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news & notes

February 17, 1995 Volume 5, Number 18

The Rockefeller University

Gastroenterologist to give Rufus Cole Lecture and hear talks by clinical scholars

Tadataka Yamada, John G. Searle Professor and chairman of the Department of Internal Medicine at the University of Michigan, will discuss "Physiological Implications of Gastrin Post-translational

Processing" at the Rufus Cole Lecture Wed., Feb. 22.

As a prelude to the lecture, three of the university's clinical scholars will present their work to Yamada Wednesday morning: Assistant Professors Sandra Handwerker, James Krueger, and Steven Shiff.

Yamada studies gastrin, the principal hormonal stimulator of gastric acid secretion. Gastrin is biologically activated by post-translational processing of its precursor, progastrin. Yamada will discuss the mechanisms for the distinct physiological functions of both the substrate and the product of the terminal progastrin processing reaction.

Yamada received an M.D. from New York University School of Medicine in 1971. After completing an internship and residency at the Medical College of Virginia, he became an investigator of the U.S. Army Medical Research Institute of

See **Yamada**, page 2



Courtesy of Tadataka Yamada

Tadataka Yamada will give the Rufus Cole Lecture Wed., Feb. 22.

Academic medicine and managed care is topic at next Cohn forum

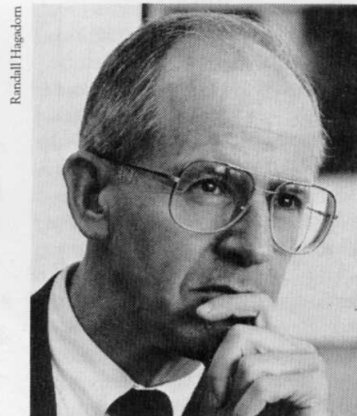
Steven C. Schroeder, president of the Robert Wood Johnson Foundation, will speak at the Zanvil A. Cohn Forum on Health Affairs Tues., Feb. 28. His talk is entitled, "Academic Medicine and the Challenge of Managed Care."

"Steven Schroeder, who began as a research physician, has made important contributions to the logistics of medical practice," said Alexander Bearn, chair of the forum's program committee. "Among his many accomplishments, he established two universi-

ty-sponsored health-maintenance organizations, demonstrating a concern that he brings to his leadership of the foundation, which aims at improving health and health care in the United States."

Schroeder received an M.D. cum laude from Harvard University in 1964. After completing an internship and residency at Boston City Hospital, he became an epidemic

See **Schroeder**, page 4



Randall Hagadorn

Foundation director Steven Schroeder will speak at the Cohn forum Tues., Feb. 28.

McEwen to speak on paradoxical effects of hormones at Friday lecture



RU Professor Bruce McEwen lectures today (Feb. 17) on hormones and stress.

Rockefeller Professor Bruce S. McEwen, head of the Harold and Margaret Milliken Hatch Laboratory of Neuroendocrinology, will speak on "The Neurobiology of Stress: Paradoxical Effect of Adrenocorticoids" today (Feb. 17).

Adrenocorticoids, steroid hormones produced by the adrenal cortex, protect the body against inflammation and autoimmune disorders, but in high doses are known to cause such damage as muscle atrophy, diabetes, and bone decalcification. In the brain, adrenocorticoids play an important role in containing neural responses to stress and modulating the normal plasticity of nerve cells in the hippocampus, a brain area linked to learning and memory. However, prolonged stress and high levels of adrenocorticoids damage these cells. Today McEwen will discuss the link between brain function and its role in determining what is stressful to an individual and how the brain manages the stress response.

McEwen received a Ph.D. from Rockefeller in 1964. After completing a postdoctoral fellowship at the Institute of Neurobiology in Goteborg, Sweden and an appointment as assistant professor at the University of Minnesota, he returned to Rockefeller as an assistant professor in 1966. In 1971, McEwen was promoted to associate professor, and in 1973 was given tenure. He became professor and head of laboratory in 1981. He was associate dean for graduate and

postgraduate studies from 1985 to 1991, and dean from 1991 to 1993.

