



Princeton Weekly Bulletin

Bulletin reports on results of spring survey

Last spring the Princeton Weekly Bulletin distributed a questionnaire asking readers "How are we doing?" For simplicity and economy, surveys were sent only to those we could reach through campus mail—a total of 4,939 faculty and staff members. Fifteen hundred and seven surveys were returned—a response rate of just over 30 percent. Eighty percent of respondents identified themselves as staff members, 13 percent as faculty.

Delivery

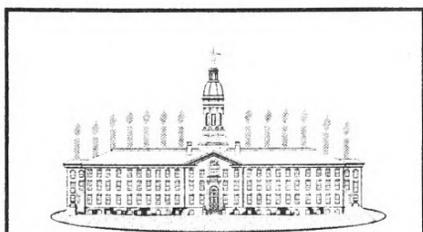
Nearly 330 people—21 percent of those who responded to the survey—said they would prefer to receive the Princeton Weekly Bulletin at their office rather than at home, and a number said they would like to eliminate duplicate copies.

You can choose home or office delivery of the Bulletin and the Princeton Alumni Weekly; you can also remove your name from the mailing list of either the Bulletin or PAW, or both. Call or e-mail Suzi Kennedy in Human Resources if you're a member of the administrative or support staff, or Kris Miller in the Dean of the Faculty Office if you're a faculty member or a member of the professional technical, research or library staff. The Bulletin cannot do this for you, as your social security number is required.

Percentages

Fifty-three percent of the respondents said they read "all" or "most" of the Bulletin; another 42 percent read "some of it." Sixty-three percent of respondents consider the Weekly Calendar "useful"; 21 percent consider it "essential." Those who would "probably read more" of the Bulletin if it had shorter stories constituted 25 percent of respondents; those who

Continued on page 3



Inside

Ende clarifies policy on political use of Internet	2
Doig reflects on year in Human Resources	3
Grants available	6
Employment	7
Nassau Notes	8

Electricity on campus

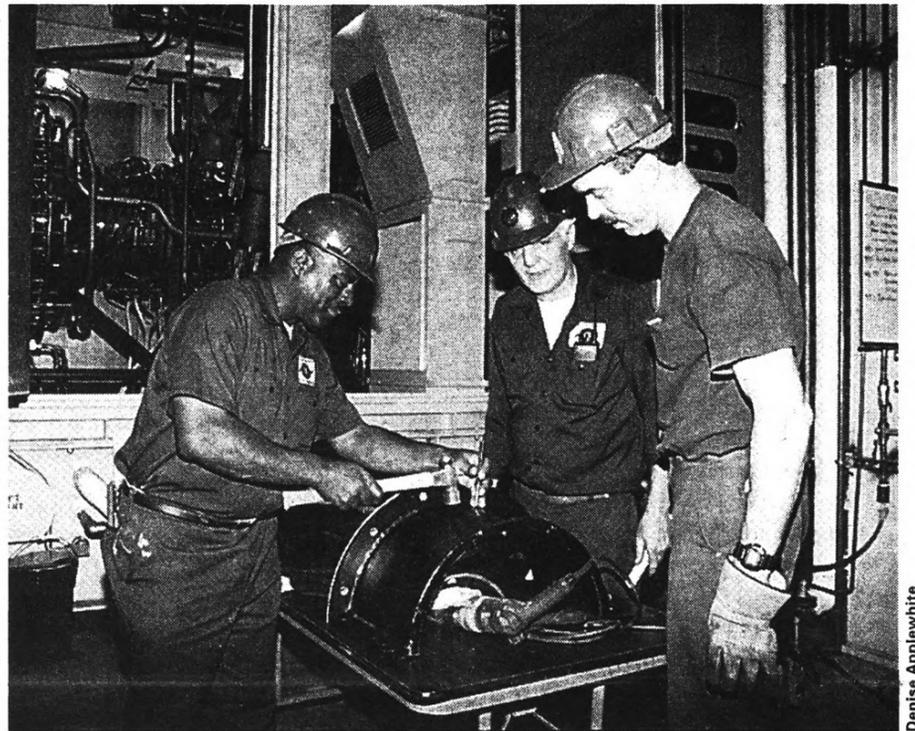
Cogeneration plant to produce heat and power by efficient, money-saving process

By Mary Caffrey

In the next few weeks the University will begin producing its own electricity for the campus, as a \$35 million cogeneration plant becomes operational.

Construction of the plant, located south of the MacMillan Building, began in May 1995. Princeton's trustees authorized the plant's construction in 1994, when the boilers that provide steam to heat and cool the campus were nearing the end of their 30-year life span. Instead of simply installing new boilers, the University decided to switch to cogeneration, which is the simultaneous production of heat and power through a single thermodynamic process.

Cogeneration captures and reuses the waste heat that would otherwise be sent into the atmosphere. The process is more efficient and will help Princeton trim between \$2 million and \$4 million from its annual energy bill, which now runs between \$10 million and \$14 million.



Denise Applewhite

Plant operators Al Brickhouse (l), Sam Becker and Eric Wachtman inspect part for new generator, which will be driven by gas turbine visible at upper left.

The Princeton plant will run on natural gas most of the year, with fuel oil as an alternative. Natural gas used for cogeneration is cheaper than the same gas used in a heating-only application.

The total savings "is enough to justify building the plant," said project manager Ted Borer, manager of

mechanical systems in Engineering and Construction.

New use of old technology

Cogeneration is an old technology that has enjoyed a rebirth in the past two decades. In fact, Princeton is returning to a process similar to one it

Continued on page 2

How do you pack a suitcase?

250th Anniversary Fund supports curriculum development, innovation

By Justin Harmon

Students enrolled in David Bernstein's new course, The Science and Technology of Decision-Making, will learn to think systematically about such matters as how to pack a suitcase and why fast food restaurants tend to locate themselves in close proximity to one another.

The course was designed using a curriculum development grant from the new 250th Anniversary Fund for Innovation in Undergraduate Education. It is meant to teach students about structured reasoning processes. Behind each of the examples mentioned above lie other important problems in operations research, a field concerned with improving the practice of decision-making. The decision process that leads to a well packed suitcase also yields optimal routes and schedules

for trucks and trains, according to Bernstein. The factors that underlie siting decisions for McDonald's and Burger King also explain automobile congestion. Through these and similar examples drawn from everyday life, Bernstein hopes to make students aware of "how decisions should be made" in a variety of engineering contexts.

New distribution requirements

Bernstein is one of 48 faculty who are using curriculum development grants from the 250th Anniversary Fund during the current academic year. His course is one of 41 initiatives funded during the first round of grants made last May. The grants range across 27 departments and programs in the humanities, social sciences, natural sciences and engineering. About a quarter of the projects involve the development or major renovation of courses to satisfy the new distribution requirements approved last spring, especially in the areas of Epistemology

and Cognition, Ethical Thought and Moral Values, Quantitative Reasoning, and Science and Technology. (Bernstein's course satisfies the Quantitative Reasoning requirement.)

Over half of the projects funded by the 250th Anniversary Fund include the innovative use of new computer-based technologies to enhance or significantly transform teaching in courses across the disciplines. In Bernstein's course, students can access materials via the World Wide Web and use applications written in the Java programming language.

For Lawrence Danson's introductory course on Shakespeare, students will turn to The Electric Shakespeare, a Web site that includes an electronic handbook with cross-referenced information about Shakespeare and about writing, a workbook, a searchable text, various CD-ROM-based "Shakescenes" which show how production choices can

Continued on page 2

Ende clarifies policy on political use of Internet

Over the summer some issues were raised regarding University policy and use of the evolving technologies of the Internet for political activity.

"It is not Princeton's policy to prohibit individual members of the University community from using Princeton's computer network for personal political discourse," notes University Counsel Howard Ende. "Our goal as an educational institution is to foster the free exchange of ideas to the greatest extent possible, and this includes political discourse by our students and faculty."

At the same time, he explains, "The University itself, as a tax-exempt institution, is prohibited from intervening or participating in any political campaign on behalf of or in opposition to a candidate for public office. In

situations where there is a likelihood that institutional (as distinct from personal) positions might be mistakenly attributed to the University, a disclaimer may be necessary, clarifying that the opinions expressed are those of the author alone and not an official position of the University."

There are published University rules, regulations and guidelines governing institutional and personal use of University computing facilities.

Over the next few weeks these published policies will be reviewed with the members of the University community to incorporate any changes which may be necessary as a result of the special characteristics of the Internet. "To the extent those rules and regulations do not reflect the policy articulated here, revisions will be pursued," Ende says.

Curriculum

Continued from page 1

produce different readings of a play, and a news group where students can share their ideas and questions.

