

# CORNELL CHRONICLE

Volume 22 Number 8 October 19, 1990

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Fifth-down  
anniversary

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Anti-cancer  
drug

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Rhodes to visit Asia



## Cornell launches drive to build endowment

*Students, faculty and libraries will benefit from \$1.25 billion campaign for the future*

### The campaign targets

*'The campaign is not designed to add anything on to the university. It is designed to reinforce what we are already doing.'*

*'Let me emphasize that it is a campaign for the future. What we are doing is making things possible for those who have the affairs of the next century as part of their horizon.'*

— President Frank H.T. Rhodes

#### • Program support: \$450 million

To support programs, especially those of undergraduate education, through which faculty members can share their knowledge and their capacity for discovery with others.

#### • Faculty support: \$250 million

To recruit talented faculty, retain them in the face of competition from other institutions and support them at a level that will permit them to do their best creative work.

#### • Fellowships and scholarships: \$175 million

To guarantee that able undergraduate and graduate students from all economic backgrounds can attend the university.

#### • Library support: \$75 million

To make possible the acquisitions, and space needed to house them, for the 10th largest research library in the nation.

#### • Renovation and construction: \$300 million

To renovate and, when necessary, construct classrooms, laboratories, residence halls, libraries and other buildings to meet the demands placed upon them.

*For more stories about the Cornell campaign and its targets, please turn to Pages 8, 9 and 10.*

Cornell today launched a five-year, \$1.25 billion fund-raising campaign "to re-endow the university for the 21st century."

The capital campaign was formally approved earlier in the day by the Board of Trustees and was announced by President Frank H.T. Rhodes at the annual joint meeting of the board and the University Council, 440 alumni and friends who volunteer for Cornell throughout the nation and world.

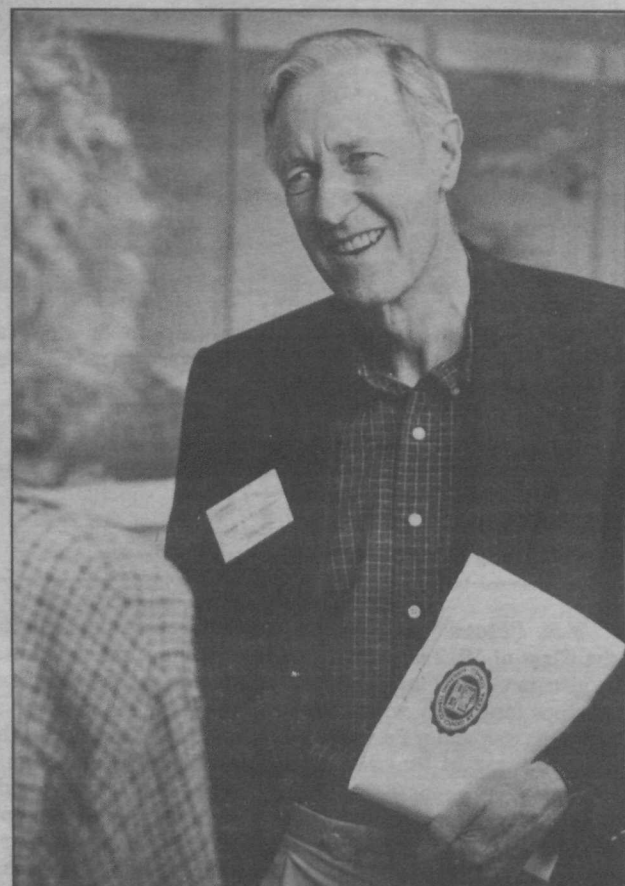
The drive is the largest of several billion-dollar campaigns announced recently by leading universities, including Stanford, Pennsylvania and Columbia. Rhodes cautioned, however, against mistaking an ambitious goal for a sudden windfall. He emphasized, in fact, that stricter management and cost-cutting must continue if the campaign's endowment-building is to have lasting benefit.

"The campaign is not designed to add anything on to the university," Rhodes said. "It is designed to reinforce what we are already doing. When it is completed, it will provide funds for compensation through new endowment for positions and for programs. It will provide the resources needed to continue student financial aid. It will provide support for the libraries. It will provide support for limited renovation and construction. . . ."

Rhodes told the audience: "We are undertaking a campaign for the future. You and I, this year and next year and the year that follows, will see virtually no direct benefit from the campaign. What we are doing is making things possible for those who have the affairs of the next century as part of their horizon."

Many in the audience had been involved, for more than a year, in discussions of what Cornell ought to be as it enters the next century. Among their priorities are a re-emphasis on undergraduate education, a more global approach to education and a future Cornell that ought to be, as Rhodes has

*Continued on page 10*



David Lynch-Benjamin

President Frank H.T. Rhodes talks with a volunteer during a planning session for the campaign.

## Enriching the undergraduate experience takes extraordinary inspiration, dedication

Complicated problems — like improving undergraduate education — require complicated solutions. Sometimes, we think that is always true.

But, sometimes, solutions can be extraordinarily simple.

Take Walter Pauk, professor emeritus of education. He spent his life helping students become scholars by teaching them learning techniques to make the most of their education and their lifetime potential. Then he retired in 1979. But, like many professors emeriti, he did not stop caring about students. So when lacrosse coach Richie Moran asked Pauk to talk to his team about how to take notes in class, how to read a textbook, how to study for an exam, Pauk did. Many times. It served the students, and it served him.

"I guess the satisfaction is you do have all this knowledge and it's not bottled up in you. You are able to pass techniques gathered and created over the years on to a new group of students to enable them to make their academic job not just easier but rewarding," Pauk said recently.

It was one man's simple, informal way of continuing to help improve undergraduate education.

The President's Fund for Educational Initiatives has now sponsored a two-year pilot plan, the Professors Emeriti Tutorial Project, that aims to expand and provide a structure for efforts like this.

Like the funding provided to a group of professors and graduate students in the English Department to help to establish a curriculum for ethnic, Third World, colonial and post-colonial literature, and like funding provided to help improve the writing of engineering students by bringing a writing lecturer into the classroom to work with the engineering professor, the President's Fund grant for the Professors Emeriti Tutorial Project is designed to help a good idea

get off the ground.

"We're trying to build incentives for innovation, not trying to fund projects that are already operating," said the vice president for academic affairs, Larry Palmer, who administers the fund. As a result, he said, "it has become a major force for institutional change to enhance the quality of undergraduate education at Cornell."

The fund was established with a gift of \$5 million from an anonymous group of alumni and friends in 1987 to support initiatives for the improvement of undergraduate teaching. Up to \$1 million can be distributed each year; individual grants have ranged from \$1,195 to \$350,000.

Some 92 projects have been funded so far. They have helped to initiate new courses, redesign existing courses, encourage foreign-language and international studies, help fund conferences, pay for equipment and materials, provide training for teaching assistants, fund public-service projects and promote student-faculty interaction.

The Professors Emeriti Tutorial Project, proposed by William Collins, the director of the Learning Skills Center, is designed to promote student-faculty interaction. It was prompted by knowledge of a need and resource available to meet it.