A fellow of the American Academy of Arts and Sciences, McEwen is also a member of the American Society for Neurochemistry, the Endocrine Society, and the Society for Neuroscience. He has been active on many committees and study sections, and serves on the editorial boards of *Brain Research*, *Experimental Brain Research*, *Journal of Neuroendocrinology*, and *Journal of Neuroscience*. He is the author or co-author of nearly 500 papers, and last fall, with Harold M. Schmeck, Jr., published a book entitled *The Hostage Brain*.

The lecture will be held at 3:45 P.M. in Caspary Auditorium and preceded by tea at 3:15 P.M. All

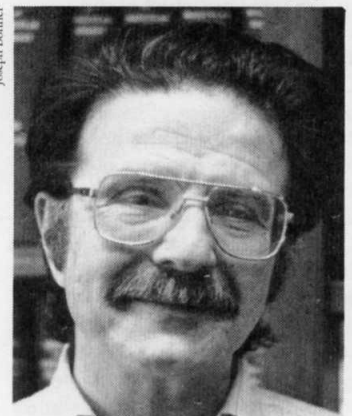
Friday lecture next week

Molecular geneticist to discuss RNA splicing on Feb. 24

David Shub, professor and director of the Center for Molecular Genetics at the State University of New York (S.U.N.Y.), Albany, will discuss "Origin, Evolution and Function of Self-splicing Introns in Bacteria" at the Friday lecture next week (Feb. 24).

Genes in eukaryotes are organized in such a way that while the whole sequence is transcribed, only

See **Shub**, page 2



Joseph Bonner

David Shub is a visiting professor in the Zinder-Model laboratory.

2 New magnet pulls in a crowd

3 Museum teaching

4 Support groups forming at EAPC

New equipment increases university's nuclear magnetic resonance capabilities

An open house to celebrate the installation of the university's new nuclear magnetic resonance (N.M.R.) equipment was held Wed., Feb. 15 in Associate Professor David Cowburn's Laboratory of Physical Biochemistry.

At the ribbon-cutting ceremony inaugurating the Cyromagnet for N.M.R. Spectroscopy, President Torsten Wiesel said, "This new instrument is a major investment and indicates the university's serious interest in developing up-to-date methods for the scientists here. It is part of our continued effort to strengthen Rockefeller's research in the area of structural biology. We look forward to discoveries in this exciting area linking structure and biological function."

Rockefeller has had N.M.R. spectroscopy for more than a quarter of a century. Once used solely to determine a molecule's chemical composition, N.M.R. can today be used to determine the three-dimensional position of nearly every atom in a molecule.

Biologists use N.M.R. to elucidate the structures of proteins. It does so by recording the characteristic spins of individual atomic nuclei. The spins make the nuclei behave like virtual magnets,

responding in a binary and characteristic way to differences in their environment and clueing scientists to their identity and their position within molecules. This information can then be used to develop 3-D structures of entire molecules.

Professor James Darnell, Jr., said, "We're glad to have this new equipment, which is an important step in making sophisticated structural analyses possible on our campus." The new 600 MHz N.M.R. machine is about three times more sensitive in detecting the structure of molecules and protein domains than its ten-year-old predecessor, the 500 MHz machine, which has also been upgraded.

"In addition to greater sensitivity, the new equipment offers increased resolution, more radio frequency channels, more efficient gradient spectroscopy, and enhanced digital signal handling, control, and speed," said Cowburn.

This all means that structure determination happens faster: What once took 19 months may take as few as three. It also means that larger proteins may be studied and that "4-D" structures—biopolymers in motion, e.g., proteins folding and unfolding—may be observed.

"It's exciting for many labs," said Professor Mary Jeanne Kreek.

"We've been talking to David about using this new facility to whatever extent it will allow to study endogenous opioid receptors and endorphins."

About 20 laboratories have used the optical and magnetic spectroscopy resources, intermittently or continuously. Some are close collaborations, such as those with Professors Darnell, Hidesaburo Hanafusa, and John Kuriyan. Short-term analytical studies are also done; for example, characterizing

mutant hemoglobins with Associate Professor James Manning. In addition to providing more access to users and collaborators, Cowburn expects that the new resources will lead to novel applications, especially in understanding protein-protein interactions as well as protein folding.