Parallel passages

Danson, who calls himself an "electroskeptic," says he nonetheless is intrigued by the challenge of identifying ways the computer might be used to enhance the teaching of "close, thoughtful immersion" in literary texts. For example, in the Shakespeare course, which he has taught for four years, he now plans to have students compare parallel passages from earlier and later texts of individual plays. "This is very sophisticated work," Danson said. "On computer students can really see and manipulate the texts. Absent the computer, I would not undertake this exercise in an introductory class."

Danson says he will judge the success of these innovations in the same way he has measured the effectiveness of his teaching to date: through the quality of students' course work, particularly their writing, and

by the nature of their comments and evaluations. Similarly, Bernstein will rely on students' lab work and the quality of their answers to questions. "Students will tend to think in an ad hoc manner early in the semester," he says. "By the end of the semester, I'll be looking for structured answers to questions."

All told, three-quarters of the projects supported this year through the 250th Anniversary Fund involve introductory (100 or 200 level) lecture courses, such as Bernstein's and Danson's. Almost two-thirds of the total funding is devoted to revising and enhancing ongoing courses. The remainder is invested in the development of new courses.

First round of funding

The 250th Anniversary Fund was announced last February as one of three Presidential Teaching Initiatives identified by President Shapiro as his highest personal priority for fundraising in the first year of the Anniversary Campaign. Shapiro invited the faculty to submit proposals for consideration in the first round of funding last spring. His funding decisions were based on recommendations made by Dean of the Faculty Amy Gutmann, Dean of the College Nancy Weiss Malkiel, Associate Dean of the College Eva Gossman and (in the case of proposals from the School of Engineering) Dean James Wei.

"I'm delighted at the quality of these efforts," said Shapiro. "They show ample evidence of imagination; careful thinking about how best to accomplish important educational objectives; creative engagement in exploring the potential of new pedagogies and new technologies; and clear dedication to the highest quality teaching, especially at the introductory level. These are precisely the qualities that we had hoped to sustain and nurture through this important new initiative. My colleagues and I look forward very much to the tangible results of these proposals—and to the many additional proposals that will come in subsequent funding rounds."

This semester, faculty will be invited to submit new proposals for the second funding round, which will yield grants for courses to be offered in the 1997-98 academic year. ♦

Cogeneration

Continued from page 1

first used in 1903 to electrify the campus. A 1972 article by Foster Jacobs, former director of the Physical Plant, describes how the newly formed University Power Co. installed a steam turbine-driven generator and used "exhaust steam" to heat buildings.

As demand for power skyrocketed, it became easier for Princeton (and most electricity users) to simply buy power from the local utility. But federal legislation passed in 1978, the Public Utility Regulatory Policies Act, encouraged companies to develop efficient, reliable energy sources by requiring utilities to purchase independent power. (Senior Research Scientist Robert Williams played an important role in convincing the Carter Administration to adopt this policy.)

District heating, cooling

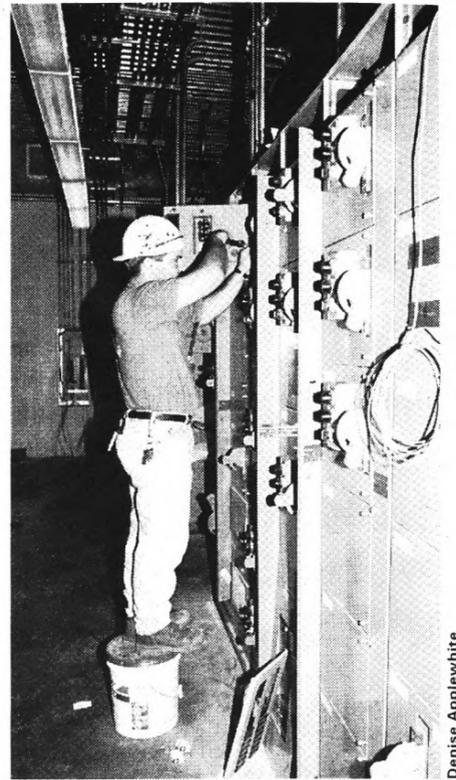
The University already controls building temperatures through "district heating" and "district cooling," in which steam and chilled water are pumped through separate networks of underground pipe to heat and cool the campus. Waste heat produced by the new cogeneration plant will be used to make steam, which will then be directed through the heating network. Steam will also be used to run chillers that cool the water pumped through the chilled water network. District heating and district cooling have been used on campus for decades. These methods, which are very popular in Europe, are also used in the state capital, where the Trigen Trenton District Energy Corp. serves state offices and high-rise apartments.

Princeton's plant will also incorporate new technologies to limit the amounts of oxides of carbon, nitrogen and sulfur produced during the cogeneration process, in accordance with state and federal clean air requirements. Current thinking in environmental policy emphasizes pollution prevention, rather than the use of filters and air scrubbers to contain harmful emissions. Any emissions visible from the plant's two stacks will be less detrimental to the environment than those produced by the old boilers.

300,000 lbs. of steam per hour

Cogeneration is popular among power users who need a steady supply of electricity and thermal energy. "Where you have a need for both, it makes sense," Borer said. While Princeton uses less steam in the summer than during the academic year, the campus still needs enough during those months to make the plant a worthwhile venture.

The plant's steam and electricity capacities were selected with the twin goals of maximum plant utilization and the ability to someday serve new dormitories and the planned campus center. Princeton's current peak steam demand is 244,000 pounds per hour in January; the new plant will be able to produce 300,000 pounds per hour without a loss of reliability. The electric generating capacity of 14.6 megawatts is actually less than the peak demand of 18 megawatts, but there's a good reason for this. Cost efficiency is the goal, so it does not make sense to build a plant with more electric generating capacity than the campus needs on a



Gino Pasqualone of MCI Inc. working on installation

typical day. When the campus needs more power, Borer said, Princeton will buy it from Public Service Electric and Gas.

PSE&G is obligated to buy any electricity Princeton does not need; thus, if Princeton had built a larger plant than it needed, PSE&G's obligation to purchase power would have been greater. While some independent power producers try to sell as much electricity as possible, that was not Princeton's goal. "Princeton's mission is education; energy production is a support function," Borer said. "The trustees didn't want to be in the energy export business."

Last week plant operators were close to "synchronizing" with PSE&G, which means that Princeton will be able to ship surplus electricity to the power grid that serves New Jersey, Pennsylvania, Maryland and Delaware.

"Sky gray" stacks

Borer is particularly pleased with Princeton's approach to training and testing the 26 operators who will run the new plant. Over the past year, eight operators were sent to view a similar operation at the University of California, Los Angeles. Representatives from each company that made the various components of the new plant, such as the air compressor or the gas turbine, came to Princeton for teaching sessions. Operators were able to train and take tests on a computer simulator during slow periods of their shifts, which reduced the need for operators to stay on campus for classes after a long day, Borer pointed out.

The plant site is designed to be aesthetically unobtrusive, Borer said. The two stacks have been painted "sky gray," and the siding and brick colors were selected to blend with surrounding buildings. Landscaping and extra trees in a nearby parking lot will enhance the look, he said.

There were a few unexpected delays, such as one caused by President Clinton's visit at graduation.

"Giant oil tanks were parked along Route 1 for two days," Borer said. "We thought the Secret Service might not be amused if five steel tanks, 12 feet in diameter and 60 feet long, followed the Presidential motorcade onto campus."

So they waited till the day after commencement. ♦

Princeton Weekly Bulletin

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Deadlines

All news, photographs and calendar announcements for the Bulletin that covers **October 7 through 13** must be received in the Communications office no later than Friday, **September 27**.

On Human Resources

Vice president discusses highlights of first year in office, future directions

Joan Doig reflects on her first year as vice president for human resources. Formerly general manager of HR, she became acting vice president in October 1995 and was appointed on a permanent basis in January 1996.

What do you see as the highlights of your first year in office?

As human resources professionals, we have frequent conversation with managers about how to manage the effects of change. This past fiscal year we had ample opportunity to practice what we preach. Major events were the change in leadership and putting together a major restructuring in the way we organize our work and deliver our services to the University community. We also oversaw changes in some key policy areas—management development, fairness review and compensation strategy. And we responded to a few unanticipated events, including the hiring pause.

How did the hiring pause affect HR?

The hiring pause and the related four percent budget reduction for all University departments had significant impact on HR both for its external work—that is, providing services to departments—and its internal work, its own operation.