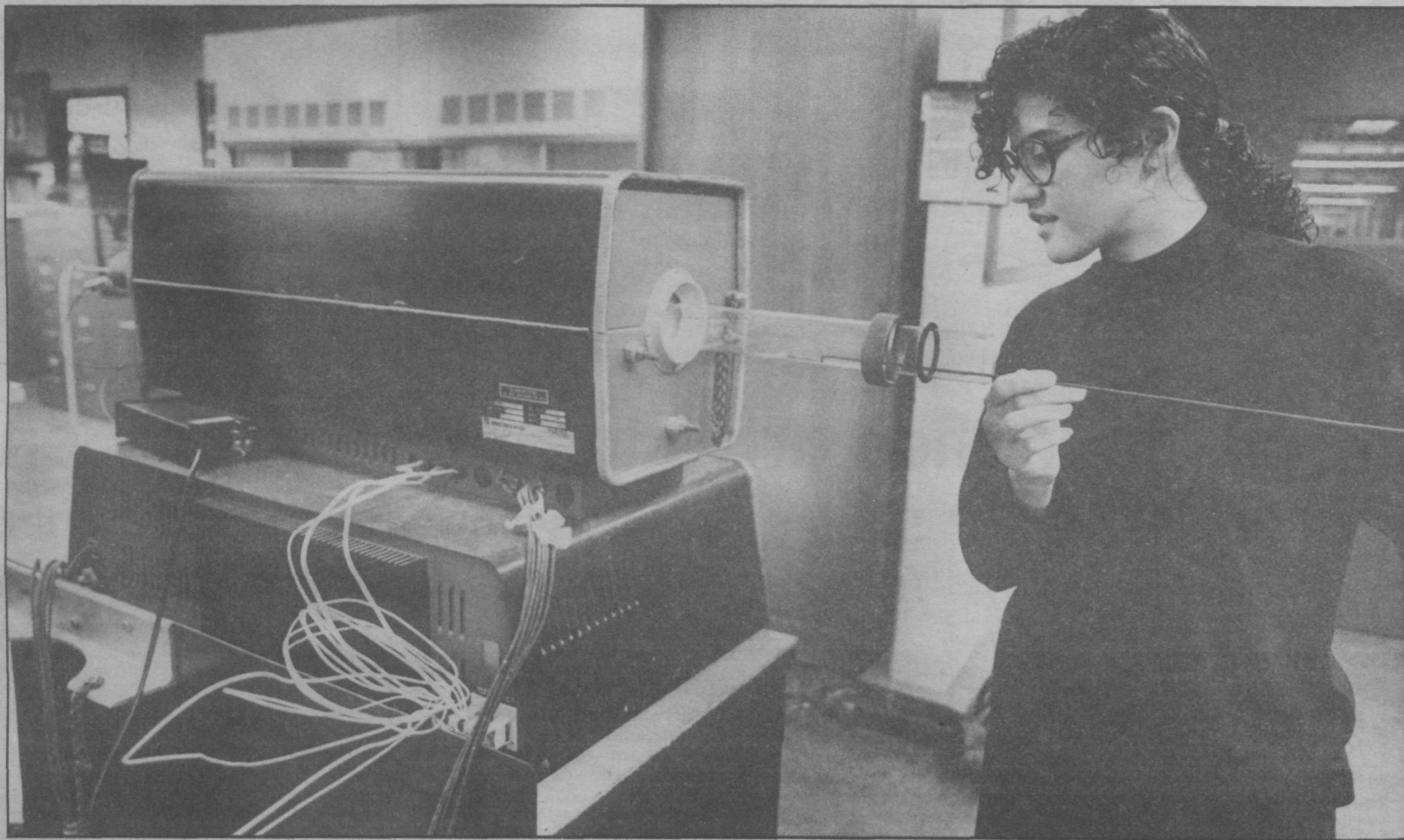
"One concern many undergraduates have expressed is the difficulty of getting to know a professor on a personal level," said Collins. "This will allow them to have such relationships with very experienced people."

Emeriti professors can help students understand course content and provide "plain old good advice about how to study, about the uncertainty of choosing a life's career at the age of 18, or about the nature of a university community," Collins wrote in his grant proposal.

*Continued on page 10*



## Hot ceramics



Bahar Hoghooghi, a graduate student in materials science and engineering, heat-treats a ceramic sample in a furnace. She is studying the growth of

ceramic thin films using a process called chemical vapor deposition. Such thin films have a wide range of uses in electronics.

Tim Moersh

## OBITUARIES

**F.R. "Flood" Newman**, a member of the Class of 1912 whose nearly \$10 million in gifts to Cornell included endowed professorships for faculty who went on to win two Nobel Prizes and a Pulitzer Prize, died Oct. 10 at the age of 99. He lived in Medina, Ohio.

President Frank H.T. Rhodes said, "All of us at Cornell are deeply saddened by the death of Flood Newman. Reminders of his affection and generosity, over more than 80 years of association, stretch the length and breadth of the campus," from the F.R. Newman Laboratory of Nuclear Studies to Helen Newman Hall and the F.R. Newman Arboretum and F.R. Newman Overlook at Cornell Plantations.

"We shall remember Flood," the president said, "as a wise, warm and generous man who shared so selflessly the rewards of a good life with the university he loved. He remains, for me and for countless others, an inspiration."

Newman's storied life as a Cornelian reached back to his undergraduate years when, in 1912, he skated the 40-mile length

of Cayuga Lake with three other students. It is believed to be the last time the feat has been achieved.

During a visit to campus in 1986, Newman said the "crowning touch" to his "long and happy participation in the university's growth and advancement" was the arboretum that bears his name.

As part of his interest in the Cornell Plantations, Newman endowed its directorship in 1981 in honor of his daughter. And reflecting his wife's interest in women's athletics, he established the Helen A. Newman Directorship of Women's Athletics.

Newman graduated from Cornell with a degree in chemical engineering. He worked in China, marketing oil before serving as a military officer in France during World War I. In 1925, he co-founded the Allied Oil Co., headquartered in Ohio. The firm merged with Ashland Oil and Refining Co. in 1948, the year Newman retired.

Newman served on the Cornell Board of Trustees from 1951 through 1958. In 1966, he was named a presidential councillor, the university's highest honor.

**David Dropkin**, the John Edson Sweet Professor Emeritus of Mechanical Engineering, died Oct. 12 in Boca Raton, Fla. He was 82.

An authority on heat transfer processes and measurement, Dropkin was considered an outstanding teacher. In 1969, he received the annual Excellence in Teaching Award of the Cornell Society of Engineers, the same year he was granted a patent for a high-temperature probe.

Dropkin was associated with Cornell for 45 years as a student and faculty member. He earned a master's degree in engineering in 1933, a master's degree in mechanical engineering in 1935 and a Ph.D. in 1938 at Cornell.

He joined the faculty in 1938 and retired in 1974. Dropkin lived in Coconut Creek, Fla., at the time of his death.

Preceded in death by his first wife, Sophie, Dropkin's survivors include his wife, Idie, of Coconut Grove, a son, Dr. Lloyd Dropkin of New York City; a daughter, Marilyn Hoffman of Ithaca; and a brother.

— Martin B. Stiles

## BRIEFS

■ **Mr. Potato:** John S. Niederhauser '39, recipient of the World Food Prize for reducing hunger through his teaching and potato research, will visit Cornell Oct. 22 through 24. He will give a seminar at 4 p.m. Oct. 24 in 135 Emerson Hall on "The Role of the Potato in the Conquest of Hunger." In awarding the prize in June, Norman Borlaug said, "His achievements toward developing a blight-resistant potato variety have affected countries from Mexico to Bangladesh." Niederhauser's discoveries have earned him the affectionate nickname "Mr. Potato," bestowed by colleagues.