"Many people have played a significant role in this initiative," said Cowburn. "This has been a broadly based effort, which I hope will have an equally broad impact."



After President Torsten Wiesel (left) cut a ribbon to inaugurate the university's new nuclear magnetic resonance spectroscopy facilities, Associate Professor David Cowburn and others applauded.

Shub

(continued from page 1)

part of it forms the messenger RNA. Introns are excised during the maturation of RNA. Some introns can catalyze their own removal, suggesting that the earliest self-replicating biological systems may have been made up of RNA, with the same molecules acting as both templates and catalysts. Shub will discuss the origins of introns and his work with self-splicing introns in diverse bacteria and bacterial viruses.

Shub received a Ph.D. from the Massachusetts Institute of Technology in 1966. He was a Helen Hay Whitney Foundation Fellow until 1969, after which he spent one year as a research associate at the University of Geneva's Institute of Molecular Biology. He joined the faculty of S.U.N.Y., Albany in 1970. In 1987, Shub went to the laboratory of Thomas R. Cech at the University of Colorado as a visiting professor. He was named director of the Center for Molecular Genetics in 1988. Shub is currently a visiting professor in the Zinder-Model lab.

Shub received an American Cancer Society Scholar grant in 1988. He has also been a visiting scientist at the Dana-Farber Cancer Institute in Boston, and a

senior fellow of the Japan Society for Promotion of Science. He is the author or co-author of more than 40 papers, and holds a patent for a method of stabilizing proteins made in cells of *E. coli*.

The lecture will be held at 3:45 P.M. in Caspary Auditorium and preceded by tea at 3:15 P.M.

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Yamada

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Infectious Diseases in 1974. In 1977 Yamada went to the University of California, Los Angeles as a fellow; he became assistant professor in 1979, and associate professor in 1982. During this time he was affiliated with the V.A. Wadsworth Medical Center as a research associate (1979-1982) and clinical investigator (1982-1983).

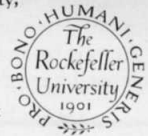
Yamada joined the faculty of the University of Michigan as professor in 1983. He was chief of the Gastroenterology Division until 1990, when he was named John G. Searle Professor and chairman of the Department of Internal Medicine. Yamada also holds the following appointments at the university: director, Michigan Gastrointestinal Peptide Research Center; director, H. Marvin Pollard Institute for Medical Research; professor, Department of Physiology; and physician-in-chief, University of Michigan Medical Center.

Yamada is a member of numerous organizations, including the Association of American Physicians and the American Society for Clinical Investigation. He is a fellow of the American

College of Physicians, and serves on the editorial boards of several journals. Yamada is a diplomate of the American Board of Internal Medicine and is certified in gastroenterology. He is a member of the Institute of Medicine of the National Academy of Sciences and an honorary member of the Japanese Society of Gastroenterology. In 1991, he received the Smith Kline and French Award for Outstanding Contributions to Gastrointestinal Research.

The Rufus Cole Lecture honors Cole (1872-1966), the first physician-in-chief of the Rockefeller Hospital. Cole was instrumental in shaping the course of the Hospital and defining its mission. Under his direction, the Hospital became the first clinical research center where human disease could be studied and treated in a setting of rigorous scientific inquiry.

The Rufus Cole Lecture will be held in Caspary Auditorium at 3:45 P.M. and preceded by tea at 3:15 P.M. in Abby Aldrich Rockefeller Lounge. The presentations by the clinical scholars begin at 10:00 A.M. in Nurses Residence 110B. All are welcome.



Hall of Science director discusses proposal to support New York's science teachers

Alan J. Friedman, director of the New York Hall of Science, spoke at the Zanvil A. Cohn Forum on Health Affairs Tues., Jan. 31. His topic was "Science Education in New York City: We know the Problems; What are the Answers?" What follows is a synopsis of his talk, prepared by News&Notes.

The best science education in New York City's public schools is as good as anything in the world. But in this city, where one of our great strengths is our diversity, our diversity of accomplishment is also, unfortunately, very high. The New York Hall of Science is independent of the schools; I can offer something of a disinterested opinion—but not an uninterested one, I assure you.