HR representatives assisted departments in determining whether positions could be left vacant, and if so, for how long, and whether positions could be eliminated. Many office heads consulted with the reps in establishing overall strategies for budget reduction, and reps worked with Benefits and Labor Relations to clarify issues related to recall, severance and criteria for layoff. Internally, the pause gave the Employment section time to do some research on advertising policies and on travel and relocation services.

By early spring it became clear that although the hiring pause had slowed the pace of filling vacancies, it wouldn't mean less hiring. It did cause managers

to consider more carefully before filling a vacant position and to anticipate not only the current needs of a department but its future needs as well. Jobs are changing at Princeton and will continue to change.

What makes the policy areas of management development, fairness review and compensation strategy "key" ones?

The reason these areas are key, we feel, is that if the changes we implement are successful, they have the potential to alter the Princeton management landscape, to shift it toward the ideal expressed in one of our management principles: "a work environment that is collaborative and flexible, in which employees' ideas are encouraged and heard, the work of the department and the mission of the University are clearly understood, and high professional standards are fostered for all employees."

What changes have been made in these areas?

In management development, we worked last year to implement a significant finding of the Management Development Task Force: that longer term solutions for improving management skills and practice reside not in training workshops but in the more extended process of developing managers, from the top down, to make the best use of all their resources. The hiring pause and budget reduction brought home to everyone that "doing more with less" is going to be a necessity. The first two days of a planned three-day conference brought together approximately 130 managers—members of the President's Cabinet, department chairs, senior admini-

strators and academic managers—to learn about management practices and techniques. Our goal is to create a "community of managers" actively committed to improvement and innovation in the way work is performed.

With respect to fairness review, we've restructured Princeton's grievance process. The new Fairness Review Process, we believe, will minimize antagonism among affected parties and streamline the redressing of grievances. An announcement of the new process has been sent to employees and publicized in the Princeton Weekly Bulletin.

In the area of compensation, we're in the process of a comprehensive review of our compensation strategies. Last year we gathered valuable information about factors affecting Princeton, perceptions about current compensation programs and recommendations for future directions. Over the past few months we've begun the process of developing consensus among key senior officers on major issues such as merit versus cost-of-living raises and "pay for performance." By the end of 1996 we expect to have a defined compensation strategy.

What is the major organizational restructuring of HR that you mentioned?

The new organization reflects four critical changes. First, we're aligning our structure to deliver better service to clients in the University and to shift transactional and processing work behind the scenes. Second, we're committing more staff to work directly with clients. Third, we're undertaking a process review to determine ways to provide more efficient transactional and processing work. And fourth,



Joan Doig

we've established a new planning function to promote regular assessment of our programs and policies, ensure systematic planning, and establish a new network of communication across HR.

When the reorganization is launched in the next month or so, employees will receive specific information about how the new organization will affect the way they do business with us. In general, we believe the new organization will allow us to provide a better quality of service across the University.

What do you see as major priorities for 1996-97?

Completion of the reorganization is certainly one, and moving forward in management development is another. Most of the other projects and programs currently under way are directly linked to these two. In the compensation strategy review, for instance, the effort to link pay and performance are part of the continuing attempt to increase the understanding and practice of good management.

All our projects are part of Human Resources' ongoing efforts to create a more productive and innovative work place and to provide excellent service to all University staff. ♦

Survey

Continued from page 1

would read more if the stories were longer, 11 percent.

Fifty-four percent of respondents think the Bulletin is especially relevant to faculty, and the same percentage think it is especially relevant to staff. Those who believe the Bulletin lacks relevance to faculty constitute two percent; those who believe it lacks relevance to staff, 16 percent.

More than half the respondents indicated that they "most often read" stories about University policies and Human Resources issues and benefits, stories about faculty research and staff members, the Weekly Calendar, and write-ups of faculty and staff awards ("People") and upcoming events ("Nassau Notes"). Stories about students and teaching are most often read by between 30 and 40 percent of respondents.

Write-ins

Two hundred-eighty (more than 18 percent) of the questionnaires were returned with handwritten comments.

Sixty-two of those emphasized the desire for a change in delivery.

Fifty-five comments contained some variation of "Keep up the good work!"

A few people complained that the Bulletin is delivered late to their home. This is a problem with the U.S. Mail. The Bulletin is delivered to the main post office on Roszel Road on Thursday afternoons, so as to reach local addresses by Saturday. We do not know why it should take as much as six days to reach some nearby N.J. addresses. One possibility is that there is something wrong with your address in the University database. If your label is correct, your local post office may be able to clear up the problem.

Eight people suggested putting the Bulletin—or more of it—on the Internet. We do post the calendar each Thursday, as soon as we go to press, and we post selected stories. Our URL is <http://www.princeton.edu/pr/pwb/>. For those who would like to see more on the Internet: We're working on it.

Calendar

Fifteen people expressed a wish for a more inclusive calendar.

We print every item submitted to us that a) occurs on campus and b) has University sponsorship. Sponsoring entities, please tell us about your events. Readers, if you find out about an event that was not publicized in the calendar, this is because the sponsor didn't submit it.

Stories

Seventeen people suggested we run more stories on staff members, both on the job and in their personal lives outside work. We rely on members of the University community to alert us to people or events that they think would make interesting stories. Any time you think "That would make a good story for the Bulletin," give us a call and tell us about it.

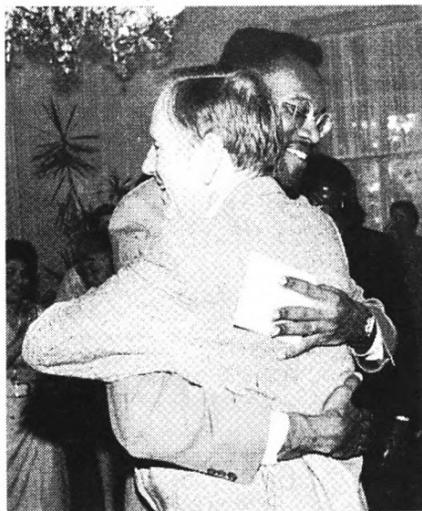
Several people from the Plasma Physics Lab pointed out that there are rarely stories that relate specifically to the lab. This is true. Stories about any specific unit or discipline occur only infrequently. We try to focus on different areas, in order to give a sense of the variety of Princeton's endeavors.

Two-way thanks

A dozen people expressed disapproval of the Bulletin as a "public relations organ," a "self-serving" vehicle for "puff pieces"—even "a collection of hymns of praise" to the University. While it's true that we accentuate the positive, we also try to be accurate, informative and even entertaining. As one sardonic soul observed, "Princeton is not the center of the universe"—but it is the focus of this publication.

Four people said, "Thanks for asking."

We say, "Thanks for answering." ♦



Ron Carter

Adieu. Dean of Religious Life and the Chapel Joseph Williamson (l) was among some 75 colleagues and students who gathered to pay their respects to William Gipson at Prospect House on August 28. Gipson has left his position as associate dean of religious life and the chapel at Princeton to become University chaplain and special adviser to the president at the University of Pennsylvania.

Calendar September 23-29

Monday

September 23

Lectures

4:00 p.m. Chemical Engineering seminar. "Thermodynamic Equilibrium and Hysteresis Phenomena in Nanoconfinements." Alex Neimark, Textile Research Institute. A224 Engineering Quadrangle.

Notices

Noon. Alcoholics Anonymous meeting. Membership not required to attend. West Room, Murray-Dodge.

Tuesday

September 24

Arts

◆ **8:00 p.m.** McCarter Theatre drama series. George S. Kaufman and Edna Ferber: *The Royal Family*. McCarter Theatre.

Lectures

2:30 p.m. Econometric Research/Morgenstern Memorial seminar. "Inference From Parametric and Non-parametric Covariance Matrix Estimation Procedures" and "A Practitioner's Guide to Robust Covariance Matrix Estimation Procedures." Andy Levin, Federal Reserve Board. 200 Fisher.

3:30 p.m. Mechanical and Aerospace Engineering seminar in Applied Physics, Fluid Mechanics, Combustion, and Dynamics and Control. "Mixture Fraction Imaging in Turbulent Non-premixed Flames." Marshall Long, Yale University. J201 Engineering Quadrangle. Social gathering at 4:30 p.m., J223 Engineering Quadrangle.

4:30 p.m. Graduate School/Computing and Information Technology seminar. "Mappamundi: Online Resources for the Study of Medieval Culture." Michael Curschmann. 101 Marx.

4:30 p.m. U.S. Japan Relations lecture. "On the Political Imagination of Japanese and Myself." Kenzaburo Oe. 6 Robertson.

Notices

12:15 p.m. Women's Studies graduate student meeting. 40 McCosh.

