoded tyrosine protein kinases affect those metabolic pathways. His groundbreaking will keep our laboratory scientifically occupied for several years. Moving westward, like all true pioneers, Tai has begun postdoctoral studies at Stanford University Medical School.

HONORARY DEGREES

BROOKE ASTOR

David Rockefeller

One of the most significant tests of a single life is the number of ways it reaches out to enrich the lives of others. By that measure, Brooke Astor is an overachiever—as public-spirited citizen, as imaginative patron of the arts and sciences, and as compassionate supporter of efforts to lift the sights, broaden the opportunities, and enhance the lives of the people of New York City and beyond. In her deep commitment to human welfare, she has reached out to the foundling, the disturbed child, the homeless youth, the indigent older citizen. Her inspiration and generosity have helped to bring beauty to our urban landscape and to revitalize and rebuild entire neighborhoods. It has been truly said of Brooke Astor that no one has done more to make New York City a better place to live and work and play. All this she has achieved with zest and grace. The list of institutions that have had the financial support of The Vincent Astor Foundation and the abiding interest and enlightened counsel of its dynamic president constitutes an honor roll of the creative, intellectual, and cultural environment of this great city. The Rockefeller University is fortunate to be in that number. Since joining our board of trustees in 1972, Brooke Astor has been a perceptive associate in our efforts to sustain excellence, a stimulating participant in University affairs, and an eloquent advocate of the University's scientific mission. Her advocacy and support of the biomedical sciences, in fact, embrace neighboring institutions with which the University interacts. She has made it a point of getting to know, in depth, the significance of the work in progress within this remarkable complex of research and healing on York Avenue. The professorial chairs she has endowed at this University, through The Astor Foundation, will be a perpetual contribution to biomedical research on many scientific frontiers. She has shown equal concern for nurturing the scientific leaders of tomorrow by her support of the University's graduate study program. Particularly significant has been the impact of her enlightened interest in advancing the neurosciences on this campus through endowed chairs, support for young investigators, and capital funds for facilities devoted to research in this field, present and future. Cognizant of this impressive record, the board this year named Brooke Astor as the University's first lifetime trustee. Brooke Astor has received many honors from many institutions. The New York Zoological Society once named a baby elephant after her. That we cannot match, but it does give me great personal pleasure to present Brooke Astor for the degree of Doctor of Laws, honoris causa.

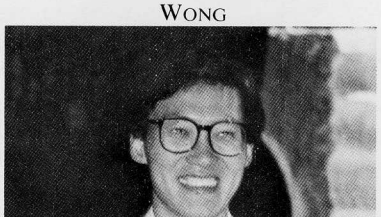
MABEL H. BRIGHT

Maclyn McCarty

At the time that Mabel Hanson Bright first arrived at this site in 1942, it would have been impossible to predict the subsequent course of her career here. The transition from Institute to University was still some years in the future. She served with a number of different members of the faculty during the initial period and, while her extraordinary ability was recognized by all, I do not believe that any of us sensed its full scope. It would require a much greater challenge to make this apparent. This challenge emerged not long after Detlev W. Bronk became the first president of The Rockefeller Institute and started to implement his plans for the development of a program of graduate study. Her participation began when, as Dr. Bronk put it later, he and Tom Rivers "gently stole Mabel Bright from generous but reluctant Frank Horsfall." Dr. Bronk had a number of other important commitments, including the presidency of the National Academy of Sciences and chairmanship of the National Science Board, and he thus had great need for an unusually able executive assistant. In commenting on this period, Dr. Rivers said in 1961 that "Mrs. Bright has made it possible for Dr. Bronk to hold the many jobs and advisory posts that he holds." But it was much more than that. In the course of time, Dr. Bronk had transmitted to Mabel Bright his hopes and visions for a graduate university, and she was able to act almost as an alter ego in fostering the progress of his plans. As the new program was evolving, a myriad of matters were brought to her for solution, and what was remarkable was her ability to cope with them with such consistent effectiveness as well as with charm and good humor. The faculty, students, staff, and members of the auxiliary services all found her accessible and ready to help. The graduate students brought their nonacademic problems, large and small; the faculty their concerns of all kinds, ranging in academic relevance from parking to laboratory space; and the supporting staff came with matters arising from the growth and rapid changes on the campus. Through a felicitous combination of good judgment, wisdom, and common sense, she was usually able to resolve these issues to the satisfaction of all concerned. She unerringly interpreted the intent of Dr. Bronk and was prepared to represent him in making decisions when necessary to avoid dissension or controversy. As assistant secretary of the board of trustees, she proved to be equally adept in her relationships with the members of this governing body. In effect, as Dr. Bronk's executive assistant, she presided over the daily progress of the transition from Institute to University in a way that won the admiration, respect, and gratitude of the entire community. Her almost awesome efficiency was leavened with a personal charm and human quality that put everyone at ease and led each segment of the community to feel that it was getting her special attention. The true significance of Mabel's contribution was best expressed by Dr. Bronk in the words inscribed on the plaque of the chair that was presented to her on her birthday in 1968. It reads, in part: Mabel Hanson Bright, a cofounder of The Rockefeller University.