■ **Film awarded:** "Sleep Alert," a film on the effects of sleep deprivation produced by psychology Professor James B. Maas and aired nationwide by the Public Broadcasting Service, has received the second-place Silver Award for Public Health programming at the John Muir Medical Film Festival in California. Next month, the film will receive the first-place Golden Eagle Award from the Council on International Non-Theatrical Events for cinematic excellence in public health.

■ **Brown awards:** Thursday, Nov. 1, is the deadline for submitting applications for Beatrice Brown Awards worth up to \$250 to graduate students working on some aspect of women and gender. For details, contact the Women's Studies Program, 391 Uris Hall, telephone 255-6480.

■ **Bridge closed:** The pedestrian bridge between the Engineering Quadrangle and College town was scheduled to close this week for repairs, including the replacement of the decking and deck supports. The bridge will be enclosed during the work to prevent any debris from falling into Cascadilla Creek. If the weather cooperates, the work should be completed in about six weeks.

■ **TV show:** The next "Cornell Community Report," a half-hour television show on Cable Channel 7, will feature economist Alfred Kahn, former Cornell athletic director Bob Kane and features on the Sapsucker Woods bird sanctuary and Cooperative Extension's use of biological controls for agricultural pests. The show airs Oct. 24 at 7:30 p.m. and again Oct. 30 at 10:30 p.m.

## CORNELL CHRONICLE

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Cornell University is committed to assisting those persons with disabilities who have special needs. A brochure describing services for the handicapped student may be obtained by writing to the Office of Equal Opportunity, Cornell University, 234 Day Hall, Ithaca, N.Y. 14853-2801. Other questions or requests for special assistance may be directed to that office.

## GRADUATE BULLETIN

**Financial aid:** Applicants for summer 1991 assistance must have a complete financial-aid file in the Graduate Fellowships and Financial Aid Office by March 1. A complete file includes 1990-91 GAPSAS or Federal Aid Application (allow four to six weeks processing time); 1989 federal income-tax form; financial-aid transcript from institutions attended prior to Cornell; and Selective Service Compliance Form.

**Course changes:** The deadline for changing grade options, credit hours and dropping courses is Oct. 26. A \$10 late fee will be charged for any change after this date.

**Fellowships:** Applications for National Science Foundation Graduate Fellowships, NSF Minority Graduate Fellowships, Ford Foundation Minority Fellowships and Hertz Graduate Fellowships are available in the Graduate Fellowship Office. The deadlines are Nov. 1 for Hertz and Nov. 9 for NSF and Ford Foundation.



# Engineers find process to make anti-cancer drug

Chemical engineering research here has spawned an Ithaca-based company, Phyton Catalytic Inc., to further develop a plant-cell-culture process for manufacturing a scarce anti-cancer drug, taxol.

Plant cells growing in a culture that resembles bacterial or yeast fermentations could provide an alternative to the bark of the Pacific yew for producing taxol, according to Phyton Catalytic President Rustin R. Howard. Using proprietary procedures, scientists at Phyton Catalytic report, they have been able to coax cultured cells into producing taxol at levels significantly higher than those found in the bark of the Pacific yew tree. The Cornell engineers plan to produce commercial quantities of taxol in two to four years.

Taxol has produced dramatic responses in ovarian cancer and shows great promise against a broad range of tumors. The acute shortage of taxol has prevented extensive clinical trials on other cancers, according to Samuel Broder, director of the National Cancer Institute.

Taxol is extracted from the bark of *Taxus brevifolia*, commonly known as the Pacific yew. It takes two to three 60-year-old Pacific yew trees to treat one patient. The Environmental Defense Fund recently petitioned the federal government to protect the tree as an endangered species. *T. brevifolia* grows in the shade of the same ancient forests of the Pacific Northwest that are home to the spotted owl, an endangered species whose protection is a topic of controversy.

Phyton Catalytic is composed of Howard, a 1989 M.B.A. graduate of the Johnson Graduate School of Management; Venkataraman Bringi, a 1990 Ph.D. graduate of Cornell's College of Engineering; and Christopher L. Prince, a graduate student in that college. The firm is associated with the university in several ways: Faculty members serve on its scientific consulting board; the Cornell Biotechnology Institute, with its renewed commitment to technology transfer, has provided Phyton a grant and access to its facilities; and Phyton is planning collaborative research with Michael L. Shuler, professor of chemical engineering, as well as with the U.S. Department of Agriculture.

Cornell has been at the forefront of plant-cell research for the past 15 years, largely due to the pioneering efforts of Shuler and support of the National Science Foundation, according to Bringi. "Shuler's efforts at integrating



Tim Moersh

Phyton Catalytic Inc. members (from left) Christopher L. Prince, Rustin R. Howard and Venkataraman Bringi look over cultures used in making the anti-cancer drug, taxol.

chemical engineering and plant biology have laid the groundwork and provided the insight necessary to make production of taxol feasible in a plant-cell culture system," Bringi said.

The Phyton technique, if it enables commercial production, could well be the first economically successful plant-cell process," Howard said. He noted that there have been at least three "technical successes" in plant-cell culture, processes making chemicals that are not of economic value or that have not yet received regulatory approval. Researchers at several other academic institu-

tions and private concerns are believed to be working on plant-cell-culture production of taxol, Howard said.

Other approaches to increasing the supply of taxol include chemical synthesis as well as semisynthesis, where a taxol precursor is extracted from plants and subsequently converted to taxol by chemical means. Taxol's inhibitory effect on cancer cells has been known since 1964 when extracts of Pacific yew bark were tested as part of a National Cancer Institute plant-screening program.

—Roger Segelken

## Cancer-drug development and marketing have small beginning

Phyton Catalytic's rented lab at the Cornell Business and Technology Park is filled with usual tissue-culture equipment for sustaining life a few cells at a time.

There are incubators to keep the cultures at the proper temperature, microscopes to watch their progress and devices to transfer the living materials between containers. One piece of equipment betrays the start-up nature of the enterprise — the folding cot behind the door.

These days Phyton is negotiating with international pharmaceutical companies for rights to a novel process to make a cancer-treatment chemical from cells of an evergreen tree. The firm began as the melding of an M.B.A. student's desire to make money while doing good and two chemical engineering students' intention to apply the bioprocessing technologies they were perfecting.

Rustin (Rus) Howard left the family potato farm in Idaho in 1986 for the Johnson Graduate School of Management. At 31 he was already older than the typical M.B.A. student when he enrolled in David J. Bendaniel's class, "Entrepreneurship and Enterprise." That course, taught by the Berens Professor of Entrepreneurship, encourages a team approach to identifying business opportunities, appraising the market, developing means of production and raising the capital.

Meanwhile, Venkataraman (Bobby) Bringi and Christopher Prince were working on Ph.D.s with chemical engineering Professor Michael L. Shuler. Shuler is a specialist in developing systems, known as bioreactors, that use living cells as catalysts to produce commercial quantities of useful substances. The technologies Bringi and Prince fine-tuned in the School of Chemical Engineering would later form the basis of a book, now in print, on production of secondary metabolites in plant-cell culture processes.

The former farmer was introduced to the chemical engineers by Mary Lee Noden, a technology-transfer specialist in Cornell's Biotechnology Institute. Using personal savings and the help of "angel" investors, the three formed a firm to develop production of secondary metabolites with plant-cell cultures for the pharmaceutical and food industries. Secondary metabolites are the potent chemicals that plants and animals sometimes generate to defend themselves against attack or to attract a mate. A phyton, Bringi and Prince knew, is the smallest particle in a plant that can grow by itself.