Wednesday

September 25

Arts

12:30 p.m. Chapel Music organ concert. Mark Anderson, Presbyterian Church at Chestnut Hill, Philadelphia. Chapel.

4:30 p.m. Creative Writing poetry reading. Simon Armitage and Glyn Maxwell reading their work. Film Theater, 185 Nassau St.

- ◆ Admission charged
- ◇ Not open to general public

All other events are open to members of the University community and the general public free of charge. Any speaker not otherwise identified is a member of the faculty, staff or student body of Princeton University.

The Weekly Calendar is posted online at <http://www.princeton.edu/pr/pwb/>.



Intime. Greg Bratman '97 (l) as Hamlet, Jessie Carry '98 and Bronwen Gilbert '99 perform in Theatre Intime's production of *The Actor's Nightmare* and *Sister Mary Ignatius Explains It All for You* at 8:00 p.m. September 26 through 28.

◆ **8:00 p.m.** McCarter Theatre drama series. George S. Kaufman and Edna Ferber: *The Royal Family*. McCarter Theatre.

Lectures

12:15 p.m. Development Studies seminar. "Income Seasonality, Precautionary Saving and Borrowing Constraints in an Agrarian Economy." Shubbam Chaudh, Columbia University. 012 Bendheim.

4:00 p.m. Chemical Engineering/Princeton Materials Institute seminar. "Promoting Adhesion at Penetrable and Impenetrable Interfaces." Anna Balazs, University of Pittsburgh. Auditorium, Bowen. Social gathering at 3:30 p.m., Atrium.

4:15 p.m. Industrial Relations seminar on Labor Economics. "Mobility and the Return to Education: Testing the Roy Model With Multiple Markets." Gordon Dahl. 200 Fisher.

4:30 p.m. Ecology and Evolutionary Biology colloquium on the Biology of Populations. "Maintenance of a Flower Color Polymorphism in Morning Glories." Mark Rauscher, Duke University. 10 Guyot.

4:30 p.m. Woodrow Wilson School community policy forum. "Environmental Management and Change: Policy Responses." Clinton Andrews, Daniel Kammen, Simon Levin and Michael Rothschild. 1 Robertson.

5:30 p.m. Architecture Labatut lecture. "The Ugly." Mark Cousins, Architectural Association, London. Betts Auditorium.

Notices

8:00 a.m. to 4:00 p.m. American Red Cross blood drive. Dillon Gym. Call Tam Feld at 258-5940 or e-mail feld@princeton.edu for appointment.

7:30 p.m. Go Club meeting. Computing Center. For information call Rick Mott, 924-7310 or 466-1602.

Sports

7:30 p.m. Men's soccer vs. Seton Hall University. Lourie-Love Field.

Thursday

September 26

Arts

◆ **8:00 p.m.** McCarter Theatre drama series. George S. Kaufman and Edna Ferber: *The Royal Family*. McCarter Theatre.

◆ **8:00 p.m.** Theatre Intime plays. Christopher Durang: *The Actor's Nightmare* and *Sister Mary Ignatius Explains It All For You*. Theater, Murray-Dodge. For reservations call 258-4950.

◆ **8:00 p.m.** University Concerts. Angeles String Quartet. Music by Haydn, Beethoven, Schubert and Webern. Richardson Auditorium, Alexander.

Lectures

4:00 p.m. Mathematics seminar. "Seiberg-Witten Invariant=Milnor Torsion." Guowu Meng, Institute for Advanced Study. 314 Fine.

4:30 p.m. International Studies/Development Studies/African Studies seminar. "The Politics and Economics of African Reform and Development: The Case of Ghana." Kwosi Botchwey, Harvard University. 1 Robertson.

4:30 p.m. Woodrow Wilson School lecture. "Privatizing the Public Service: Reflections on the New Zealand Experience." Charlotte Williams, New Zealand Ministry of Justice. 6 Robertson.

5:30 p.m. Electrical and Electronics Engineers/POEM seminar. "Optoelectronics With Organic Thin Films." Stephen Forrest. Auditorium, Bowen.

8:00 p.m. 250th Anniversary. "The Town of Princeton and the University." Wanda Gunning, Princeton Historical Society. Film Theater, 185 Nassau St.

Notices

◆ **Noon.** International Center conversation over lunch. Murray-Dodge.

8:30 p.m. Amnesty International meeting. Murray-Dodge.

9:00 p.m. University Observatory open house to observe total eclipse of the moon. Peyton.

Friday

September 27

Arts

8:00 p.m. Composers Ensemble concert. *Easter Eve*, by Constance Cooper, with Cooper and Susan Swaney, sopranos; Michael Wilson, baritone; Margaret Kampmeier, synthesizer; and Walter Hilse, organ. University Chapel.

◆ **8:00 p.m.** McCarter Theatre drama series. George S. Kaufman and Edna Ferber: *The Royal Family*. McCarter Theatre.

◆ **8:00 p.m.** Theatre Intime plays. Christopher Durang: *The Actor's Nightmare* and *Sister Mary Ignatius Explains It All For You*. Theater, Murray-Dodge. For reservations call 258-4950.

Lectures

2:00 p.m. Mechanical and Aerospace Engineering seminar in Applied Physics, Fluid Mechanics, Combustion, and Dynamics and Control. "Advanced Aeronautical Concepts." Dennis Bushnell, NASA Langley Research Center. C207 Engineering Quadrangle.

3:30 p.m. Geosciences seminar. "Earthquake Fault Operation at Low Overall Driving Stress." Jim Rice, Harvard University. 10 Guyot.

4:00 p.m. Philosophy seminar. "On (Yet More) Criticisms of a Physicalist Theory of Colors." Alex Byrne, Massachusetts Institute of Technology. 106 McCormick.

4:00 p.m. Psychology lecture. "fMRI Studies of the Role of Prefrontal Cortex in Working Memory." Jonathan Cohen, Carnegie Mellon University. Langfeld Lounge, Green.

Saturday

September 28

Arts

◆ **4:00 and 8:30 p.m.** McCarter Theatre drama series. George S. Kaufman and Edna Ferber: *The Royal Family*. McCarter Theatre.

◆ **8:00 p.m.** Theatre Intime plays. Christopher Durang: *The Actor's Nightmare* and *Sister Mary Ignatius Explains It All For You*. Theater, Murray-Dodge. For reservations call 258-4950.

Sports

11:00 a.m. Women's soccer vs. Dartmouth College. Lourie-Love Field.

Noon. Women's field hockey vs. Dartmouth College. 1952 Stadium.

◆ **1:00 p.m.** Men's football vs. Holy Cross University. Palmer Stadium.

4:00 p.m. Men's soccer vs. Dartmouth College. Lourie-Love Field.

Sunday

September 29

Arts

◆ **2:00 p.m.** McCarter Theatre drama series. George S. Kaufman and Edna Ferber: *The Royal Family*. McCarter Theatre. Dialogue on Drama follows.

3:00 p.m. Friends of Music recital. Phyllis Billington, piano. Music by Haydn, Schubert, Schumann and Debussy. Taplin Auditorium, Fine.

Notices

◆ **10:30 a.m. to 2:00 p.m.** Prospect Sunday brunch. Prospect House.

11:00 a.m. University Chapel service. Joseph Williamson. Chapel.

Exhibits

Art Museum

Tuesday-Saturday, 10:00 a.m. to 5:00 p.m.; Sunday, 1:00 to 5:00 p.m. Closed Mondays and major holidays.
Public tours, Saturdays, 2:00 p.m.
"An Art Museum for Princeton: The Early Years." Through October 27.
"What Photographs Look Like." Through October 20.

Firestone Library

Exhibition Gallery and Milberg Gallery for the Graphic Arts (second floor): Monday-Friday, 9:00 a.m. to 5:00 p.m.; Saturday and Sunday, noon to 5:00 p.m.
"A Centennial Exhibition in Celebration of F. Scott Fitzgerald (1896-1940) Class of 1917." Through September 29.
"Whitney Darrow, Jr., His Art and Humor." Through September 29.
Lobby: Open library hours.

Gest Oriental Library

Jones Hall. Monday-Friday, 9:00 a.m. to 11:00 p.m.; Saturday, 10:00 a.m. to 5:00 p.m.; Sunday, 2:00 to 11:00 p.m.
"Modern East Asian Typography."

Humanities Council

Lucas Gallery, 185 Nassau St. Monday-Friday, 10:00 a.m. to 7:00 p.m. Closed weekends.
Quilts by Ruth Carden. Through September 27.

Seeley G. Mudd Library

Olden Street. Monday-Friday, 9:30 a.m. to 4:30 p.m., Wednesday until 7:30 p.m. Closed weekends.
"Recall Those Days of Gladness: Autograph Books and Scrapbooks from the 19th Century."