I will briefly review the problems in science education in the average New York City public school, and in one area, offer a solution.

Many infrastructure problems beleaguer city teachers

One major problem is governance. We have the most complex and fragmented system of governance of any school system in the country.

A second problem is teacher preparation and support in elementary schools. In general, elementary school teachers love kids, love teaching, and are deathly afraid of science. It's something they took as little of as they could, and thanks to New York State certification requirements, that is very little indeed. Whatever science these teachers learned was through lectures, not lab work. But lectures are not the most effective way to teach second graders. Once in the classroom, these teachers are told to use hands on, inquiry-based methods. They get remarkably little support. None of us in the university system would regard it as unessential to go to regular meetings, to subscribe to professional journals, to discuss our work with our colleagues. But none of this happens, nor do they get adequate equipment, materials, or technical help.

Other problems are student and parental attitudes. Among students, achievement in science is not cool; it's nerdish and destroys their social life. And teachers tell me that on parents' night, they feel lucky if two parents in a class of 35 kids come in. Still another problem is a lack of standards for achievement; teachers in N.Y.C. can use any one of many good sets of standards, which results, again, in fragmented responsibility.

Physical safety is a problem for two reasons. Students bring knives and pistols into the classrooms, and school buildings are suffering a woe-ful backlog of maintenance.



Alan J. Friedman, a physicist and director of the New York Hall of Science, spoke to the Cohn forum about how science museums and similar institutions can serve as resources for teachers of science.

Almost all the proposed solutions to these difficult problems require massive funding. There is no way to catch up on a five-year backlog of maintenance, for example, without putting many people on maintenance.

Informal science education institutions can aid teachers

I believe that a practical solution to one of these problems—teacher preparation and support—can be found in new, long-term partnerships between schools and informal science education institutions such as zoos, botanical gardens, technology museums, children's museums, and aquaria. This is an enormous sector where people learn science.

This sector is serious and major. Some indicators: Attendance at 1,361 of these institutions totals 179 million people annually. Attendance at science and technology centers is 70 million annually. A school curriculum developed out of informal science learning activities in science museums is now in place in 25 percent of all U.S. elementary schools. And informal science education institutions sponsor teacher training sessions of three days or longer which are attended by 85,000 teachers annually.

So already this sector is providing education. Its cost per participant-hour is about the same as the participant-hour cost at a public school. And it is education, not just entertainment. People do things that they recognize as science. One boy constructs a catenary arch, but does he know the mathematics of its curve or why they are important? Through tests designed to assess museum learning independent of vocabulary, we learn that visitors do gain concept understandings, even if they do not have the words to express those concepts in traditional scientific language.

In an exhibit on nutrition, visitors measure their heartbeat,

E.K.G., blood pressure, etc., compare themselves to others, and walk away with a fair understanding of fitness.

Exhibits like this prove quite memorable. We have evidence that 30 years later, people can describe a particular exhibit; for example, the bouncing balls on the stainless-steel plates at the old New York Museum of Science and Industry, which closed in the 1950s. Professor Joshua Lederberg can describe that exhibit though he hasn't seen it in 40 years.

Museums develop exhibits and teaching tools

Informal science education institutions are becoming more effective. For example, here's how an exhibit is developed today. A group of scientists and educators identify information that the public ought to know but does not. In the old days, a graphics department would take text from scientists, redraw an explanatory drawing, and put the exhibit up on the wall. Today, an idea is first crudely mocked up for display. Visitors to the museum become test groups and are interviewed. We have a family of questions that tease out from people what they have really gotten from an exhibit. Then we go back and redo it. Sometimes we end up with an exhibit that is highly effective and sometimes we end up scrapping it altogether.

In the New York Hall of Science, we have a microscope that will go up to 2,000 power that can be used by a five year old or a thirty-five year old. Testing showed that most adults, and almost all elementary school kids, could not operate a real microscope above about 50 magnification. Someone working at the Hall of Science spent a year and a half developing this microscope. It is now used in about 300 museums and untold universities. The inventor, by the way, is well on his way to becoming a millionaire.