WALLER

WONG



JAMES G. HIRSCH

Zanvil A. Cohn

James Hirsch is honored today for his many contributions to The Rockefeller Institute for Medical Research and The Rockefeller University. Physician, investigator, educator, author, and statesman of science, his talents have touched upon a full spectrum of responsibilities. Trained as a chemist and clinician at Yale, Columbia, and Barnes Hospital, he arrived in the laboratory of René Dubos as a National Research Council Fellow in 1950. For many young physicians, the early days of apprenticeship do not bolster the ego. However, in Jim's case, contributions followed rapidly in fields as diverse as the therapy of human tuberculosis and the analysis of antibacterial peptides. Soon his laboratory became a nucleus for those investigators who wished to understand the cell biology of the immune response. Cell fractionation, cinematography, and electron microscopy became part of his armamentarium, and the white blood cells his targets. These studies set the groundwork for all that was to follow. In 1972, he was tempted to take on the additional task of dean of graduate studies. This was an era of solidification and rededication to the principles of graduate education. Jim brought to this position the wisdom of a good physician and the breadth of the seasoned investigator. Student programs thrived and the M.D./Ph.D. program was firmly established. Honors, organizational commitments, and academy work followed at a rapid pace. Heeding the adage "It is better to give than to receive," he accepted the presidency of the Macy Foundation, where he now reigns over their connected town houses on East 64th Street.

PRESIDENT'S COLUMN (continued from page 1)

has achieved an unparalleled record. As I do every June, I marveled anew at commencement at the quality of accomplishment of this year's graduates, not to mention the eloquence of their advisors' presentations. It was also a very special pleasure that day to confer honorary degrees on three who have done so much to keep this institution lustrous: Brooke Astor, steadfast supporter of so much that makes New York viable and our first Life Trustee, Mabel Bright, wise and witty mother of the graduate program, and James Hirsch, a distinguished scientist who in his years as dean was responsible for scouting out with unerring discernment the best and brightest for our student ranks.

This university, so small compared to most, enjoys an intimacy, flexibility, and collegiality that have been enormously positive factors in our success. But because we are small in number we suffer with particular pain the loss of our own. Many of us remarked the absence in the academic procession of Elaine Diacumakos, who always marched with such pride. The next morning we learned of her untimely death, at 53, of a heart attack. Another whose absence was keenly felt was Henry Kunkel, who died last December. If our students learn by example, there was surely no more excellent model.

And because the university is small, every member of its community, whether a scientist in a laboratory or a worker in an office, on the grounds, or in the shops, performs an essential function. The contributions of the support staff have been especially critical during these last few years as the campus has undergone major reconstruction and the preparation of new laboratories. I want to take this opportunity to reiterate my heartfelt appreciation. Mrs. Lederberg and I wish you all a healthy, happy summer. □

Den Mother

In responding to the invitations to their first reunion, held this June, the most frequent question Rockefeller alumni asked was, "Is Mrs. Bright going to be there?"

Not only did Mrs. Bright attend the celebration of the quarter-century since the University bestowed its first degree, the University bestowed an honorary degree on her.

Mabel Bright spent 35 years at Rockefeller before her retirement in 1977. During those years, the Institute became a University, an event in which she played a unique and pivotal role. From 1954 on, her title was executive assistant to Detlev W. Bronk, the University's first president and founder of the graduate studies program. Her title for herself was den mother. As Professor Bruce McEwen, a Rockefeller alumnus, has put it, "Mabel Bright made it all happen."