Women's Studies

Lounge, 113 Dickinson Hall. Monday-Friday, 9:00 a.m. to 4:30 p.m. Closed weekends.
"Creations in Drawings, Portraits and Oil Stick" by Sayantani Dasgupta. Through October 17.

Woodrow Wilson School

Bernstein Gallery, Robertson Hall. Monday-Friday, 8:00 a.m. to 10:00 p.m., Saturday and Sunday, 8:30 a.m. to 5:00 p.m.
"Campus/Community" exhibit of works by 50 Princeton artists. Through October 3.

Et cetera

Athletic Ticket Office

Tickets and information: 258-3538.

Dillon Gymnasium

Hours: 258-4466.

Library

Hours: 258-3181.

McCarter Theatre Box Office

Reservations: 683-8000, Monday-Saturday, 9:00 a.m. to 8:00 p.m.; Sunday, 11:00 a.m. to 6:00 p.m.

Occupational Medicine

109 McCosh Health Center. Appointments: 258-5035, Monday-Friday, 9:00 a.m. to 4:00 p.m. After hours emergencies: 258-3139.

Orange Key Guide Service

Maclean House (rear entrance). Tours Monday-Saturday at 10:00 and 11:00 a.m., 1:30 and 3:30 p.m.; Sunday at 1:30 and 3:30 p.m. (no tours held on afternoons of football games).
Information and tours: 258-3603.

Plasma Physics Lab

Forrestal. Tours: 243-2750.

Prospect Association

Information: 258-3455.

Richardson, Taplin Auditoriums

Reservations: 258-5000, Monday-Friday, noon to 6:00 p.m.; and two hours before events requiring tickets.

Tiger SportsLine

Current sports highlights and upcoming athletic events: 258-3545.



Ruth Carden with quilts on display at 185 Nassau St.

Robert P. Matthews

Art and craft of a quilt maker

By Caroline Moseley

What's the difference between an art and a craft? None, in the work of quilt maker Ruth Carden.

Carden, department manager for the University's programs in Visual Arts, Creative Writing, and Theater and Dance, retires this month from the job she has held since 1977. She leaves 185 Nassau St. as an artist and craftswoman should: with an exhibit of her own work.

Carden designs and makes quilts, about 15 of which are hung in the Lucas Gallery through September 27. The quilts, opulently colored and intricately patterned, are seen to wonderful effect on the gallery's white walls. Carden herself gets a better view than usual, because "I can't see them nearly this well at home."

The exhibited quilts, all on loan from Carden's friends and family members, vary in size and palette.

The largest, about 90 inches square, is an arrangement of primarily purple hues, "made for my eldest daughter from pieces of clothing she had when she was little. She always loved purple." The design combines traditional elements, such as the large eight-pointed star in the center, with nontraditional motifs, such as light and dark horizontal stripes.

The smallest is a crib quilt in striking azure and green, made for the baby of one of Carden's colleagues at 185 Nassau.

One quilt is a misty mountainscape; one, in rich tapestry colors, resembles bargello stitchery writ large; one seems an amalgam of exploded shards of color. Other quilts are experiments in design such as "trying to get a three-dimensional effect with flat pieces of fabric," says Carden.

250 hours of physical labor

How long does it take to produce one of these gems? A long time, says Carden. "The big purple one took about 250 hours of physical labor, not including the time spent thinking about it and making sketches." She finds these hours "very, very early in the morning, before I come to work, and every evening, regardless of when I get home."

A quilt, says Carden, consists of three layers: cover, stuffing and lining, all sewn together. She does the patchwork or "piecing" for the cover by

machine ("or else I'd never finish") and the quilting by hand. She believes that "We romanticize the idea of old fashioned quilting bees. If those women had had machines, they would have used them."

Though Carden sometimes has a design in mind, she usually begins a project by "thinking color" in the 15 by 30 foot studio she maintains at home. The studio is lined with shelves, on which are stacked fabrics arranged in color groupings. "I buy a lot of fabric everywhere I go," she says. "If I like it, I buy a yard; if I love it, I buy two yards; and if I can't live without it, I buy five yards."

She cuts and lays out various combinations on a drafting table. "I also work with a design wall," she says, a four by eight foot bulletin board "covered with white flannel, on which I can stick pieces of fabric."

She sketches designs with "pastels, crayons, pencils, whatever is at hand." She occasionally works with wool or silk but usually with cotton. Stuffing and lining are also cotton, so the quilts are washable.

Texture and pliability

Carden, who grew up in Tennessee, began quilting 30 years ago. "It's always been part of my life," she says. "I remember my mother and grandmother and aunts quilting. I still have a quilt my mother made for me."

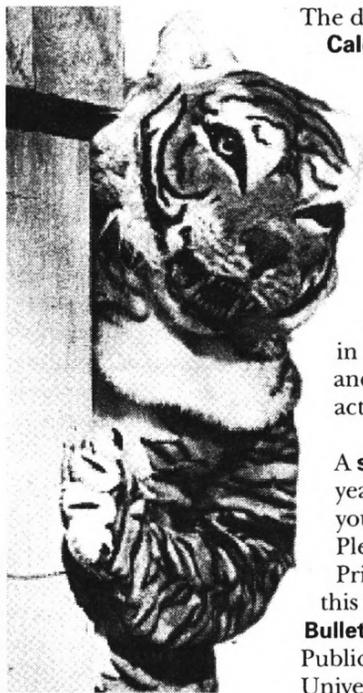
When Carden's three children were young, "I wasn't working in any organization other than my home. I started putting fabrics together to see what happened." Quilting became a serious endeavor in 1976, when she began her career in arts administration at the Museums at Stony Brook in Stony Brook, N.Y., where she directed a crafts school.

Interested in all arts, Carden is particularly drawn to quilting because "I like the feel of the fabric, its texture and pliability. You can ease and stretch fabric as you can't plaster or bronze."

Working at 185 Nassau, she says, has not only immersed her in a community of artists but expanded her own artistic vision. "When I began quilting," she says, "I used traditional designs. Now, I no longer want to copy traditional patterns, or copy anything." ♦

What's happening?

Subscribe to the Princeton Weekly Bulletin and you won't have to ask what's happening at the University.



Bruce Berenson

The day-by-day, hour-by-hour **Weekly Calendar** lists University-sponsored events scheduled on campus: lectures, concerts, athletic events, exhibits, movies and plays (including McCarter Theatre productions).

News and feature stories introduce you to University issues and people and keep you abreast of campus events, developments in research and teaching, faculty and staff achievements, and student activities and perspectives.

A **subscription** covering the academic year 1996-97 is **just \$24** (half price if you're over 65 or a Princeton parent). Please make your check payable to Princeton University and mail it with this coupon to Princeton **Weekly Bulletin**, Communications and Publications, Stanhope Hall, Princeton University, Princeton NJ 08544.

Name _____

Address _____

Grants available

Further information on the opportunities listed may be obtained from Jan Anderson or Dee Boscarino (258-3976 or 258-4958), Office of Research and Project Administration. Grant applications are available in limited numbers from ORPA unless otherwise noted.

American Council of Learned Societies

October 15. National Program for Advanced Study and Research in China. Supports research on China or Chinese portion of comparative studies by doctoral students in social sciences or humanities. Grants are for two to 12 months.

November 1. Contemplative Practice Fellowships. Support summer 1997 projects to develop courses and teaching materials for 1997-98 that explore contemplative practice. Maximum stipend is \$20,000.

November 1. Fellowships for post-doctoral research in East European studies. Support six consecutive months of full time research.

November 1. Dissertation fellowships in East European studies. Support dissertation research or writing outside Eastern Europe for one academic year. Maximum stipend is \$15,000 plus expenses.

November 15. Henry Luce Foundation/ACLS Dissertation Fellowship Program in American Art. Supports work by art history candidates working on history of visual arts in the U.S. who have completed all requirements for PhD. Stipend is \$18,500 for one year beginning summer 1997.

American Heart Association

December 6. Grants in aid. Support research on cardiovascular function and disease or related problems. Award is \$66,000 for two-year projects.

Fellowship. Supports research and training in cardiovascular research techniques under supervision of senior sponsoring scientist. Awards are for one or two years, \$12,500 a year for pre-doctoral and \$20,000 for postdoctoral fellows.

American-Scandinavian Foundation

November 1. Study in Scandinavia. Grants support research projects by U.S. citizens or permanent residents with some ability in language of host country. Awards for Scandinavians to study in U.S.