The Phycats, as the trio came to call themselves, settled on taxol as their first product. The Phyton engineers were told by representatives of a major pharmaceu-

tical company that reviewed their results that they are "months ahead" of the competition in tissue-culture production of taxol, Howard reports. He also knows that lead could evaporate suddenly in a business where fortunes fall with the spin of the centrifuge.

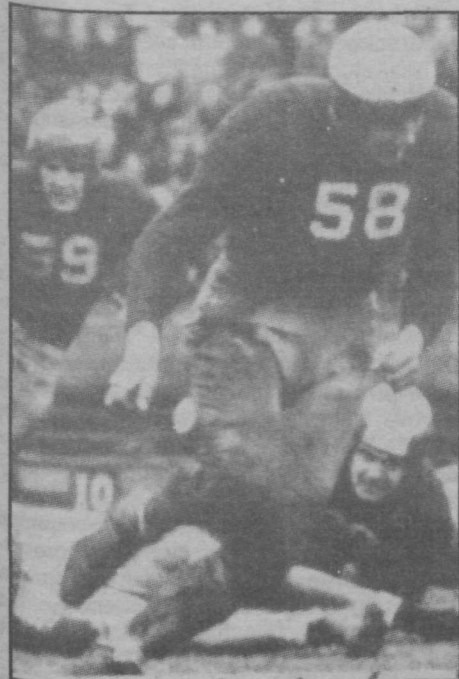
For Howard, there is special incentive in the effort to develop an efficient means of producing taxol. His sister, now 38 years old, is being treated for cancer.

When the Phycats get discouraged in their race with corporate giants, they are reminded that another little room down the hall at Langmuir Lab housed Biolistics, the company that Cornell's Edward Wolf and John Sanford formed to market "gene guns." Their radical idea, that a simple blast of gunpowder could propel gene-coated particles into living cells and alter their makeup, initially was ridiculed throughout the scientific and corporate establishment. Biolistics prevailed, eventually selling the gene-gun technology to DuPont for millions of dollars, and particle acceleration is now one of the accepted means of genetic engineering.

Back at 186 Langmuir Lab, clusters of cells are silently generating minuscule amounts of a life-saving chemical.

—Roger Segelken

## Cornell hopes to beat Dartmouth — without a 'fifth down'



1941 Cornellian

Dartmouth vs. Cornell, 1940

This weekend, Cornell will celebrate an unprecedented and still unemulated act of sportsmanship — its concession of victory to Dartmouth in the now-famous fifth-down football game of 50 years ago.

Cornell gave the victory to Dartmouth after a review of the game films proved that the Big Red, ranked No. 2 in the nation, had completed a touchdown pass on an illegal fifth down as the clock ran out in the game played at Hanover, N.H.

Cornell, a 7-3 victor on the field, declared itself a 3-0 loser. The decision, announced in banner headlines in newspapers across the nation, ended an 18-game winning streak and ended chances for a national championship.

The final moment of truth, though agonizing, was not based on prolonged soul-searching. Cornell's honorable intentions were clear almost immediately.

In a joint statement issued to the press a few hours after the game, President Edmund Ezra Day and Athletic Director James Lynah said: "If the official in charge of today's Dartmouth-Cornell game rules after investigation that there were five

downs in the final series of plays and that the winning touchdown was made on an illegal fifth down, the score of the game between Dartmouth and Cornell will be recorded as Dartmouth 3, Cornell 0."

On Monday, the referee William H. (Red) Friesell admitted he had made an error. But as the New York Times pointed out, "the referee's jurisdiction ends with the game and there is no other authority beyond the colleges themselves to make amends for the error."

*'We shall not have to spend the rest of our lives apologizing for a tarnished victory.'*

— President Edmund Ezra Day

Cornell exercised its authority. Day told the team: "We have done the right thing, the clean thing, and this will live with us. We shall not have to spend the rest of our lives apologizing for a tarnished victory."

Twelve members of the 1940 Cornell team and four members of the Dartmouth team are scheduled to take part in a reception and luncheon in Alberding Field House before the 1 p.m. kickoff for the Cornell-Dartmouth football game Saturday.

Among the players attending the reception will be Bud "60 minute" Finneran, the center on the 1940 team who, with a number of his teammates, had confronted then-assistant director of athletics Robert J. Kane '34 early in the 1940 season, asking what Cornell was going to do about attacks in the press on the honesty of its football program.

The Nov. 21, 1940, New York Times reported that Finneran, who intercepted a pass in the team's 21-7 victory over Ohio State that year, said: "We came to Cornell because we wanted to come here. We are paying every nickel of our expenses. We've worked hard to make Cornell a good team, and because we win they call us a bunch of pros. Our friends are reading that all over the country. How do you think we feel seeing that rot in the papers? And how do you think our families feel?"

—Martin B. Stiles



# CORNELL *Life*

## What's with this?

"So, what's with this 'Cornell Life,' anyway?" a friend said to me this week. "It's sort of putting your head on a chopping block, isn't it?"

What an encouraging thought.

But an instructive one. What she meant was that this format — which is open to reflecting the mood on campus, exploring recesses of academic life, reporting behaviors and interests that might seem eccentric, and offering one observer's perceptions of how we get on here — makes it easy to offend.

So I thought, before I venture any further in this new, bi-weekly adventure, I'd best explain what is with "Cornell Life."

First, my friend said, she's never seen this kind of column in *The Chronicle* before. True, I'm making it up as I go along. The most obvious difference between this and our usual articles is that the usual are more serious and objective. They focus on scientific discoveries, profiles of prominent professors, coverage of programs and course developments in the humanities and administrative issues. This column is not designed to cover these subjects. But its purpose is to reflect something less palpable, yet equally important: the life, the spirit, the sparkle of Cornell.

Second, my friend asked, "Whose opinion is the column supposed to reflect, the university's?" So far, no one has told me what to say or not say. Maybe that is because the people who work for a university respect the right of another to express an opinion and like what, in my family, we used to call a good, healthy debate, and what people here seem to prefer to call a "conversation."

Descriptions of life at Cornell are more likely to be influenced by my personal way of seeing things than, say, an article that reports on research. And knowing that any interpretation is bound to meet its counter-interpretation, the way I have the gall to put forth mine is by realizing it is one small contribution to the conversation.

Third, it's also easy to offend, my friend reminded me, because this is a small community. If there is someone you fear bumping into, you will. If you want to keep a secret, you probably won't. If you say something critical that hits too close to home, you will offend and you won't necessarily feel glad you did.

I learned this lesson once, already. I was on my first newspaper reporting job in a small town — unlike Ithaca, a small town with movie theaters that never played films I wanted to see, bars and cafes I never felt comfortable in, and absolutely no place to show off to a visitor whom, if I could get one to come, I would persuade to get back in the car to take us both someplace else.

My editor sent me to an even smaller town to write an honest, first-person story about the culture shock of moving from New York City to rural America. When the story ran, the mayor of that town called to say he didn't think I should return to his town without an escort. The paper published two pages of letters suggesting I go back to where I came from. I learned it is possible to write with too much honesty. It's better, I realized, to balance frank honesty with gentleness and respect.