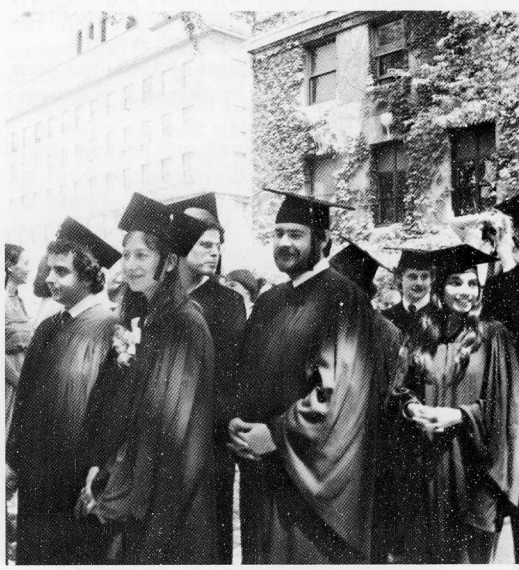
The graduate program was, she says, "the most fulfilling role of my life," but she confesses that at first "I was as scared as the kids. I'll never forget the day the first two students arrived on campus two months earlier than expected. Dr. Bronk was in Europe and I hadn't a clue what to do with them. The Yankees were in town and all I could think was to ask if they'd like to go to the game."

For the many young people who were to arrive over the years, Mabel Bright "smoothed the way when things got rough," as Dr. McEwen said. "For the prospective student on campus for an interview, she quickly provided warmth and comfort. For those of us fortunate enough to become students, she was always a genuine friend and supporter."

In addition to her duties with the graduate program and assisting Dr. Bronk and the board of trustees in many other areas, she also, as no one can forget who witnessed it, played "mother" to Aristotle, an owl who lived in Dr. Bronk's office and whom she kept fed with live mice. To maintain such a schedule, one obviously must be efficient. Mabel Bright says she saved a lot of time traveling from Dr. Bronk's Flexner Hall office to Founder's Hall by means of a short-cut along the window ledge.

In retirement, she has swapped window ledges for a tractor, astride which she maintains the grounds of her Petersburg, New York home, when she's not playing golf or splitting logs. She adds, ruefully, that she decided she'd better give up the chain saw after she felled a tree that "didn't fell right."

Among the family members on hand in Caspary Auditorium to applaud Mabel Bright on commencement day were her sister, Mrs. Sid Reeve, two sons of the late Detlev and Helen Bronk with their wives, and many very proud Rockefeller sons and daughters. □



Elaine Diacumakos Dies

Elaine G. Diacumakos, senior research associate and head of the University's laboratory of cytobiology since 1976, died of a heart attack at her home during the night of June 11. She was 53 years old.

A cell biologist who pioneered in cell microsurgery, she had just been honored, on June 6, for her research contributions by the Association for Women in Science.

On the Rockefeller campus, Dr. Diacumakos was admired for her science and for her concern for this community. She served as president of the tenants' association of Faculty House, where she lived with her husband, James Chimonides, and on the boards of the Rockefeller University Children's School and the Faculty and Students' Club. In the words of Vice President David J. Lyons: "Elaine Diacumakos cared deeply about the quality of campus life and the welfare of all University staff members. Her advice and participation were frequently sought, and she always gave generously of her time and made enthusiastic and valuable contributions."

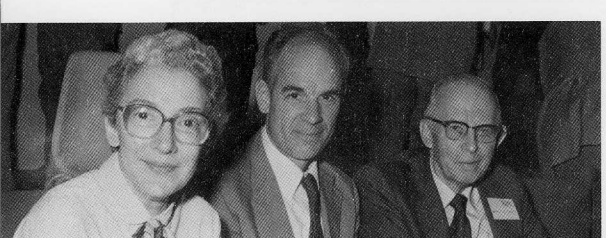
Born in Chester, Pennsylvania, on August 11, 1930, Elaine Diacumakos earned a B.S. degree at the University of Maryland and M.S. and Ph.D. degrees in cell physiology at New York University. She first came to Rockefeller as a postdoctoral fellow between 1962 and 1964. After working at Sloan-Kettering Institute and Cornell University Medical College, she returned to the University in 1971 at the invitation of Nobel laureate Edward Tatum, an association that continued until Dr. Tatum's death in 1975.

Dr. Diacumakos refined techniques involving the use of glass microneedles and micropipettes, maneuvered with mechanical positioners as she looked at cells under very high microscopic magnification. In addition to adding material to cells and transplanting nuclei from one cell to another, she was able to inject material, such as viruses, into cell nuclei and other minuscule cell parts. She also developed means for fusing two cells of the same or different types, forming a bridge between them with a microneedle.