American Schools of Oriental Research

January 15, 1997. Postdoctoral Fellowships at the Cyprus American Archaeological Research Institute in Nicosia, Cyprus. Support research in archaeology, anthropology, ancient history, philology, epigraphy, religion, art history, geography, folklore, literature, philosophy and related disciplines. Maximum stipend for one year beginning May 1 is \$30,000.

Cornell University

October 21. Society for the Humanities-Postdoctoral Fellowships. Theme is Why Trauma, Why Psychoanalysis? Fellows do research and write and are encouraged to offer informal seminar related to their research. Award is \$32,000 for one year.

January 4, 1997. Mellon Postdoctoral Fellowships. Support research by citizens or permanent residents of U.S. and Canada on projects in Asian studies, classics, German studies, Romance studies, Russian literature, science and technology studies. Must have PhD since 1991. Stipend is \$28,000.

Council for International Exchange of Scholars

November 1. Fulbright Scholar in Residence Program. Brings visiting lecturers in arts, humanities, social sciences and related fields for semester or academic year.

European Union Scholar in Residence Program. Brings EU official to serve as resident fellow.

Fulbright International Education Administrators Program. Allows campus administrators to attend short-term seminars in international education in Germany, Japan and Korea.

Fulbright German Studies Seminar. Allows faculty in German studies, communications, history, sociology and political science to attend three-week seminar on German society today.

January 1, 1997. NATO Advanced Research Fellowships and Institutional Grants. Support research on political, security and economic issues directly affecting health of NATO alliance.

Harvard University

December 19. Program in Ethics and the Professions. Fellowships aid teachers and scholars in developing ability to address questions of moral choice in business, education, government, law, medicine, public policy and social science. Maximum stipend is \$35,000 plus study, library privileges and modest research allowance.

Institute of Early American History, Culture

November 1. Postdoctoral fellowship. Supports work in early American studies by assistant professor who will also teach six semester hours during two-year term. Stipend is \$30,000 plus office, research and computer facilities, and funds for travel.

International Research, Exchanges Board

October 1, February 1, and June 1. Short term travel grants. Support for projects on Central and Eastern Europe, Eurasia and Mongolia.

November 1. Bulgarian Studies Seminar. One-month grants for study in Sofia during July.

November 1. Individual Advanced Research Opportunities. Grants of up to one year for pre- and postdoctoral scholars for research at institutions in Central and Eastern Europe, Eurasia and Mongolia.

Mid-January 1997. Special Projects in Library and Information Science. Grants support projects relating to Central and Eastern Europe and Eurasia by librarians, archivists and information specialists.

Late January 1997. Host Universities for Graduate Students from Baltic Countries and Eurasia.

National Research Council

Collaboration in Basic Science and Engineering. Travel and host grants for American specialists to establish research partnerships with colleagues in Central and Eastern Europe (CEE) and Newly Independent States (NIS).

Short-term project development grants. Help American specialists host or visit CEE or NIS colleagues for two weeks to prepare collaborative research proposals. Deadlines are December 30, April 7 and August 11. Grants range from \$2,200 to \$2,500.

National Science Foundation

Biological Sciences

October 11. Doctoral Dissertation Improvement Grants in Directorate for Biological Sciences.

October 17. Faculty Early Career Development.

November 1. Joint NSF/Alfred P. Sloan Foundation Postdoctoral Research Fellowships in Molecular Evolution.

November 15. Long Term Projects in Environmental Biology—Biotic surveys and inventories.

December 6. Minority Postdoctoral Research Fellowships.

December 15. Research Planning Grants and Career Advancement Awards for Women Scientists and Engineers.

December 15 (target date). Ecological studies.

Computer, Information Science, Engineering Infrastructure.

October 21. CISE Research Infrastructure.

November 1. Postdoctoral Associate-ships in computational and engineering and in experimental science and experimental computer science.

November 1 (target date). Robotics and Machine Intelligence. Circuits and Signal Processing. Design, Tools, and Test. Experimental Software Systems. Experimental Systems Interactive Systems. Microelectronic Systems Architecture. Systems Prototyping and Fabrication.

December 1. Networking and Communications Research.

Education, Human Resources

October 15. Alliances for Minority Participation. Implementation Proposals. Comprehensive Partnerships for Mathematics and Science Achievement.

November 7. Graduate and Minority Graduate Research Fellowships.

November 4. Computer Systems, Architecture and Software—Operating Systems and Distributed and Parallel Computing.

Mid-November. NATO Postdoctoral Fellowships in Science and Engineering.

November 15. Academic Advancement in Research and Education. Instrumentation and Lab Improvement.

November 15 (target date). Informal Science Education.

December 1. Centers of Research Excellence in Science and Technology.

December 10. Advanced Technological Education.

Engineering

October 9. Combined Research-Curriculum Development.

Geosciences

October 15 (target date). Geospace Environment Modelling.

November 1 (target date). Radiative Inputs from the Sun to the Earth.

December 1. Active Tectonics. Cooperative Studies of the Earth's Deep Interior. Division of Earth Sciences—Geology and Paleontology; Geophysics; Hydrologic Sciences; Petrology and Geochemistry. Earth Sciences Post-doctoral Research Fellowships.

December 1. Division of Atmospheric Sciences.

Mathematical, Physical Sciences

October 8 (target date). Gravitation Physics. Special Programs and Conferences. Theoretical Physics.

October 11 (target date). Algebra and Number Theory.

October 15. Condensed Matter Physics. November 1. Instrumentation for Materials Research.

November 1 (target date). Materials Theory. Metals, Ceramics and Electronic Materials. Solid-state Chemistry and Polymers.

November 6 (target date). Division of Mathematical Sciences—Applied Mathematics; Geometric Analysis; Topology and Foundations; Statistics and Probability.

November 12 (target date). Atomic, Molecular, Optical and Plasma Physics. Elementary Particle Physics. Nuclear Physics.

November 13 (target date). University/Industry Cooperative Research Programs in the Mathematical Sciences.

December 4 (target date). Division of Mathematical Sciences—Mathematical Biology; Analysis; Computation Mathematics.

Office of Polar Program

December 15. Arctic Research.

December 15 (target date). Arctic Social Sciences. Arctic System Sciences.

Social, Behavioral, Economic Sciences

October 15. Sociology—Doctoral Dissertation Improvement Awards.

October 31 (target date). Archaeometry Competition.

November 1. Cooperative Science Programs with Argentina, Brazil, Chile, Mexico and Venezuela. International Research Fellow Program. Japan International Research Fellow Awards.

November 1 (target date). Cooperative Research Programs with the Americas.

November 15. U.S.-Israel Binational Science Foundation.

December 1. Geography and Regional Science Doctoral Dissertation Improvement Awards. Summer Institute in Korea for U.S. Graduate Students in Science and Engineering. Summer Programs in Japan for U.S. Graduate Students in Science and Engineering.

December 1 (target date). Archaeology. Cultural Anthropology. Physical Anthropology.

Office of Naval Research

September 30 (proposals due). Volume visualization grants. Support unclassified basic research on algorithms for volume visualization: volume rendering, volume modeling and volume physics. For more information call Larry Rosenblum at (703) 696-0990 or e-mail rosenblum@ait.nrl.navy.mil and refer to BAA 96-015.

Radcliffe College-Mary Ingraham Bunting Institute

Residential fellowships. Call ORPA for description of programs.

October 15. Bunting, Science Scholars, Biomedical Research and Marian Cabot Putnam fellowships.

January 15. Peace and Berkshire Summer fellowships.

Recording Industry Association of America

Unpaid internships from September-December, January-May, June-August. Interns assist in tracking legislation concerning copyright law and new technologies, international trade and piracy, information superhighway, and First Amendment and freedom of expression, and attend related Congressional hearings; provide assistance in grassroots mobilization of industry; conduct independent research; and assist with general office support. Academic credit may be arranged.

Social Science Research Council

November 15. Grants for Advanced Research. Support individual postdoctoral research related to Japan in the humanities and social sciences for two to 12 months.

U.S. Institute of Peace

Jennings Randolph Program for International Peace

October 1. Senior fellowships.

November 15. Peace Scholar Dissertation Fellowships. Support projects on peace and conflict issues as they affect international relations. Award is \$14,000.

Zonta International Foundation

November 1. Amelia Earhart Fellowship Awards for Women. Applicants must have bachelor's degree in qualifying area of science or engineering closely related to advanced studies in aerospace science or engineering. Grant is \$6,000.

Employment

Complete descriptions of positions are available in the Office of Human Resources, Clio Hall, at other campus locations and on the World Wide Web at <http://webware.princeton.edu/hr/posting.htm>. Due to space limitations, all job qualifications, including physical requirements, may not be listed below.