*What she meant was that this format — which is open to reflecting the mood on campus, exploring recesses of academic life, reporting behaviors and interests that might seem eccentric, and offering one observer's perceptions of how we get on here — makes it easy to offend.*

As poet and professor of English Ken McClane said to me last week, as he has said to many, "people do wonderful and horrific things to survive. And the things they do, they must do for very logical reasons. . . . The amazing thing about life is that human beings find a way to do it. Once we understand the history, what we really see is that given all the obstacles, human beings find the most inventive ways to transcend them."

This is what I hope the column will do: Bring to light the quirky, the frustrating and the wonderful ways we go about living our lives here. And, only on occasion, to offend.

—Lisa Bennett

## Making his point



Tim Moersh

Tobias DeBoer (right), professor and associate director of mechanical and aerospace engineering, reviews an experiment with students (from left) Steven Bowers, Gary Bean and Juan Bermudez.

## Alumni favor an active Cornell role in addressing world problems: survey

Cornell's alumni approve of their alma mater's evolution into a national research university and favor an active role for the university in addressing national and world problems.

That's one conclusion of an alumni survey, which also found widespread concern about the cost of education — for students and universities — along with strong optimism about, and support for, Cornell.

The findings, based on 2,111 alumni interviews, refute a common assumption that alumni are unhappy with the post-1950s evolution of many schools from smaller, liberal-arts colleges into universities with broad research programs. In fact, a strong majority of those polled saw undergraduates deriving clear benefits from this new kind of university.

The survey, taken as Cornell marks its 125th anniversary and begins a major campaign to build endowment, was part of an effort to maintain "vital, accurate communication with our 140,000 living alumni," says John F. Burness, vice president for university relations.

"From its founding," Burness added, "Cornell had a practical, problem-solving thrust; so research was in our bones. But the demands of government, business and rapidly changing sciences themselves now require leading universities to maintain elaborate and sophisticated research enterprises.

"We're delighted that the change hasn't diminished alumni affection for Cornell as a great place for undergraduate education."

The telephone survey, conducted last November and December by Gordon S. Black Corp. of Rochester, N.Y., was augmented by a phone survey of 811 non-Cornellians, whose views on higher education and its problems were similar to those of the Cornell alumni.

The Cornell alumni surveyed saw cost and affordability as the top problem for higher education in general and for Cornell in particular; however, while 63 percent cited cost as a national problem, only 43 percent cited it as a problem for Cornell.

Similarly, while 25 percent of alumni said higher education in general has declined in quality over the past decade, only 4 percent said that of Cornell.

In fact, 22 percent of the alumni could come up with no Cornell problems at all, while only 8 percent of them cited no problems in higher education generally.

About 20 percent of both groups said higher education is underfunded, and about 33 percent said colleges are hampered by underprepared or unqualified students. Only 12 percent of the alumni, however, said they believe that Cornell is taking unqualified students.

The Cornell sample was planned to include 1,600 alumni of the university's undergraduate schools and colleges, 300 from Cornell's professional schools and 200 former graduate students. There also was selection by age, sex and race.

Of the 2,111 alumni interviewed, 91 percent saw Cornell as a national research university, which they identified with a respected national reputation, substantial outside funding and the exploration of technology or fields of knowledge. Seventy-nine percent reported positive feeling about Cornell's being a research university; only 3 percent reported negative feelings.

"What backed up this finding was strong belief that Cornell's research enterprise benefits undergraduates as well as some of the more obvious beneficiaries," Black said.

Ninety-three percent saw a benefit for graduate students, 90 percent for corporations, 87 percent for government, 82 percent for the general public and 65 percent for undergraduates.

"Even though that was the lowest total, it's a strong showing that Cornell alumni don't see teaching and research as antithetical," Black said.

Roald Hoffmann, a Nobel laureate in chemistry who also teaches basic undergraduate chemistry at Cornell, has said the idea that research dominates and diminishes teaching is "a damaging misconception about modern universities."

Teaching and research are more than complementary; they "are, quite literally, inseparable," according to Hoffmann, the John A. Newman Professor of Physical Science and winner last year of the nation's highest chemistry award, the Priestley Medal. True learning in chemistry proceeds not statically, but by the recurring interaction of audiences — undergraduates, graduate students and faculty — who "always shift, overlap and enrich each other like the colored glass bits of a kaleidoscope," he has written.

(Two years ago, Cornell research found that only 15 percent of opinion leaders in government, business and the news media saw undergraduates benefiting from university research. On other matters, such as concern about costs and about quality of education, the findings of both surveys were similar.)

Alumni support for an activist Cornell was evident in their responses to questions about what problems Cornell should be addressing. Only 5 percent said none. The favored areas for Cornell activism were: environment, 24 percent; education, 19 percent; international relations, 16 percent; national social problems, 13 percent; international social problems, 12 percent; international competitiveness, 12 percent.

"What was striking was that alumni expressed real concern about morality and ethics and quality-of-life issues within their discussion of just about all the problem areas they wanted Cornell involved in," Black said.

In questions about what they'd like Cornell publications to tell them more about, university involvement in political and social issues again ranked near the top, with 82 percent showing interest — just behind 85 percent for general news about classmates and 84 percent for Cornell research activities.

Then, ranging from 75 percent to 61 percent, were academic programs in the interviewee's college, financial and economic issues, articles about alumni events, Cornell's public-service efforts, alumni events in the interviewee's college, student activities and faculty activities. Tied at the bottom, with 50 percent, were sports and academic programs in other colleges.

In two areas, the survey showed something of a communications gap between alumni and Cornell: the idea of "diversity" and the meaning of endowment.

It has long been a priority of President Frank H.T. Rhodes and of the Faculty Council of Representatives to increase minority-group representation among students, faculty and staff.

Most Cornell discussions of "diversity" refer to that priority. Yet only 40 percent of alumni related the word to student variety, while 60 percent cited variety of courses and curriculum. Non-white alumni were slightly more accurate in their understanding and considered student diversity a more important issue than whites did.

On endowment, only 25 percent indicated awareness that only the income, and not the principal, of those invested funds can be spent to support university programs. This causes an error of perception, says Burness — the difference between thinking: "We have \$100,000 in the bank" and "We have an annual income of \$4,500."

—Sam Segal



# MathWriter

Professor, programmer  
create scientific  
word-processor

Bob Cooke and Ted Sobel have created, by all accounts, an extraordinarily powerful software tool for scholars who spend countless hours trying to wrestle complex mathematics onto the printed page. The sophisticated technical word-processor, called MathWriter 2.0, will formally be offered to the Cornell community this week.

After three years of work, the Apple Macintosh program, consisting of almost 100,000 lines of computer code, will be available beginning this week as a review copy in the Campus Store for \$35. Users of these first copies will be asked to provide feedback, and they will receive a free swap for the final program when it is released to the general Cornell community Nov. 15.

Cooke, a professor of agricultural and biological engineering, and Sobel, a senior applications programmer, are providing the program to Cornell users for the cost of materials.

"I think it's just great," said Leonard Gillman, a retired University of Texas mathematics professor and immediate past president of the Mathematics Association of America. Gillman is one of the testers of the program and will write an instructional manual on its use.

"It's two things at once — a word processor and a math writer — and it excels at both," he said. "As a word processor, it has all sorts of features that ordinary word processors don't have, and as far as I know, as a math writer it's in a class by itself."

The program comes in both professional versions for advanced users with more powerful Macintoshes and student versions for those with fewer needs and less-powerful machines.