A collaboration with Dr. W. French Anderson of the National Institutes of Health, reported in 1979, achieved the first insertion of a functioning gene into a living cell of a mouse, correcting a genetic defect in the cell. This work was hailed as an important contribution toward the long-range goal of developing cures for human genetic diseases.

Dr. Diacumakos was frequently asked to teach her techniques at other institutions, including the Pasteur Institute in Paris in 1981. She also served as an Expert Consultant to the Molecular Hematology Branch of the National Heart, Lung and Blood Institute.

Mr. James Chimonides wishes to express his thanks and appreciation to the many faculty, students, and other staff members of the University who sent their condolences. □



Elaine Diacumakos with, from left, Peter Sellers and Merrill Chase, at the June 11 alumni reunion.

ALUMNI BRIEFS

Statistics compiled for this year's reunion revealed that the University's 430 alumni (excluding this year's graduates) are located in 36 states and 15 foreign countries, at 111 universities and at various other institutions. Understandably, their activities are not always easy to keep up with. *news and notes* would like to hear about and report on major appointments, awards, and honors achieved by Rockefeller alumni. For example, we have learned that:

Caleb E. Finch, class of 1969, professor of gerontology and biological sciences and adjunct professor of neurology, University of Southern California, has won the 1984 Robert W. Kleemeier Award of The Gerontological Society of America for his pioneering research and leadership in the neurobiology of aging.

Physicist **Theodore Kirkpatrick**, class of 1981, assistant professor, University of Maryland, was one of 200 recipients of the first National Science Foundation Presidential Young Investigators Awards.

Guido Guidotti, class of 1963, has been appointed Higgins Professor of Biochemistry at Harvard.

Three Rockefeller alumni became chairmen at the Yale University School of Medicine within the past year: **James D. Jamieson**, class of 1966, was appointed chairman of the Department of Cell Biology, succeeding George E. Palade, adjunct professor and former laboratory head at Rockefeller. **Carolyn W. Slayman**, class of 1963, was named chairman of the Department of Human Genetics. The first woman to head a department at the medical school, she succeeds Dr. Leon Rosenberg, who has become dean. **Charles F. Stevens**, class of 1964, was appointed chairman of a new Section of Molecular Neurobiology.

Please send Alumni Briefs to *news and notes*, Box 194; or call (212) 570-8968.

10 Years of Cass Fellowship

This year marks the tenth anniversary of the Albert Cass Traveling Fellowship, established in memory of Albert Cass, a 1968 Rockefeller graduate. Dr. Cass was serving as an assistant professor in the Department of Biology at Dartmouth College at the time of his death in 1974.

The fellowship, currently $1,250, is awarded annually to one or two medical or graduate students, selected by representatives from the institutions where Albert Cass pursued his research studies and by an advisor from Yale University School of Medicine. Only students from those schools—The Rockefeller University, Albert Einstein College of Medicine, Dartmouth College, and the University of Copenhagen—are eligible. Professor Alexander Mauro, who was Albert Cass' research advisor, is Rockefeller's representative.

The fellowship has been awarded to two students this year: Jerome Parness of Albert Einstein and Susan P. Gilbert of Dartmouth. Rockefeller recipients have included Michael L. Brines, Robert Sapolsky, and Shelley Halpain. □

Alumni children.

President Lederberg, center, with Gerald Edelman, left, and David Baltimore.

Reunion committee members, from left, Mary Rifkin, Anthony Cerami, and Christopher Walsh, co-chairman. Other committee members were co-chairman John Hildebrand, John Bruer, Alice Gottlieb, Darcy Kelley, and David Luck.

Adjunct Professor George Palade, se at the cell biology colloquium, moderated by David Luck, standing.

Honorary degree recipient James Hirsch with his wife, Beate, and daughter, Rebecca.

President Emeritus Frederick Seitz with Bright, right, and Mrs. Seitz.

BRIEFS

Professor **Purnell W. Choppin**, Virology, and vice president for academic programs, gave the Louis Weinstein Lecture at Tufts University Medical School, March 16, where he spoke on The Role of Viral Membrane Proteins in Pathogenesis. He also gave the Campione Lecture at Northwestern Medical School, March 27. His topic was The Role of Paramyxovirus Membrane Proteins in the Pathogenesis of Acute and Chronic Diseases.