For job information call (609) 258-6130. To apply for a current job, send application to Human Resources, Clio Hall, Princeton University, Princeton NJ 08544 (include two resumes when applying for administrative staff), unless otherwise noted. Internal candidates must include transfer/promotion form. Employment office hours are Monday through Friday, 9:00 a.m. to 4:00 p.m.

*New listing.

Administrative and related staff

Assistant dean. Supports interfaith initiatives and programs. Requires theological degree, commitment to religious pluralism, and appreciation for interaction of religion and intellectual life. Responsible for Hallelujah! worship service. Ordination and prior student ministry desirable. Application deadline: October 18. Grade 5/6. Salary minimum: \$35,020/\$39,265.

***Business manager.** Requires BA or administrative experience; and good communication, interpersonal, organizational and computer skills. Familiarity with University policies and grants administration desirable. Grade 4. Salary minimum: \$31,836.

Mechanical, Aerospace Engineering Req. 2003SW

Department manager. Responsible for financial and facilities management, and personnel and grants administration. Requires BA, academic, administrative and computing experience, and strong interpersonal and communication skills.

Computer Science Req. 3732SW

***Director, corporate and foundation relations.** Secures resources from corporations and foundations. Requires experience in corporate or foundation relations (university environment preferred), strong management and communication skills, and ability to work with people. Application deadline: October 31. Grade 9.

Salary minimum: \$58,366.

VP for Development Req. 3765SW

Employment analyst. Develops diverse applicant pool and coordinates casual employment. Reviews employment process, including trend and EEO data. Requires knowledge of employment law and three years of recruiting or human resources experience.

Grade 4. Salary minimum: \$31,836.

Human Resources Req. 3738SW

Event coordinator. Supervises production services to users of concert auditoriums. Requires excellent organizational and interpersonal and tracking skills; attention to detail;

public and supervisory experience; familiarity with Macintosh, business procedures and basic accounting skills; and some weekend work. Grade 1. Salary minimum: \$26,255.

Concert Office Req. 3690SW

Executive assistant. Provides assistance to dean. Requires discretion; excellent personal, organizational and problem-solving skills; knowledge of Windows, WordPerfect, Excel and Q&A; and ability to learn new programs. Grade 3/4, depending on qualifications. Salary minimum: \$29,501/\$31,836.

Dean of the Faculty Req. 3690SW

Senior writer. Researches and writes brochures, press releases and proposals. Requires strong communication skills and three years of journalism or comparable experience. Submit three writing samples. Grade 5. Salary minimum: \$35,020.

Development Communications Req. 3490SW

Bibliographic specialist or senior bibliographic specialist. Requires reading knowledge of and ability to transliterate Persian. Typing: 30 wpm.

Professional technical

Send letter of application to Bruce Finnie, Computing and Information Technology, 87 Prospect Ave. (fax 609-258-3943, e-mail finnie@princeton.edu).

Database administrator. Maintains production and developmental database environments, and monitors and tunes storage usage and online performance in DBMSs. Requires two years of experience, preferably on SunOS/Solaris and Sybase.

Desktop computing software specialist. Supports microcomputing platforms, including MacOS, Windows and DOS running on Apple, IBM and Dell. Requires BA; excellent organizational, communication and reporting skills; experience with SunOS, Xwindows, NeXTStep, Irix, MVS and CMS; and ability to troubleshoot desktop computing applications, networking protocols and information access tools.

Help desk specialist. Coordinates scheduling and training personnel, manages student workers, and consults on use of computing resources. Requires proficiency in two of following: DOS/Windows, MacOS, Unix systems and IBM CMS; and good organizational and communication skills.

Maintenance and service

***Communications officer.** Receives and transmits radio communications; monitors police, fire and first aid frequencies; responds to telephone emergencies; and maintains equipment and records. Requires high school diploma, two years of police or security experience, good communication and interpersonal skills, familiarity with PC and security systems, and no criminal record. Rotating shifts, 2:45 to 11:00 p.m. and 10:45 p.m. to 7:00 a.m., with rotating days off. Application deadline: September 27. Salary: \$13.66/hr.

Public Safety Req. 3662PP

***Elevator mechanic.** Responsible for maintenance and repair of conveyance systems. Requires 15 years of experience as journeyman elevator mechanic, ability to understand

technical manuals and operate stick shift, proficiency with conveyance systems and driver's license. Application deadline: October 1. Salary: \$19.21/hr.

Grounds, Building Maintenance Req. 3386PP

***Elevator mechanic/lead technician.** Responsible for elevator maintenance and repairs. Requires high school diploma, four years of vocational school or equivalent, and driver's license.

Grounds, Building Maintenance Req. 3392PP

***Patrol officer.** Requires high school diploma or equivalent, two years of police or security experience, good communication and interpersonal skills, driver's license and no criminal record. Hours are 2:45 to 11:00 p.m., rotating days off. Application deadline: September 27. Salary: \$12.49/hr.

Public Safety Req. 3657

Office support

***Secretary III.** Requires good computer, organizational and communication skills, and ability to work with detail. Typing 40 wpm. Salary minimum: \$21,745.

Human Resources Req. 3092SW

Technical research secretary III. Requires excellent interpersonal and organizational skills, three years of related work experience or post high school education, knowledge of Macintosh and ability to learn mathematical typesetting software (Latex). Typing 45 wpm. Salary minimum: \$23,275.

Mechanical, Aerospace Engineering Req. 2002SW

***Telephone operator.** Requires clear speaking voice and ability to read, write and follow instructions. Salary minimum: \$16,937.

Telecommunications Req. 3429PP

Part time and temporary

Account clerk II. Requires facility with computer-based accounting and knowledge of CMS, IDMS, Powerbase and general bookkeeping. Fifteen hours per week and possible weekend work. Salary: \$11.00 per hour. Send resume to Hendricks Davis, Princeton Blairstown Center, Armory.

***Assistant editor.** Requires editing, abstracting, indexing and computing experience; and language skills (English, German, French, Italian, Spanish). Nine-month position, 50 percent time. Grade 1. Salary minimum: \$19,841 (FTE: \$26,255).

Population Research Req. 3089SW

Box office agent. Responsible for concert ticket sales. Requires good numerical and communication skills and some evening work. Salary minimum: \$8.00/hr. Contact Nathan Randall, Concert Office, 126 Alexander St.

Box office manager. Requires excellent accounting skills. Flexible work hours; some evenings. Salary minimum: \$11.50/hr. Contact Nathan Randall, Concert Office, 126 Alexander St.

Coordinator of volunteers. Requires BA, management and computer experience, and ability to work outside regular work schedule. Grade 1. Salary minimum: \$26,255. Position is 62 percent time for 11 months.

Art Museum Req. 3493SW



Production manager. Requires knowledge of printing and production procedures, strong organizational and verbal communication skills, and bachelor's degree. Position is through mid-February. Salary: \$16.00/hr. Send resume to Lisa Burke, Development Communications, 330 Alexander St.

Secretary. Requires excellent wordprocessing and dictation transcription skills. Hours are 10:00 a.m. to 6:00 p.m. through November 15 with possible overtime. Salary: \$12.75/hr. Send resume to Dorothy Bedford, 250th Anniversary, 221 Nassau St.

Secretary. Requires knowledge of WordPerfect for Windows and Excel. Salary minimum: \$11.50/hour. Twelve to 15 hours per week through May. Send resume to Ronnie Hanley, Classics, 103 East Pyne.

Secretary III. Requires three years of experience and strong wordprocessing and communication skills. Hours are 10:00 a.m. to 2:00 p.m. (flexible). Typing 45 wpm. Salary minimum: \$10,872 (\$21,745 FTE).

Energy, Environmental Studies Req. 2125PP

Secretary III. Requires ability to work with numbers; speak, write and read German; and use WordPerfect 6.1. Typing 40 wpm. Eleven month position, 8:30 a.m. to 2:30 p.m. Salary minimum: \$15,890 (FTE: \$21,745).

Germanic Languages, Literatures Req. 3679SW

Senior electronics technician. Assembles, packages and tests electronic circuits supporting design of Microwave Anisotropy Probe satellite project. Interfaces test equipment to PCs and aids in assembling test fixtures. Requires high school diploma, training in electronics assembly and testing, and familiarity with analog and digital circuits. Position is through January with possible extension. Salary minimum: \$31,345.

Physics Req. 1408PP

Stockroom/mailroom. Must be able to lift 50 pounds, read and write English, and comprehend written and oral instructions. Driver's license preferred. Hours are 2:00 to 5:00 p.m. Send application to Linda Belfield, Engineering, C231 Engineering Quadrangle.

