

4-10-1992

NEWS AND NOTES 1992, VOL.2, NO.29

The Rockefeller University

Follow this and additional works at: http://digitalcommons.rockefeller.edu/news_and_notes_1992

Recommended Citation

The Rockefeller University, "NEWS AND NOTES 1992, VOL.2, NO.29" (1992). *News and Notes 1992*. Book 14.
http://digitalcommons.rockefeller.edu/news_and_notes_1992/14

This Book is brought to you for free and open access by the The Rockefeller University News and Notes at Digital Commons @ RU. It has been accepted for inclusion in News and Notes 1992 by an authorized administrator of Digital Commons @ RU. For more information, please contact mcsweej@mail.rockefeller.edu.

news & notes

April 10, 1992 Volume 2, Number 29

The Rockefeller University



The performers in last week's 'ROCKEFOLLIES' receive flowers at the end of the show.

Physicists peer into heart of matter

by Susan Blum

Modern particle accelerators are huge. In Batavia, Illinois, for example, the Fermilab's Tevatron traces a four-mile circumference under the prairie land, its "collider detector," a mammoth, multifaceted chamber, rising to the height of a three-story house. The new Superconducting Super Collider to be built in Waxahachie, Texas will dwarf even the Tevatron: its accelerator ring will encompass a circumference of 53 miles.

Yet these massive instruments are designed by particle physicists at Rockefeller University and elsewhere to track the smallest quarry imaginable: the tiny elementary particles that make up matter and mediate the fundamental forces responsible for their interactions.

The size of the accelerators is testament to their power. Within their rings of metal piping, beams of protons (or protons and anti-protons) whirl about in opposite directions at nearly the speed of light, held in their orbits by superconducting magnets. At a few

points around the ring, the beams intersect, resulting in head-on collisions that transmute the protons' kinetic energy into tiny fireballs of enormous heat. Out of this cataclysm emerge new kinds of particles never seen at normal energies in our everyday world.

In the beginning was 'hot soup'

In fact, the particles forged in accelerators are the kind of matter that existed close to the moment of

See *Physicists*, page 3

Show unveils hidden talents of university's scientists and staff

Eleven members of the university community shed their roles as scientists and staff to become stars last week at the annual Rockefeller University talent show, the "ROCKEFOLLIES." The performances included poetry and prose readings, and gospel, jazz, guitar, and accordion performances.

"We were fortunate to have a variety of acts this year," said Mia Albright, administrative secretary with The Population Council, who directed the program. "We alternated the literature with music to establish a good rhythm for the show."

Dorothy Meyer, a volunteer in The Rockefeller University Hospital, opened the program by reading poems by Emily Dickinson, Kenneth Patchen, Carl Sandburg—and by Meyer herself. Meyer's poems included those entitled "Muse of Spring," "To My Lover" and "Crossing York" (see poem, this page).

"The audience at Rockefeller is the best I've ever encountered," said Meyer, who is a regular at the annual show. "I feel a strong rapport with the people here."

A complementary book of Meyer's poetry, *Broadway and Points*

Up, was available at the door to those attending the performance.

The first half of the show also featured Alex Marandici, research investigator at The Population Council, who played tunes on the accordion that were popular during his days as a student in Romania, and Michelle Blair, secretary in the Cross lab, who transfixed the audience with her monologue "The Whole Story," which recounted the story of a passionate—but ultimately doomed—love affair.

David Holtzman, postdoc in the Pfaff lab, and his friend David Rockitter concluded the first half by singing and playing guitar.

After the duo performed a few melodies, Blair returned to the stage and sang "Bobby McGee" with the guitarists.

"Actually performing with Michelle was a fairly spontaneous thing," said Holtzman. "She asked us to play with her at one of the dress rehearsals and we said 'yes.' We thought she had a nice voice—better than either of ours."

The second half included gospel songs performed by Alva Halloway, cashier in Food Service, and a chorale reading of Albright's poems by Albright, actress Alonai King, and Rutgers student Alice Sui.

Julie Miwa, student in the Wiesel lab, played saxophone with Leon Maleson, database coordinator in Faculty Administration, on bass. They concluded the "ROCKEFOLLIES" program with a rousing performance of jazz tunes, including those by Duke Ellington and Charlie Parker.