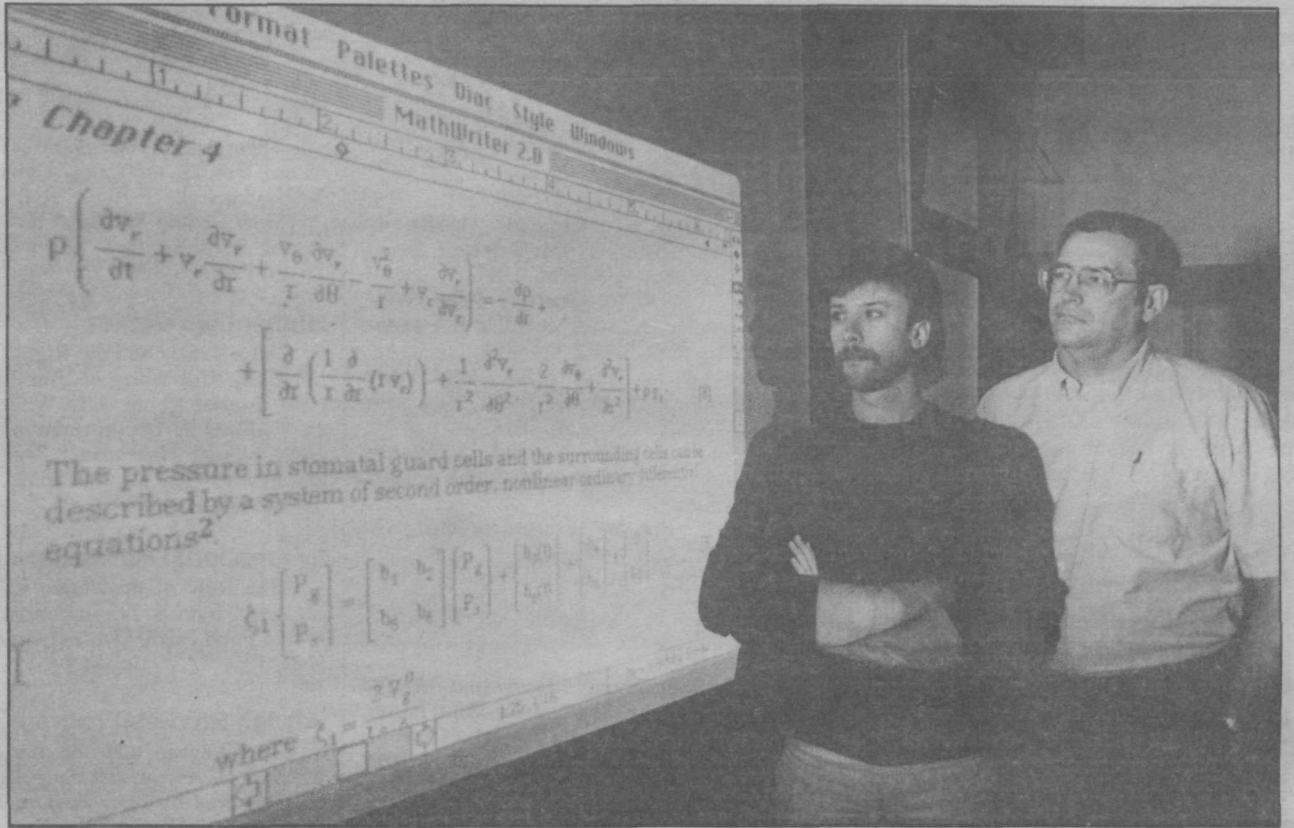
The rest of the world will have to wait until Jan. 1 to buy MathWriter 2.0. Brooks/Cole Advanced Books & Software of Pacific Grove, Calif., will publish the program, at \$395 for the professional version and \$99 for the student version.

Until that publication, prospective outside users will only be able to ogle the MathWriter interface at a series of national demonstrations to be run by Apple Computer Inc., which will promote the program heavily.

The key to MathWriter's power, says Cooke, is that users can compose even the most complicated equations and text at the keyboard as easily as prose writers compose text with an ordinary word processor such as WordPerfect or Microsoft Word.

Users can use a mouse to choose from comprehensive menus of math symbols to enter into the manuscript. Or, they can create their own symbols or entire expressions to add with a single command. Also, the entire document is displayed in the much-desired "what-you-see-is-what-you-get" format, showing the page as it will look when printed.

Most other such programs require writers to form equations as non-editable graphics and then to paste them into documents. Making changes means laboriously reworking the graphic and again pasting it in. Or else the math text



Tim Moersh

Ted Sobel (left), a computer programmer, and Professor Bob Cooke examine a scientific equation written using their technical word-processor, MathWriter 2.0.

processors require writers to enter strings of formatting commands, resulting in a screen which does not allow easy visualization of the final page.

Writers who find themselves constantly renumbering equations as they change the manuscript will appreciate the automatic renumbering for equations, figures, tables, theorems and footnotes.

The program also features what might be dubbed "elastic" symbols — it automatically sizes parentheses, brackets, fraction lines, vector arrows, matrices, tables and integral signs to the appropriate size as the writer composes. MathWriter also automatically centers and adjusts equations as they are entered or changed.

Other features include marginal notes and visual tracking of revisions, with deletions and revisions displayed in special typeface of strikeouts.

MathWriter is the latest of a dozen scientific and academic programs developed by Cooke and Sobel — including data bases, teaching programs and analytical mathematics programs. As with many of their other programs, MathWriter was a child of necessity.

"I've been writing scientific papers for 25 years, and I found it a perpetual headache," said Cooke, who describes his as a typical scientific writer's history of making do with writing "aids" ranging from special typewriter keys to primitive math symbol computer programs.

"After we'd written a couple of pieces of software, we figured we knew how to do it, and decided to take a quick detour to write a scientific word processor."

Working with Sobel, whom he calls "a world-class programmer," the two turned out the first version of MathWriter 1.0 in nine months. A basic cut-and-paste program for adding math, it was popular, but for Cooke and Sobel, it was not enough.

Thus, the two embarked in 1987 on an effort to produce the most elegant scientific word processor possible — a project to which commercial software companies might normally dedicate whole teams of programmers. With Cooke providing general design and Sobel the programming expertise, they finished the program last January and began demonstrating it on campus and offering "beta-test" versions to users.

Since then, they have immersed themselves in a meticulous debugging effort — learning of problems from beta testers and tracing the often-subtle glitches through the labyrinth of computer code.

To Cooke, the principal satisfaction of creating MathWriter 2.0 arises from its profound benefits for faculty.

"Everybody on this campus spends a substantial amount of time writing. Because MathWriter is so powerful and easy to use, I honestly believe that it will be a major contributor to faculty productivity," he said.

"We wrote the program specifically for scientists, whereas the other programs on the market are written for the person who works for the scientist." Thus, said Cooke, MathWriter will offer a smoother creative path for scientists between conception and execution of their ideas on paper.

—Dennis Meredith

## 'Rock' video shows the excitement of civil engineering

When Arnim Meyburg decided to improve the image of civil engineering, he had no idea he would become a video impresario.

Now, the director of the School of Civil and Environmental Engineering finds the two "high-concept" videos he commissioned much in demand by other civil-engineering schools trying to show their students the excitement of building skyscrapers, space stations and pollution control projects and of doing high-tech detective work using images of Earth from space.