While AIDS was a very controversial topic in the New York City

public education system, we were quietly testing an exhibit on AIDS with the help of visitors. We did so without official permission because we were told that if we tried to get permission, it might cause a riot. The exhibit has since been tested in six other cities and it roughly doubles the comprehension of the vectors for transmission of the AIDS virus. Interestingly, 80 percent of teens in the U.S. know that condoms can prevent the transmission of the AIDS virus, but they also believe that the birth control pill can. This exhibit can cut that potentially deadly misconception in half.

New York science institutions create teachers and support

The Hall of Science has a program for creating teachers called Science Career Ladder. Students from 12 colleges in the New York City area work part-time at the museum where they learn science and science pedagogy. A study of alumni from the first six years of the program, which is targeted at women and minorities, shows that roughly half of the students are either teaching in schools or pursuing science careers. Many of the other half are continuing their education.

But what about the preparation and development of teachers already in classrooms? For the first time, the major informal science education institutions in the city have formed a coalition. Together we have several thousand employees and we have a large collective budget. Our institutions are available seven days a week, have kids around seven days a week, have staff who are expert not only in science but in repairing slide projectors and knowing the best source of cheap batteries and plastic dishes.

We are proposing a program for the long-term sustenance of teachers through an indefinite length commitment to training them and supporting them afterwards. We would create a community outside the school system where teachers can learn and complain and show off for each other.

There is a program like this in Oakland, California, in which a group of museums and zoos are systematically retraining the elementary school teaching staff of the entire city. Compared to New York, it's less than one district. Nevertheless, New York City's informal science education institutions want to build permanent links with the city's schools and teachers. We believe we can provide teachers with much of the training, materials, and support they need for their entire professional lives.

Noontime programs to offer support and information to employees

Over the next three months, the Employee Assistance Program Consortium (E.A.P.C.) will be offering four noontime programs on topics that may concern employees: a workshop on stress management, and support groups for separated and divorced people, for parents of adolescents, and for people who care for elderly relatives.

"Many people come in with these concerns," said Sonia Austrian, director of the E.A.P.C. and adjunct professor at the Columbia University School of Social work. "We feel they can benefit from sharing experience in three to eight session groups. We hope these programs will be helpful."

The E.A.P.C. was established over 10 years ago by Robert Millman, chair of the department of public health at Cornell University Medical College (C.U.M.C.), to offer confidential short-term counseling and referrals, free of charge, to employees of C.U.M.C., The



The noontime programs being offered at the E.A.P.C. will be led by (from left to right) Barbara Pollack, Carolyn Coleridge, Ann Rosenberg, Bernice Belth, Fountain Yount, and others.

Hospital for Special Surgery, Memorial Sloan-Kettering Cancer Center, The New York Hospital, and Rockefeller University. Family members of employees and faculty may also use the E.A.P.C.

The new programs will be led by

interns from the Columbia University School of Social Work and supervised by Austrian. They are:

- A workshop on stress management will provide stress- and time-management information, relaxation techniques, and nutritional

information in three sessions beginning Fri., Feb. 24. Enrollment is limited to 60 participants.

- A six-session support group for people who are divorced or recently separated will begin Wed. Mar. 15. Enrollment: 10 people.

- A four-session program for people who care for elderly relatives will begin Mar. 15. Enrollment: 10 people.

- A six-session support group for parents of teenagers begins Mon., Mar. 20. Enrollment: 10 people.

"If people decide that they want to discuss their issues together after our programs end, they may develop self-help groups and continue meeting. And if we get a big response, of course, we will consider offering more," said Austrian.

To enroll for a program or obtain additional information, call the E.A.P.C. at 746-5890. The E.A.P.C., located at 445 East 68th St., is open Monday through Friday, from 8:00 A.M. to 6:00 P.M.

Potpourri

Tri-Institutional Noon Recitals

Barbara Rearick, mezzo-soprano, and Richard Rodney Bennett, pianist, will perform works by Bennett, Stephen Sondheim, Ricky Ian Gordon, George Gershwin, Harold Arlen, Rogers and Hart, Cole Porter, and William Bolcom at the Tri-Institutional Noon Recital today (Feb. 17). Pianist Rieko Aizawa will perform works by Mozart and Chopin next Fri., Feb. 24. The concerts, to be held at noon in Caspary Auditorium, are free.

spree of Clyde Barrow, Bonnie Parker, and their gang in the 1930's is free. All are welcome.