"Julie and Leon gave the perfect finale to a great evening," said Albright. "I think everyone had fun and left with a strong sense of camaraderie. The wonderful thing about the show is that it gives people a sense of being part of the community."

David Heath, research associate in the Knight lab and producer of the program, added: "It was an extraordinarily good show. One thing I like about the 'ROCKEFOLLIES' is it exposes new sides of people. For example, I see Alva Halloway every day in the cafeteria and I never knew she did gospel."

The organizers of the "ROCKEFOLLIES" expressed their thanks to everyone who helped make the show a success.

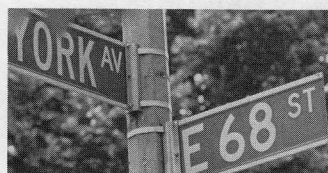
'Crossing York'

Crossing York
the lights all
green for go
I scold
a limo
that usurps my space

(Many
the scornful
the arrogant)

The wind
Atlantic-fresh
(reminding me
Manhattan is
an island)
Carries
the sweet
salty
ocean smell
I love

Overhead
A sparrow
youthfully exuberant
Chirps serious
soliloquies



In his leaf-green
castle
His backdrop
the bluest sky
Manhattan
ever sees

The strait
before me
Called
East River
Looks rough
and cold
This morning
Threatening
change

Crossing York
I head for work.

Volunteer Dorothy Meyer read
this poem, which she wrote, at
the "ROCKEFOLLIES."

2 Personnel builds
'Book of Jobs'

2 Local retailers
offer discounts

4 Photo: a round
with history

IN: students seek summer jobs

The Personnel Office has put together a book containing about 100 resumes of undergraduates interested in summer positions in labs at The Rockefeller University. Lab heads who wish to hire assistants for research for the summer are invited to drop by Personnel to review the book.

"The students who apply here are usually very flexible about their starting date and about the length of time they will work," said Mary Ann George, personnel assistant. "Most of them are willing to start as early as June."

Personnel sends a mailing to top colleges across the country in the late fall, informing them that summer research positions paid at a set hourly rate are available at Rockefeller. The resumes—from sophomores, juniors, and seniors

majoring in science—start arriving shortly thereafter.

"Often the best assistants for research in the summer return to work full-time after graduation," said George. "The short-term position gives lab heads an opportunity to assess candidates' aptitudes and skills. The experience of working in a lab is also very educational for the undergraduates. It helps them decide what path to take in their careers."

The resume book is kept at the reception desk in the Personnel Office, Founder's Hall 103. Additional resumes, from applicants to the Summer Undergraduate Research Fellowship (SURF) program, will be added to the book shortly. For further information, contact M.A. George or Personnel Assistant Kerry Harvey, x8300.

OUT: book posts research positions

Finding a job through the scientific grapevine will become easier soon as the Personnel Office begins building a "Book of Jobs." The book will list openings for research and faculty positions at universities, research institutions, and companies throughout the world.

The new service is aimed at helping Rockefeller University graduate students and postdoctoral fellows find positions when they have completed their training here.

For the new project to be a success, labs that receive notices of positions must copy them and send them to Personnel (Box 125). Those looking for positions should have patience with the "Book of Jobs," because it will take time before it contains a large reservoir of listings.

"Finding a good job requires good

networking skills," says Virginia Huffman, director of Personnel. "You can't compete for a job if you don't know about it. My hope is that lab heads who now just post the job letters will copy them and send the copies to me. That way more people can have access to the information."

The book will be located in the waiting area of the Personnel Office, Founder's Hall 103.

Letter to the editor:

I invite members of the Rockefeller community to join me in volunteering with The Coalition for the Homeless.

The Coalition runs three apartment buildings for the homeless on West 77th St. The organization charges only what tenants can afford, either 25 percent of their monthly salary or their public assistance rental allowance. Because the rent is so low, the organization is dependent upon volunteers to keep the building up and running.

The Coalition currently needs volunteers to help renovate and repaint apartments. Anyone who can hold a brush or a roller is urged to help out one Saturday in May after May 2. Pizza and soda (the most important components of a good paint job) will be supplied. To volunteer, call Simona Golden-Steiger at 695-8700.