Technical research secretary II. Requires good organizational and computer skills. Typing 40 wpm. Schedule is four hours per day. Salary minimum: \$12,003 (\$21,745 FTE).

Civil Engineering, Operations Research Req. 2945SW

Technical research secretary IV. Requires knowledge of IBM and Macintosh Chinese language software, Chinese and romanization systems, and excellent English writing and editing skills. Typing 45 wpm. Ten month position, 8:30 a.m. to 12:30 p.m. Salary minimum: \$10,149.83 (\$25,133 FTE).

East Asian Studies Req. 2911SW

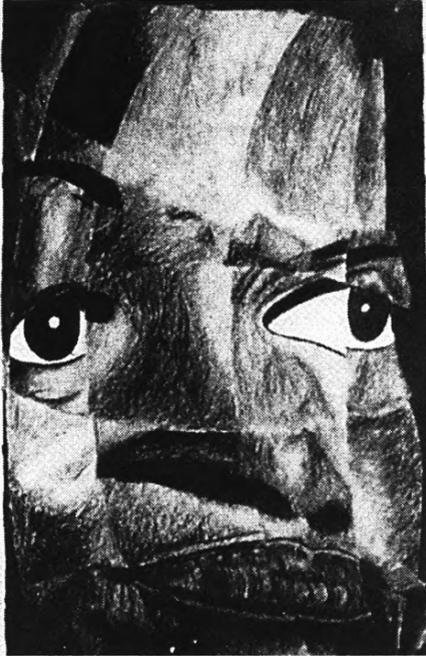
Undergraduate secretary. Requires ability to use Macintosh (WordPerfect) and e-mail. Typing 45 wpm. Ten week position. Salary: \$10.50/hr. Send resume to Christine Hewitt-Wooden, East Asian Studies, 211 Jones Hall.

Princeton University does not discriminate on the basis of age, race, color, sex, sexual orientation, religion, national or ethnic origin, disability or status as a disabled or Vietnam era veteran in any phase of its employment process. The associate provost is the individual designated by the University to coordinate its efforts to comply with equal opportunity and affirmative action regulations and laws. Questions or concerns should be directed to Associate Provost, One Nassau Hall or (609) 258-6110.

Nassau Notes

Waldman speaks on human services

William Waldman, commissioner of the N. J. Department of Human Services, will speak on "The Changing Face of Human Services" on September 30 at 4:30 p.m. in 5 Robertson Hall.



Dasgupta show. "Toni Morrison" is among the paintings by Sayantani Dasgupta on exhibit in 113 Dickinson Hall. Sponsored by the Program in Women's Studies, the show will run through October 17.

New Zealand official discusses public service

Charlotte Williams, deputy secretary for strategic responses to crime in New Zealand's Ministry of Justice, will speak on "Privatizing the Public Service: Reflections on the New Zealand Experience" at 4:30 p.m. on September 26 in 6 Robertson Hall.

Williams, who earned an MPA from the Woodrow Wilson School in 1974, joined the New Zealand Ministry of Foreign Affairs as a foreign service officer in 1967. She negotiated with the United States on security issues and with the European Union on trade. She became first secretary of the New Zealand Embassy in Brussels in 1978 and returned to New Zealand in 1981 to become head of the Australia Division of the Ministry of Foreign Affairs.

Her talk is sponsored by the Woodrow Wilson School.

LAFF with Lyons

LAFF (Life After Forty Five) is a course that offers relaxation techniques, dance, gentle exercise and "just plain fun," according to instructor Rice Lyons.

The five-session series will be given from 7:30 to 9:30 p.m. on consecutive Thursdays, starting October 10, in Whig Hall Lounge. The cost is \$50, but it's free for retirees. To register call Lyons at 924-7742.

A member of the Governor's Cabinet, Waldman is responsible for developing new policies and programs and for managing the department's seven operating divisions as well as the Office of Education. His department, which has 19,500 employees and a budget of \$7 billion, is the state's largest public agency, accounting for one-third of the total state budget and work force.

The department's duties include managing the state's Medicaid and welfare programs; administering a statewide network of institutional and community-based services for the elderly, mentally ill and developmentally disabled; providing social services to children and families; and administering special programs for the visually impaired, deaf and hard of hearing. Institutions under the jurisdiction of the department include six psychiatric hospitals, a forensic hospital and eight centers for the developmentally disabled.

Waldman's talk is sponsored by the Woodrow Wilson School.

Peyton holds open house to see lunar eclipse

The University Observatory will hold an open house to observe the total eclipse of the moon on September 26 at Peyton Hall on Ivy Lane.

The open house is set for 9:00 p.m., and the eclipse begins at 9:12 p.m. when the moon enters the umbra, the darkest part of the earth's shadow. Totality begins at 10:19 p.m. and ends at 11:29 p.m. This is the last total eclipse of the moon visible in North America until the year 2000.

Those who come should bring binoculars. The observation will be canceled if the weather is not clear.

Recall Those Days of Gladness

The exhibit "Recall Those Days of Gladness: Autograph Books and Scrapbooks from the 19th Century," on display in the Seeley Mudd Manuscript Library through 1996, features items that Princeton students used to capture memories of their time at college.



Composers Ensemble. Constance Cooper's opera *Easter Eve*, based on a story by Chekhov, will be performed at 8:00 p.m. on September 27 in the University Chapel. Sponsored by the Composers Ensemble, the semi-staged performance will feature sopranos Cooper and Susan Swaney; baritone Michael Wilson; Margaret Kampmeier on synthesizer; and organist Walter Hulse. The performance is free.

Agencies outline opportunities to volunteer

N.J. agencies will present information about volunteering for community projects at a Community Service Fair for faculty, staff and graduate students from 11:30 a.m. to 2:00 p.m. on September 25 in Murray-Dodge.

Those who wish to attend should bring a brown bag lunch; dessert and drinks will be provided. Call Blanche Scioli at 258-3204 or e-mail bascioli@princeton.edu.

The exhibit contains mementos and keepsakes, including Confederate currency, the first black and orange ribbons used by student athletes, and dance cards and invitations, as well as course exams and schedules. One intriguing item kept by Henry Cook, Class of 1871, was the removable cuffs he wore to a logic exam—with all the semester's syllogisms written on them.

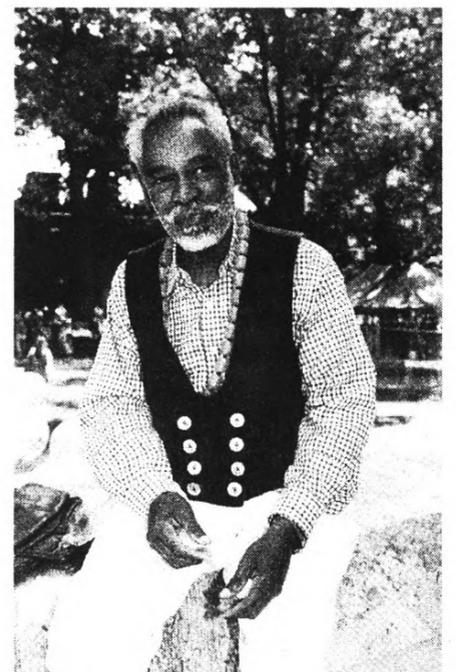
Other items document rivalry between classes: The Class of 1900 produced a flyer belittling the unlucky Class of 1899 they had defeated in various campus events: "The baseball game, the rush, the spree/They lost each one, they lost all three/And if there'd been but one thing more/They surely would have lost all four."

The exhibit is open Monday through Friday from 9:00 a.m. to 5:00 p.m. (Wednesday until 8:00 p.m.) in the library at 65 Olden St.

Friends present pianist in Taplin

The Friends of Music will present pianist Phyllis Billington at 3:00 p.m. on September 29 in Taplin Auditorium, Fine Hall. The program will include music by Haydn, Schubert, Schumann and Debussy.

Billington, a Princeton resident, teaches a course on Music of the 18th and 19th Centuries at the Princeton Adult School. She has performed for colleges, schools, libraries and community groups in a concert and lecture series entitled "Illustrated Performances," which includes material from composers' letters and diaries.



Princeton artists. "Papas International," a portrait by Ron Carter, is among the photographic works on display in Prospect House as part of the exhibit "Campus/Community," organized by the Princeton Artists Alliance and the University in honor of Princeton's 250th Anniversary. Featuring the work of 50 local artists, the exhibit is displayed in Prospect and the Woodrow Wilson School from 9:00 a.m. to 5:00 p.m. through October 3.



Strings. The Angeles String Quartet will open the University Concerts season at 8:00 p.m. on September 26 in Richardson Auditorium, Alexander Hall.