The videos use the techniques of MTV — fast cuts and a pop-music beat — as well as images of Superman, the Toxic Avenger, the pyramid-building pharaohs and others — to capture the attention of would-be civil and environmental engineers. Produced at a cost of about \$15,000 by a local video-production house, Insight Video, the videos already have more than paid for themselves in generating student interest in a vital field that suffers an image problem, said Meyburg.

"The image of the civil engineer is of one who digs ditches and puts pipes down, and through these pipes flow some undesirable liquids," he said. At Cornell, the number of civil- and environmental-engineering students had been on the decline until about three years ago, when it began to rise, until now, when about 120 juniors and seniors are majoring in the field.

Dissatisfied with the traditional student-recruitment materials developed by his professional society, Meyburg decided to use the same techniques his young targets encounter every day in the media to attract the students to the real world of the civil and environmental engineer. It's a world where students use computers, satellites and other sophisticated tools to build the vital infra-



Tim Moersh

Professor Arnim Meyburg with a clip from his video, in which Superman (Cornell alumnus Christopher Reeve) is used in an illustration of remote sensing.

structure of the country and to plan anti-pollution projects critical to protecting the environment.

"The traditional materials that students receive from the engineering society were laughed out of the room by our faculty and students; they were clearly made by engineers for engineers, not for today's students," said Meyburg.

So, two years ago he turned Insight Video loose on the project, giving them a list of faculty and projects in the school, but allowing them the latitude to determine which Cornell projects would make the best visuals. The video production team also in-

terviewed students about why they came to Cornell and what attracted them to engineering.

The result after a year of work was two videos — one a fast-paced, three-minute montage of scenes of civil engineering projects and pop images, and the other an eight-and-one-half-minute exploration of the field using interviews with Cornell engineering graduates and a look at Cornell offerings. For example, in the long version a woman civil-engineering graduate strolls around a New York City skyscraper, talking about her excitement as an engineer being in on the behemoth's construction. In other

scenes, Cornell civil engineering faculty are shown working with students, and student civil engineers are shown building a bicycle as a public service project.

The faculty use the first video to attract students to the civil engineering booth at orientation and other student events, where they can take more in-depth written material on the field. They use the second to give both high-school and college students the flavor of what it's like to be a civil engineer.

"It's a selling job, no question," said Meyburg. "I wanted a super image of the school and a super image of Cornell."

"But it's not as if I'm providing image without substance; the substance is there. I'm just projecting the substance out — about our world-renowned people doing world-renowned teaching and research."

Meyburg's current spate of requests for the videos, which he gives away free, have come as a result of a recent showing at a meeting of heads of civil engineering at colleges in the region. They include Syracuse University, the University of Massachusetts, Worcester Polytechnic, Tufts University and the State University of New York at Buffalo.

However, Meyburg would like to go further; to see his video selling technique applied nationally. Thus, he was particularly pleased when the national professional organization, the American Society of Civil Engineers, requested the videos.

The result of such sophisticated selling, he believes, could quite likely be an increase in enlistments of high-quality students in the cause of civil and environmental engineering, a cause that has its goal as nothing less than building and preserving the foundations of the country.

—Dennis Meredith



# CALENDAR

All items for the Chronicle Calendar should be submitted (typewritten, double spaced) by campus mail, U.S. mail or in person to Joanne Hannan, Chronicle Calendar, Cornell News Service, Village Green, 840 Hanshaw Road.

Notices should be sent to arrive 10 days prior to publication and should include the name and telephone number of a person who can be called if there are questions.

Notices should also include the subheading of the calendar in which the item should appear.

## DANCE

### Cornell International Folkdancers

All events are open to the Cornell community and general public. Admission is free, unless stated otherwise. For further information, call 257-3156.

Balkan Folk Dance Workshop for experienced dancers, taught by Ed Abelson, Oct. 21, 6:30 to 7:30 p.m. Instruction and requests, 7:30 to 10:30 p.m., North Room, Willard Straight Hall.

Global Dance, sponsored by the Cornell Wellness Program, the Schottische, Oct. 23, 7:30 to 10 p.m., Dance Studio, Helen Newman Hall. For more information, call 273-0707.

### Israeli Folkdancing

Israeli folkdancing, Thursdays, 8:30 p.m., Edwards Room, Anabel Taylor Hall.

## EXHIBITS

### Johnson Art Museum

The Herbert F. Johnson Museum of Art, on the corner of University and Central avenues, is open Tuesday through Sunday from 10 a.m. to 5 p.m. Admission is free. Telephone: 255-6464.

"A Celebration of American Art from the Collections of Cornell Alumni and Friends," through Nov. 4.

"Cornell Collects," a gallery talk by Nancy Allyn Jarzombek, associate curator of painting and sculpture and Nancy E. Green, curator of photography and prints, Oct. 27 at 4 p.m., in conjunction with the current exhibition celebrating Cornell's 125th anniversary as the first uniquely American university and featuring 162 paintings, sculpture, works on paper, prints and photographs from 72 collections.

A box-lunch tour of the Southeast Asian ceramics from the permanent collection, presented by graduate student Michael Bossler, will be offered Oct. 25 from noon to 1 p.m. Participants are requested to meet in the lobby.

### History of Science Collection

"Will That Building Stay Up? Selected Responses, from Galileo to Thurston," an exhibition in honor of the construction of the new library building on the Arts Quadrangle, through November, Monday through Friday from 9:30 a.m. to 4:30 p.m. in the History of Science reading room, 215 Olin Library.

### Tjaden Gallery

CCPA Grant Exhibitions: photographs by Elizabeth Abeson, through Oct. 20; paintings by Emille Clark, Oct. 21 through 27. The gallery is in Tjaden Hall and is open from 8 a.m. to 4:30 p.m.

### Uris Library

"The Arab World in Fact and Fiction," a display in the library's nine display cases, in Uris through December.

## FILMS

Films listed below are sponsored by Cornell Cinema unless otherwise noted and are open to the public. All films are \$3.50, except weekend films (Friday and Saturday) which

are \$4.50 (\$4 for students). All films are held in Willard Straight Theatre except where noted.

### Friday, 10/19

"Johanna d'Arc of Mongolia" (1989), directed by Ulrike Ottinger, with Delphine Seyrig and Xu Re Huar, free, 4:30 p.m., Uris.

"Witness" (1985), directed by Peter Weir, with Harrison Ford, Kelly McGillis and Lukas Haas, 6:55 p.m.

"The Plot Against Harry" (1969), directed by Michael Roemer, with Martin Priest, Ben Lang and Maxine Woods, 7:30 p.m., Uris.

"Dick Tracy" (1990), directed by Warren Beatty, with Warren Beatty, Madonna and Al Pacino, 9:30 p.m.

"Ticket of No Return," directed by Ulrike Ottinger, 9:40 p.m., Uris.

"Rock 'n' Roll High School Forever," midnight.

### Saturday, 10/20

"Beetab," with Sunny Deol and Amrita Singh, sponsored by South Asia Film Series, 1:30 p.m., Uris Library Media Projection Room.

"Dick Tracy," 7:15 p.m.

"The Plot Against Harry," 7:15 p.m., Uris.

"Story of Women" (1989), directed by Claude Chabrol, with Isabelle Huppert and Francoise Cluzet, 9:20 p.m., Uris.

"Rock 'n' Roll High School Forever," 9:45 p.m.

"Take the Money and Run" (1969), directed by Woody Allen, with Woody Allen and Janet Margolin, midnight.