I hope to see some Rockefeller people at the apartments when I volunteer.

Sincerely,
Patricia Sadiq
Secretary, Public Affairs

Area merchants offer discounts to RU community

Several neighborhood retailers offer discounts to members of The Rockefeller University community. They include:

- Hudson News, 256 E. 66th St.—15 percent off except on non-taxable items.
- I Can't Believe It's Yogurt, 1237 First Ave.—10 percent;
- Maurice Jaitin Opticians, 1412 Second Ave.—5 percent;
- Leroy Pharmacy, 1325 First Ave.—10 percent;
- Letizia restaurant, 1352 First

Ave.—15 percent for lunch; 20 percent for dinner;

- Love Pharmacy, 1308 First Ave.—10 percent off prescription items;

- Ronasi restaurant, 1160 First Ave.—10 percent for lunch; 15 percent for dinner;

- Zucchini Restaurant, 1336 First Ave.—20 percent with a cash payment.

Faculty, students, and staff should present their Rockefeller identification cards to receive the

discounts; most restaurants request that cards be shown before placing orders.

According to Thomas Fallon, director of Purchase and Supply, Avis Rent-a-Car, 304 E. 64th St., and Hertz Rent-a-Car, 327 E. 64th St., offer competitive rates to members of the Rockefeller community. Car rentals or airline tickets can be booked through the East Rutherford, New Jersey office of Thomas Cook travel agency, (201) 507-1188.

Corners



Shadows play across the dome of The Rockefeller University's Caspary Auditorium.

News&Notes is published each Friday throughout the academic year by The Rockefeller University, 1230 York Avenue, New York, NY 10021. Phone: 212-570-8967.

Torsten Wiesel, President
Alfred G. Kildow,
Assistant to the President
for University Communications
Doron Weber, Manager of Public Affairs

Mika Ono, Editor
Corrine O'Neill, Design
Robert Reichert, Photography

Ideas and submissions can be sent interoffice (Box 68), by electronic mail (newsno), or by fax (212-570-7876).

The Rockefeller University is an equal opportunity employer and has an affirmative action program to increase the employment of women and members of protected groups at all job levels.



High energy physicists at Rockefeller ponder heart of matter

(continued from page 1)

the creation of the universe. Most scientists believe the universe began about 15 billion years ago in the "Big Bang," an explosion of unimaginably intense energy. In the beginning, the energy of the newly-formed universe was so immense that there were neither atoms nor even some of their building blocks, the protons and neutrons that make up the nucleus. Rather, there was only a "hot soup" of elementary particles in random motion. As the universe expanded and cooled, these particles combined into larger and larger units of matter. By a millionth of a second after the Big Bang, some elementary particles had combined into "hadrons," entities that include protons and neutrons. And at the age of a minute or two, protons and neutrons began to condense into atomic nuclei, which remained "the biggest guys on the block" for quite some time: Only after about 500,000 years did the first, simplest atoms begin to form.

The aim of particle physicists is to understand, at the most basic level, the elementary particles and the forces that act upon them. "We're simply trying to find out how the world is made," says Rockefeller University investigator Konstantin Goulianos, acknowledging that this claim may seem somewhat immodest. "We want to know how everything came about from the very beginning and where it is all heading." The more powerful the accelerators used in their quest, the closer they may come to reproducing the conditions that existed at the universe's earliest moments.

The search for a unifying principle

Underlying this ambitious endeavor, Goulianos said, is the notion that eventually it will be possible to understand all the particles and forces by one single principle so unifying and so simple that "we can represent it as a dot on a blackboard."

Particle physicists still have a way to go to reach such sublime simplicity. The closest they have come so far is the so-called "standard model." According to this model, matter is comprised of six "quarks" and six "leptons," arranged in three "families."

In addition to the quarks and leptons, the standard model calls for other particles that carry the fundamental forces that act upon them: the electromagnetic force; the strong force (which holds the nucleus together); and the weak

force (which is responsible for some kinds of radioactive decay).

According to the model, these forces were completely unified at the extraordinarily high temperatures that existed in the very first moments of creation, but they gradually "separated out" as the universe cooled down.