Professors **Floyd Ratliff** and **Robert M. Shapley**, Biophysics, were speakers at the Symposium on the Visual Arts and the Visual Sciences held by the American Philosophical Society in Philadelphia, April 20. Dr. Ratliff, who organized the symposium, spoke on Contour and Contrast: From Cave Painting to Cambridge Psychology, and Dr. Shapley spoke on How We Use Contrast to See Brightness and Form. Dr. Shapley also gave an invited lecture, Information Processing in the Mammalian Central Visual Pathway, at the Annual Conference of the National Institute of Basic Biology in Okazaki, Japan, on February 29.

City Science Commission

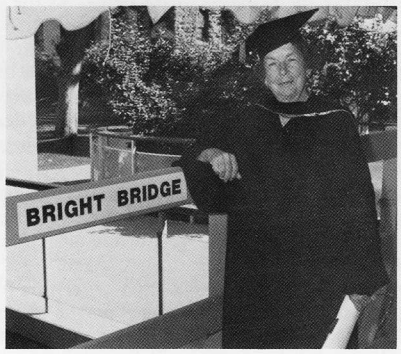
Mayor Edward I. Koch announced on May 14 the establishment of a New York City Commission for Science and Technology. Its 21 members, drawn from various scientific fields, include President Lederberg, President Emeritus Frederick Seitz, and Professor Joel E. Cohen.

The Commission's vice chairman is William T. Golden, a fellow and governor of the New York Academy of Sciences, treasurer and director of the American Association for the Advancement of Science, and a member of The Rockefeller University Council.

The commission will serve "to encourage the growth of scientific and technological activities" and will nominate individuals who will be selected by the Mayor to receive an annual Award of Honor for Science and Technology. □

Edith Chvatal, who retired from the nursing staff on May 1, has asked *news and notes* to extend thanks to her friends and colleagues for the retirement gift and party held for her on April 26.

Under the tent, north esplanade, June 11.



A temporary bridge put up between Abby Aldrich Rockefeller Hall and the north esplanade, scenes of alumni reunion activities, was appropriately named for alumni "mother" Mabel Bright.

Alumni reception, Tower Plaza, June 11.

ALUMNI REUNION

(continued from page 1)

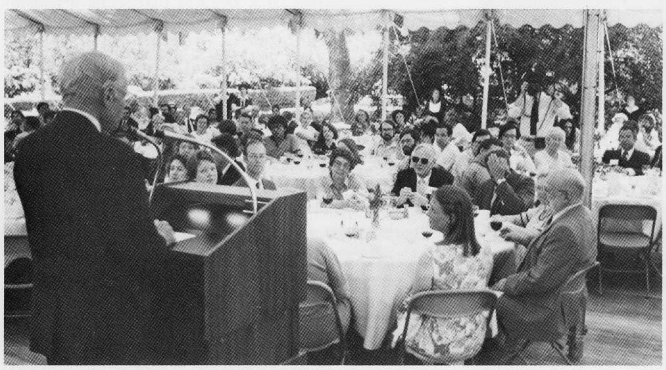
oratory of molecular and developmental biology, and David Baltimore, director of the Whitehead Institute for Biomedical Research at MIT, on aspects of their research careers. Both began with reminiscences of student days, Dr. Edelman, class of 1960, recalling an atmosphere of individuality and freedom "sometimes comical and sometimes terrifying," and Dr. Baltimore, class of 1964, "days of such intensity and scientific excitement." Both went on to receive a Nobel Prize, Dr. Edelman in 1972 and Dr. Baltimore in 1975.

President Lederberg concluded the morning's program with an overview of current programs and future plans. Stressing the continuing mission "to provide the most effective possible environment for scientific inquiry," he described the University as "a magnet for people with a burning passion to know," asserting that "for those with that passion, there is no better place."

The afternoon's program consisted of scientific colloquia presided over by alumni. They were: Experimental Medicine, Alice Gottlieb, moderator, with Edward Reich, Barry Bloom, Bernard Mach, and Carol Rouzer; Neurobiology and Behavior, John Hildebrand and Darcy Kelley, moderators, with Arthur Karlin, Charles Stevens, Lee Rubin, Carl Hopkins, and James Gould; Cell Biology, David Luck, moderator, with Aaron Shatkin, K. Peter Walter, Ann Hubbard, and Harvey Lodish; and Science, Values, and Risk: Scientists and Public Policy, John Bruer, moderator, with William Lowrance, Glenn Paulson, and Elena Nightingale.

A reception and dinner followed by a dance under the tent on the north esplanade rounded out the day's festivities. Commencement the next afternoon was preceded by a lunch at which Dr. William O. Baker, current chairman of the University's board, led the assembly in toasts to Professor Fritz Lipmann on his 85th birthday and David Rockefeller on his 69th. □

Fritz Lipmann, right, celebrating his 85th birthday at lunch June 12 with alumnus John G. Hildebrand III.