Statistical Physics Seminar

Professor David Mauzerall will speak on "Photogating of Ionic Currents across Membranes" Mon., Feb. 27 at 2:00 P.M. at the Statistical Physics Seminar in the B Level Conference Room, Smith Hall Annex. After the lecture, an informal general discussion of ion motion through membranes is planned.

Clinical Research Seminar

Mark W. Babyatsky, assistant professor at Mt. Sinai Medical Center, will discuss "'Peptic' Ulcer Disease—Paradigms Lost" at the Clinical Research Seminar Wed., Mar. 1 at noon in Nurses Residence 110B.

Workshops

Computing Services is offering the following workshops. Workshops are free, but registration is required beforehand to ensure a computer to work on.

WordPerfect II: Wed., Feb. 22, 10:00 A.M. to noon;

Word for the Macintosh, I & II: Fri., Feb. 24 and Fri., Mar. 3, 10:00 A.M. to noon;

Excel, I & II: Tues., Feb. 28 and Tues., Mar. 7, 2:00 P.M. to 4:00 P.M. Please contact Joan Falciano, x8925, to register, or leave voice mail at x7768.

Pool tournament

Pool tournament partners have been posted in the Faculty and Students Club. Partners should now arrange a time to play, and inform Pat Griffin, x8078, of the schedule.

Call for mentors

The Science Outreach program needs volunteers to mentor teachers

and students this summer, and to visit schools and give workshops and lab tours. If interested, contact Bonnie Kaiser, x7431, or e-mail, bonnie.

News&Notes schedule

News&Notes will not be published next week due to the Presidents' Day holiday.

Schroeder

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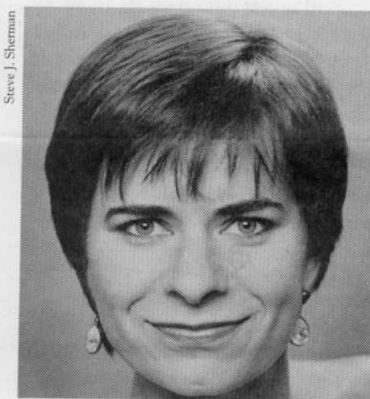
intelligence officer at the National Communicable Disease Center, now the Center for Disease Control. He returned to Boston City Hospital in 1968 as senior resident. In 1969, he was a research fellow at the Thorndike Memorial Laboratory and Harvard Medical School, and a fellow of the Harvard Center for Community Health and Medical Care.

Schroeder joined the George Washington University Medical Center as assistant professor in 1971, and became associate professor in 1974. He went to the University of California, San Francisco in 1976 as an associate professor, and in 1980 was named professor and director of the division of general internal medicine. In 1990, he became president of the Robert Wood Johnson Foundation, one of the nation's largest health care philanthropies; he is also clinical professor of medicine at the Robert Wood Johnson Medical School.

Schroeder is the author or co-author of more than 150 papers in clinical medicine, health care organization and financing, and preventive medicine. He has served on many editorial boards, including—at present—the *New England Journal of Medicine*. He is a member of the National Academy of Sciences Institute of Medicine; other professional affiliations include Alpha Omega Alpha, the American College of Physicians, and the Society of General Internal Medicine, of which he was president (1985-1986).

The forum on health affairs was established by the late Zanvil A. Cohn as a venue for informal discussion on important issues in health research and public policy.

President Torsten Wiesel will introduce Schroeder at 5:30 P.M. in the Abby Aldrich Rockefeller dining room. Sherry will be served at 5:00 P.M. All are welcome.



Barbara Rearick, mezzo-soprano (above) and Richard R. Bennett, pianist, perform at the noon recital today (Feb. 17).

Friday film

Bonnie and Clyde (U.S.A., 1967), directed by Arthur Penn, will be shown Fri., Feb. 24 at 8:00 P.M. in Caspary Auditorium. Penn's celebrated film about the bank-robbing