So far, all experimental results agree with the standard model. Particle physicists have found all the quarks and leptons posited by the model (save for the heaviest, a quark named "top," which is still being vigorously pursued). They have also been able to unify the electromagnetic and weak force into the "electroweak force," and have discovered the particles that mediate the electroweak and the strong forces.

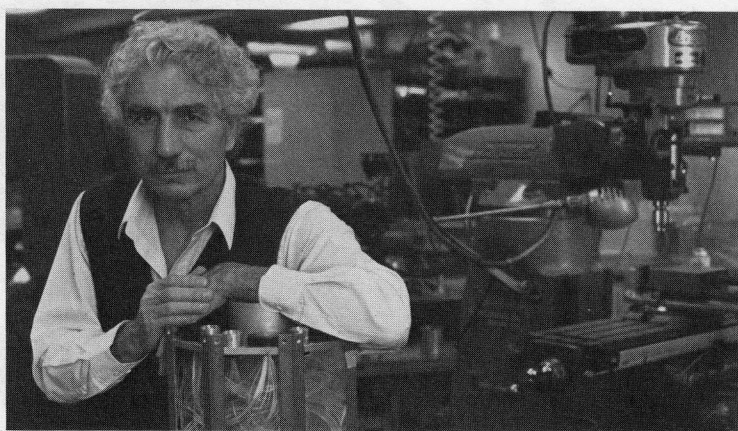
But the standard model is still intellectually unsatisfactory, said Goulianos. "One big question is what makes the model 'go,'" he said. For instance, different quarks and leptons have different masses, as do the particles—dubbed the "gauge bosons"—that mediate the various forces. Physicists don't yet know why these mass differences exist. "One proposed explanation is that the original symmetry in which some of these particles would have had the same mass is broken due to their interaction with a field called the 'Higgs field,'" Goulianos said.

If this field exists—and the standard model predicts that it does—it should be associated with a "Higgs particle." Finding this particle requires accelerator energies higher than any currently in existence. Such energies—up to 40 trillion electron volts—will be reached by the Superconducting Super Collider (SSC), scheduled to start operating in 1999.

Goulianos is among the hundreds of scientists preparing to hunt for the Higgs particle at the SSC. He is also involved in experiments at Fermilab, where one of the goals is to find the still-elusive top quark.

Collider detectors track particles

For both these lines of experimentation, Goulianos and his colleagues are designing modules for gigantic "collider detectors." These arrays of mechanical, optical, and electrical components allow precise tracking of individual particles as they speed away from the collision point. At the SSC, one hundred million collisions will occur every second; at Fermilab, there are 500,000 per second. Whatever their number, most of the smash-ups illustrate phenomena that are already well understood, so detectors must be able to identify



Konstantin Goulianos sits in his lab's machine shop with a "scintillator tile" fiber-optic calorimeter intended for the next round of experiments at Fermilab. The ultimate aim of experiments at Fermilab and other accelerators, he says, is to know "how everything came about from the very beginning, and where it is all heading."

the few "interesting" new events that occur. These events are rare, indeed; according to Goulianos, a year's worth of collisions at the SSC may yield only a handful of events relevant to the search for the Higgs particle.

Designing collider detectors is a Herculean task. Each component part can take years just to conceptualize and design and additional years to perfect and manufacture. So complicated is the work that research groups typically concentrate their efforts on one particular component of a detector, while maintaining close collaborative ties with designers of other components world-wide.

Collaboration is key

Cooperation and collaboration is not only essential among experimental high-energy physicists; it is a must between experimentalists and theoreticians, as well. At Rockefeller, for instance, the experimental high energy physics group collaborates closely with theoretical physicist Nicola Khuri and his colleagues. Drawn together by a compelling interest in the same fundamental issues—the identification of nature's ultimate building blocks and the unification of all the forces that act among them—the two groups of physicists share complementary approaches. Theoreticians bring their highly-refined calculational capabilities to the problems at hand, while experimentalists bring their expertise in designing and constructing the instruments that will test and guide the development of the theoretical models. But the borders between "theory" and "experiment" are by no means rigid. The links between the two fields of expertise are evidenced in everything from the researchers'

attendance at one another's seminars to the fact that they have just been notified that they will once again share in a multi-million dollar grant from the Department of Energy (DOE). The new \$3-million grant began this month, right after the end of a similar, five-year DOE grant awarded to the researchers previously.