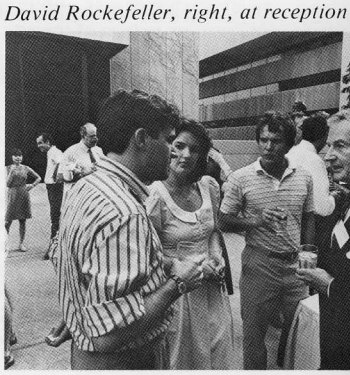
William O. Baker at lunch, June 12.

Preside Lederb convoc process

Clarence Connelly, left, with alumnus David Forman.

Mr. and Mrs. Adrian Bronk, left, and Mr. and Mrs. Mitchell Bronk.

David Rockefeller, right, at reception

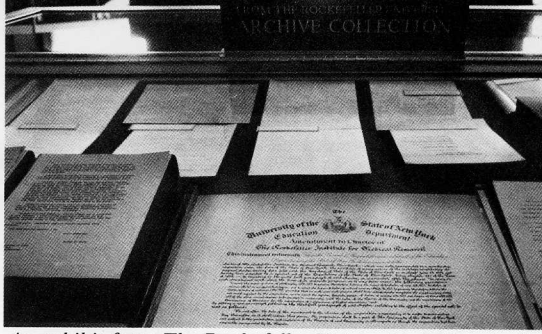


Brooke Astor and David Rockefeller at lunch, June 12.

From left, Frank Brink and Maclyn McCarty.

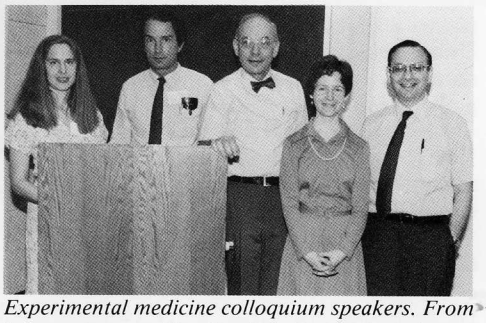
Cell biology colloquium speakers. From left, Harvey Lodish. Ann Hubbard, moderator David Luck, Aaron Shatkin, and K. Peter Walter.

Neurobiology and behavior colloquium speakers. From left, Arthur Karlin, Lee Rubin, Charles Stevens, moderator Darcy Kelley, Carl Hopkins, and moderator John Hildebrand.



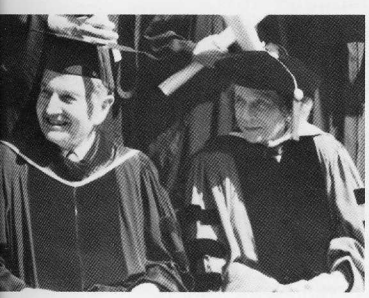
An exhibit from The Rockefeller University Archive's, To Carry Forward the Love of Learning, in honor of the 25th versary of the University's first degrees, is on display in th brary through the summer. Shown is the Amendment to th Charter of The Rockefeller Institute for Medical Research, dated November 18, 1954, which granted permission to aw the Ph.D. degree.

Public policy and risk assessment colloquium speakers. From left, moderator John Bruer, Elena Nightingale, William Lowrance, and Glenn Paulson.



Experimental medicine colloquium speakers. From left, moderator Alice Gottlieb, Bernard Mach, Edward Reich, Carol Rouzer, and Barry Bloom.

Alumni reunion dance, June 11.



Post-commencement smiles: David Rockefeller and Brooke Astor.

Thomas Drohan Dies

Thomas E. Drohan, a member of The Rockefeller University board of trustees since 1981, died of cancer at Marin General Hospital in San Rafael, California, on May 4 at the age of 56.

A resident of Kentfield, California, Mr. Drohan was president and chief executive officer of the McKesson Corporation. He also served as director or trustee of several business and private organizations, including Transamerica Corporation, California Canadian Bank, California State Chamber of Commerce, and The Advertising Council. □

Speakers at AAAS

Trustee David A. Hamburg, president of the Carnegie Corporation of New York and president-elect of the American Association for the Advancement of Science, delivered a Presidential Lecture, Science in a World Transformed, at the Association's annual meeting, held May 24–29 in New York.