As "Big Science" projects go, the proposed Superconducting Super Collider is one of the biggest and most controversial. Will the new facility be worth the investment of billions of dollars and countless man-hours of investigators' time worldwide? Will there be spin-offs useful to other, more "down-to-earth" sciences? More generally, is the quest for the ultimate "Theory of Everything" really the search for a meaningful, modern Holy Grail?

The answer to these questions is "yes," Goulianos believes. He points to the innumerable contributions that experimental physics has made to other fields of science through the development of state-of-the-art instrumentation that later became "standard" in those fields. "Most of these instruments were invented by physicists in the course of investigating some fundamental problem," he said.

But practical considerations are just part of the story. "What good are material improvements alone?" Goulianos asked. "Like art and religion, the search for a glimpse into the beauty of the universe, the desire to find the underlying symmetry of all creation, are also important human needs. We may never get to that dot on the blackboard, but experience has shown that the deeper we explore into the heart of matter, the more levels of connections we find, and the greater the levels of understanding we reach."

Potpourri

Sunday film

Seconds (1966, John Frankenheimer) casts Rock Hudson as a man dissatisfied with his current life. The man joins an organization which enables him to reinvent his identity. The film, considered a classic, will be shown in Caspary Auditorium Sun., April 12, at 7:30 P.M. Admission is free and everyone is welcome.

African Violet sale

There will be an African Violet sale today (April 10) in the lobby of Tower to benefit The Rockefeller University Children's School.