At the meeting, Executive Vice President Rodney W. Nichols presided over three sessions: Politics, Scientists, and Truth; What Limitations on Professorial Relations with Industry?; and Nuclear Arms Control: Assessing the Current Proposals and Negotiations. He also was a discussant at a session on Moving Ideas and People: The Influence of Mobility of Scientists and Engineers on Industrial Innovation.

Rockefeller scientists who presented papers were Joel E. Cohen, who spoke on Heterogeneous Populations and the Limits of Multivariate Statistics; Nathaniel Heintz, on Regulation of Gene Expression During Cell Division; Rudolph L. Leibel, on New Developments in Human Nutrition; Neal E. Miller, on Science for the Naked Eye; Lee L. Rubin, on Nervous System Development: Neurochemical Regulation of Muscles; Peter H. Sellers, on Some Mathematical Questions in Biology—DNA Sequence Analysis; and Robert M. Shapley, on Mysterious Effects of Contrast in Vision. □

HONORS & AWARDS

Professor **Günter Blobel**, Cell Biology, and Rockefeller University Council member **William T. Golden** were elected to membership in the American Academy of Arts and Sciences, May 9.

Adjunct Professor **William S. Hayward**, Viral Oncology, head of the Molecular Genetics and Oncology Laboratory of Memorial Sloan-Kettering Cancer Center, has been named to the Center's Vincent Astor Chair.

Professor **Jules Hirsch**, Human Behavior and Metabolism, was presented the 20th annual McCollum Award by the American Society for Clinical Nutrition at its annual meeting, May 4, in Washington, D.C. He has also recently been appointed a member of the Society of Medical Consultants to the Armed Forces.

President Lederberg received an honorary doctor of science degree from New York University at its commencement ceremonies on May 24. The presentation was read by Dr. David Sabatini, professor of cell biology and a 1966 Rockefeller graduate.

Rockefeller University Council member **Gustav O. Lienhard**, chairman of the Robert Wood Johnson Foundation, was awarded the 17th Annual Achievement Award of the New Jersey Hospital Association, April 12.

Professor **Bruce Merrifield**, Biochemistry, received an honorary doctor of sciences degree from Boston College, May 21.

Adjunct Professor **Robert K. Merton**, Special Service Professor and University Professor Emeritus, Columbia University, was awarded an honorary Litt.D. degree by the Board of Regents of the University of the State of New York at ceremonies marking its bicentennial, May 24.

Professor **Fernando Nottebohm**, Animal Behavior, was awarded the 1984 Pattison Prize in Neuroscience by the Institute for Child Development Research, April 17. Dr. Carl W. Cotman, University of California, Irvine, was co-recipient.

Trustee **Norman F. Ramsey**, Higgins Professor of Physics at Harvard University, was presented the 1984 Medal of Honor of the Institute of Electrical and Electronic Engineers at its 100th anniversary meeting in Boston, May 13.

President Emeritus **Frederick Seitz** received an honorary doctor of science degree from the University of Rochester at its 134th commencement, May 6.

PERSONALS

Born June 18 to Professor **Karl E. Anderson**, Metabolism-Pharmacology, and his wife, Carol, formerly senior radiologic technologist at the Rockefeller Hospital and now chief technologist at Manhattan Eye, Ear and Throat Hospital, a son, Matthew Dana, their first child.

Denise Coiro, administrative dietician, Hospital, was married to Henry Bevilacqua, an architect with SCR Design Organization, June 10.

PROMOTIONS

Bernard Grossman, Theoretical Physics, to assistant professor, effective June 1.

Ben A. Murray, Developmental and Molecular Biology, and **David N. Posnett**, Immunology, to assistant professor, effective July 1.

Cecilia G. Unson, Biochemistry, to assistant professor, effective April 1.

1984-85 Concert Schedule

The Rockefeller University Concerts for 1984-85 will be presented in two series on Wednesday evenings at 8 in Caspary Auditorium, with the exception of Tuesday, October 23.

Series A: Carter Brey, cellist (October 10); Norwegian Chamber Orchestra (October 17); Nadja Salerno-Sonnenberg, violinist (November 7); Leona Mitchell, soprano (December 12); Paratore Brothers, duo-pianists (February 6); Chamber Music Society of Lincoln Center (March 13); Beaux Arts Trio (March 27); Christopher Parkening, guitarist (April 24).

Series B: Igor Kipnis, harpsichordist (October 23); Jorge Bolet, pianist (November 14); Guarneri String Quartet (November 28); Oscar Shumsky, violinist (January 30); Munich Chamber Orchestra (February 20); Czech Chamber Soloists (March 20); Panocha String Quartet (April 10); Boston Symphony Chamber Players (May 1).

Tickets can be purchased for either series, at $72 each, or both, at $144, from the accounting office cashier. □

Be Alert

On May 31, two members of the campus community were the targets of a mugging attempt at 6:45 p.m. as they walked on 66th Street between First and Second Avenues. With the help of a shopkeeper and passersby, the suspect was caught and turned over to police.

In the interest of promoting an awareness of safety precautions, the Security Office arranged a lecture on campus June 8 by a detective of the New York Police Department on pickpocketing and related crimes. □

French Street and Hospital

René Dubos, the pioneering microbiologist and Pulitzer Prize-winning author who later became a leader in the environmental movement, began life in the small French town of Saint-Brice-sous-Forêt, northwest of Paris.

In recognition of its world-renowned son, who died in 1982, Saint Brice has placed a plaque on the house where Dr. Dubos was born 83 years ago and has named a street after him, now appropriately turned into a pedestrian mall.

Also, in nearby Cergy-Pontoise, a 1,000-bed medical center, formerly Centre Hospitalier de Pontoise, has been renamed Centre Hospitalier René Dubos.

The plaque in Saint Brice was affixed during ceremonies on June 23, which were conducted by the mayor and attended by Dr. Dubos' widow, Jean, and his brother, Francis, and sister, Madeleine Alcay, both of Paris. The speaker was Dr. Jean-Paul Escande, a prominent French physician and co-author with Dr. Dubos in 1980 of the book, *Quest: Reflections on Medicine, Science, and Humanity*.

Closer to home, the State University of New York at Purchase, where Dr. Dubos was at one time a professor of environmental studies, has established an annual René Dubos Lecture in the natural sciences, co-sponsored by the Purchase College Foundation and the Federated Conservationists of Westchester County. □

de Duve Addresses Council

Andrew W. Mellon Professor Christian de Duve addressed the 23rd meeting of the University Council, held May 25. Presenting "A Guided Tour of the Living Cell," he explained the various cell components and their functions. Dr. de Duve is noted for his discovery of the lysosome, which acts as the cellular digestive system.

At the meeting, Council chairman David Rockefeller announced the appointment of John D. Macomber, chairman and chief executive officer of the Celanese Corporation, as vice chairman.

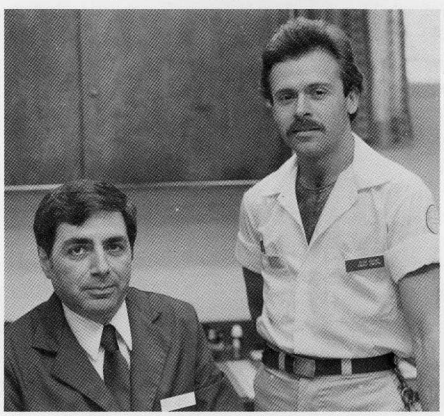
APPOINTMENTS

Jonathan D. Victor, Biophysics, as assistant professor, effective July 1.

Peter Dumiak, right, who retired June 30 after five years as manager of the Faculty and Students' Club, with his successor, Timothy Shea. Mr. Dumiak and his wife, Eileen, have moved to Boulder, Colorado, to join their daughter and her family.

From left, Professor Zanvil Cohn, head of the University's laboratory of cellular physiology and immunology, Mrs. John J. Veronis, president of Irvington House for Medical Research, President Lederberg, and Dr. Stanley Nathenson of Albert Einstein College of Medicine, at a press conference at the University on May 21 to announce Irvington House's expanded program of support for research in immunology, of which Drs. Cohn and Nathenson are the principal investigators.

Cassidy Energy Monitor



Peter Cassidy, right, with Thomas Mineo.

In an effort to decrease energy consumption, Thomas Mineo, supervisor of custodial services, and Thomas P. McGinnity, director of physical facilities, have appointed Peter Cassidy as energy conservation monitor, to survey night-time electrical usage.

Mr. Cassidy, who has been with custodial services for three years, starts his rounds at 9 p.m. checking for lights left on in areas not in use. The entire campus community can cooperate to conserve energy by following these procedures: keep lighting to the necessary minimum, turn off all lights when not in use, turn off air conditioners when not in use, and keep doors and windows closed when air conditioners are not in use. □

DEATHS

Waldo R. Flinn, 84, who joined the University in 1927 and was business manager for many years until his retirement in 1966, on June 11.

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