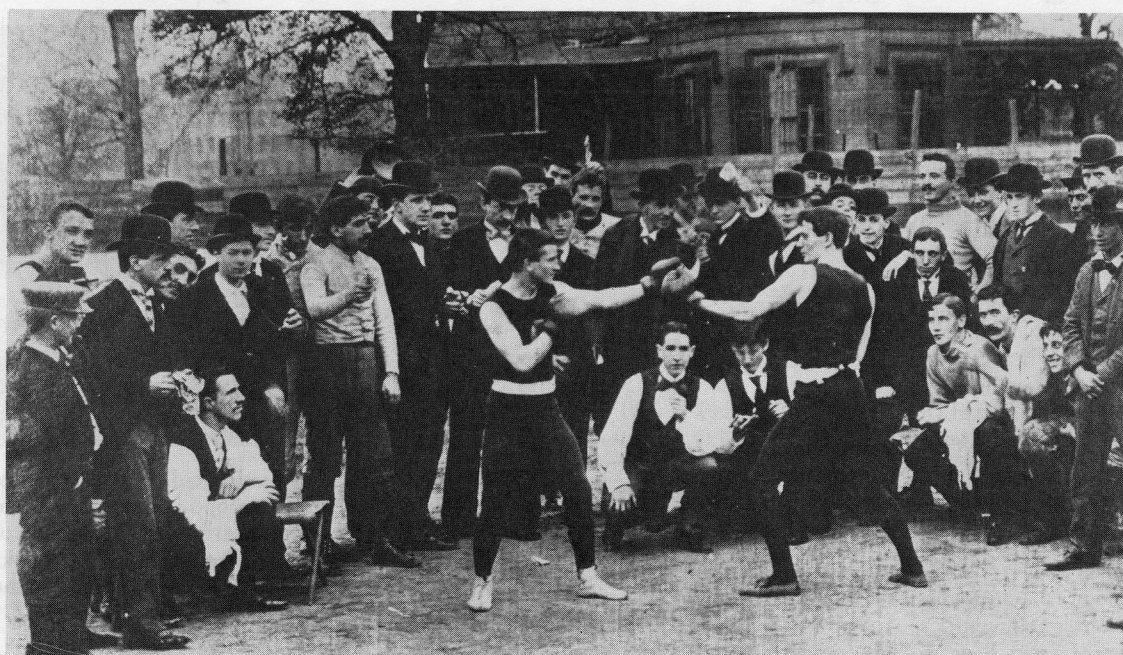
Lunchtime film

In the small towns and cities of the South in the 1940s and 1950s, black rhythm-and-blues singers performed in warehouses, tobacco barns, movie theaters, and halls. The endless one-night stands, makeshift housing, and inadequate transportation were all a step toward the big time at the famed Apollo Theater in Harlem. It was here that the most talented, black performers played swing, jazz, and soul. The 60-minute film *That Rhythm, Those Blues* (1988) is the story of camaraderie tested by racial tension and the great financial and artistic success of rhythm-and-blues. The film will be shown at noon Wed., April 15, in Tower 305. All are welcome. Bring your lunch.

Tri-Institutional Noon Recital

The Borromeo String Quartet will perform pieces by Leos Janacek and Franz Schubert at Tri-Institutional Noon Recital today (April 10) in Caspary Auditorium. The quartet is the winner of numerous prizes, including the 1991 Young Concert Artists International Auditions, the Walker Fund Prize of Young Concert Artists, and the 1991 Music at Gretna Award. The libraries of The Rockefeller University, Memorial Sloan-Kettering Cancer Center, and The New York Hospital-Cornell

A round with history



Early this century, the Pastime Athletic Club held events on the property of The Rockefeller Institute for Medical Research, now The Rockefeller University. Club members participated in boxing, sprinting, walking, and wrestling.

University Medical Center will co-sponsor the concert in celebration of National Library Week.

On Fri., April 17, Trio Lyrika will perform pieces by Franz Joseph Haydn and Johannes Brahms in Caspary Auditorium. The Canadian group performs frequently on both the English and French radio networks of the CBC.

Admission to both concerts is free. All are welcome.

Seminar on caring for the elderly

A seminar, sponsored by the Employee Assistance Program Consortium and the United Way, will feature a presentation entitled "Caring for an Aging Relative: Emotional Needs and Community Resources." The seminar will be held Mon., April 20, from noon to 2 P.M., at 1300 York Ave., Room A126.

Humanities Council lecture

New York University's Humanities Council and School of Medicine

Honors Program are co-sponsoring a lecture "The Discovery of Trust in Science," Mon., April 13, at 4 P.M., in the Arnold and Marie Schwartz Lecture Hall, Classroom F, New York University, School of Medicine, 550 First Avenue. The speaker is Gerald Holton, Mallinckrodt Professor of Physics and professor of the history of science, Harvard University.

Appointments

Postdoctoral Fellows: John Gubbay, Heintz lab; Ruibao Ren, Baltimore lab.

Guest Investigators: Guang-Pei Hou and Anton Markos, Müller lab; Mary Conte and David Edwards, Knight lab.

Departures

Assistant Professor: Nancy Greenbaum, Kappas lab.

Postdoctoral Associate: Philip Bolton, Wilson lab.

Postdoctoral Fellow: Peter Matthews, Tomasz lab.

Award

The Addiction Research Center of the National Institute on Drug Abuse recently awarded the 1992 Abraham Wikler Award, presented annually to scientists who are innovators in drug abuse research, to Rockefeller University Professor and Senior Physician Emeritus Vincent P. Dole. The award was made recently at the Fifth Annual Abraham Wikler Memorial Lecture, where Dole spoke on "Heroin Addiction as a Metabolic Disease."

Science & Science Writing Series

Natalie Angier, *The New York Times* science and medical writer, will speak on what makes a good science story, Tues., April 14, at 7:30 P.M. as part of Rockefeller University's Science & Science Writing Series. Rockefeller investigator Abraham Pais spoke to a full house last week. Deborah Barnes, editor of the *Journal of NIH Research*, will discuss the unique challenges of writing about science for scientists, including how to explain jargon when writing across disciplines, Tues., April 21, at 7:30 P.M. For further information or to register for the lectures, call x8967.

Christian Steiner



Paul Desjardins



The Borromeo String Quartet (left) will perform at Tri-Institutional Noon Recital today (April 10) in Caspary Auditorium. The Trio Lyrika will perform Fri., April 17.

News&Notes takes a vacation

News&Notes will not be published next week, Fri., April 17, due to the Easter and Passover holidays.