### Sunday, 10/21

"From Woodstock to Tiananmen Square" and "River Elegy," free, 2 p.m., Johnson Museum.

"Dick Tracy," 4:30 p.m.

"Witness," 8 p.m.

### Monday, 10/22

"A Safety Net," a documentary, part of the film series, "Africa in a Time of Change," sponsored by Institute for African Development, Africana Studies and Research Center and Cornell African Students Association, 12:30 p.m., 208 West Sibley Hall.

"The Plot Against Harry," 7:25 p.m.

"North by Northwest" (1959), directed by Alfred Hitchcock, with Cary Grant, Eva Marie Saint and James Mason, 9:30 p.m.

### Tuesday, 10/23

"Burma: The Ramayana," sponsored by the Southeast Asia Film Series, 4:30 p.m., Hollis E. Cornell Auditorium, Goldwin Smith Hall.

"A Strange Love Affair" (1985), directed by Eric de Kuyper and Paul Verstraten, with Howard Hensel and Karl Scheydt, co-sponsored by Cornell Gay, Lesbian and Bisexual Coalition, 7:30 p.m.

"Die Hard II" (1990), directed by Renny Harlin, with Bruce Willis, Bonnie Bedelia and John Amos, 9:45 p.m.

### Wednesday, 10/24

"Hellhole" (1985), directed by Pierre de Moro, with Judy Landers, Mary Woronov and Ray Sharkey, 7:15 p.m.

"Die Hard II," 9:35 p.m.

### Thursday, 10/25

"Media Fights Back!" curated by Lucinda Furlong of the Whitney Museum, features videotapes which have been targets and opponents of censorship efforts in the United States, 8 p.m.

"Die Hard II," 10 p.m., Uris.

## LECTURES

### Baker Lectures

"An Organometallic Way to Nucleic Acids," Ryoji Noyori, Nagoya University, Oct. 23, 11:15 a.m., 119 Baker Lab.

### Classics

"Menads as Tragic Mothers," Renate Schlesier, Free University, Berlin, Oct. 19, 3:30 p.m., 134 Goldwin Smith Hall.

"Knowledge, Power and the Narrative in Herodotus' 'Histories,'" Carolyn Dewald, University of Southern California, Oct. 22, 4:30 p.m., 22 Goldwin Smith Hall.

### Comparative Muslim Society/ South Asia Program

"Rudyard Kipling in India," C. Edmund Bosworth, University of Manchester, England, Oct. 19, 12:30 p.m., 102 Rockefeller Hall.

### Dickenson Visiting Lecture Series

Michael Young, painter, Oct. 24, 5 p.m., 115 Olive Tjaden Hall.

### East Asia Program

"Market Reform and the Transformation of Mate Choice in Urban China," Martin King Whyte, University of Michigan, Oct. 26, 4:30 p.m., G08 Uris Hall.

### Hillel

"The Arab-Israel Conflict Now," Oded Yinon, Oct. 22, 4:30 p.m., Founders Room, Anabel Taylor Hall.

"How Should We Read the Bible?" topics in Jewish tradition, Oct. 22, 8 p.m., 314 Anabel Taylor Hall.

### Humanities Center

"Alice James and the Right to Death," Deborah Esch, University of Toronto, Oct. 19, 4:30 p.m., Guerlac Room, A.D. White House.

"Caliban as Deconstructionist: C.L.R. James and Colonial Discourse," Paget Henry, Brown University, Oct. 25, 4:30 p.m., Guerlac Room, A.D. White House.

### International Agriculture Program

"The Role of the Potato in the Conquest of Hunger," John S. Niederhauser, recipient of the World Food Prize, Oct. 24, 4 p.m., 135 Emerson Hall.

### Jewish Studies Program

"The Aegean and the Ancient Near East," Michael C. Astour, Southern Illinois University, co-sponsored by Near Eastern Studies, Oct. 23, 4:30 p.m., 230 Rockefeller Hall.

### Mathematical Sciences Institute

"Oscillatory Integrals and Regularity of Dispersive Equations," analysis seminar, Gustavo Ponce, Pennsylvania State University, Oct. 29, 1:30 p.m., 310 White Hall.

"The Initial Value Program for the Generalized Korteweg-deVries Equation," non-linear PDE seminar, Gustavo Ponce, Oct. 29, 4 p.m., 312 Mathematical Sciences Institute, 409 College Ave. Ponce will be visiting the institute from Oct. 28 through 30.

### Near Eastern Studies

"The Medieval Islamic Underworld," C. Edmund Bosworth, University of Manchester, England, Oct. 19, 4:30 p.m., 177 Goldwin Smith Hall.

### Southeast Asia Program

"Regime Maintenance and Change in Indonesia," Kenneth Young, Monash University, Oct. 25, 12:20 p.m., 102 West Ave Ext.

### Theory Center

"Dynamics of the Supercomputing Marketplace: Trends and Issues in a Changing World," Chris Williard, Dataquest, Oct. 22, 4 p.m., 700 Clark Hall.

### Thomas Lecture Series

"Versions of Post-structuralism: Decentered and Delirious," K. Michael Hays, Harvard University, Oct. 19, 5:30 p.m., 120 Baker Laboratory.

### University Lectures

"Seen and Unseen: Working Methods of Northern Renaissance Painters," Maryan Ainsworth, Metropolitan Museum of Art, Oct. 24, 4:30 p.m., Hollis E. Cornell Auditorium, Goldwin Smith Hall.

"The Impact of Glasnost on the Study of History in the U.S.S.R.," Boris N. Mironov, Institute of History, U.S.S.R. Academy of Sciences, Oct. 25, 4:30 p.m., Hollis E. Cornell Auditorium, Goldwin Smith Hall.

### Western Societies Program

"The Crisis of the Swedish Model," Bo Rothstein, University of Uppsala, Sweden, Oct. 19, 12:15 p.m., 153 Uris Hall.

"Labor Market Institutions and Union Density," Bo Rothstein, University of Uppsala, Sweden, co-sponsored by the ILR School, Oct. 23, 4 p.m., 118 Ives Hall.

## MUSIC

### Department of Music

"Filming Mozart's Operas," a lecture demonstration on films and music with baritone Sanford Sylvan and film-maker Andrea Simon, Oct. 19, 9 p.m., Barnes Hall.

"Violin-harpsichord Duos," with Sonya Monosoff and Joyce Lindorff, Oct. 20, 8:15 p.m., Barnes Hall. The concert opens with Sonata in G Minor by unknown composer Petro Castrucci, followed by Handel's Suite in F Minor and Leclair, Sonata III in E Minor, Couperin l'aine's Pieces de Clavecin and J.S. Bach's Sonata I in B Minor.

Cornell Symphonic Band & Chamber Winds, with director Mark Scatterday and guest artist trombonist Dennis Smith, will perform Oct. 21 at 4 p.m. in Bailey Hall. The concert will feature American compositions for wind instruments and

trombone. Smith is soloist in the Oscar winning film "Bolero" with Zubin Mehta and the Los Angeles Philharmonic.



Andres Diaz

Andres Diaz, cello, and Jonathan Shames, piano, will perform the three cello sonatas by Brahms on Oct. 21 at 8:15 p.m. in Barnes Hall. J.S. Bach's Sonata No. 1 in G Major, Brahms' Sonata No. 1 in E Minor and his Sonata No. 2 in F Major are the featured compositions. Diaz' first solo recording was recently released on the Music Master label, and currently he is recording the Brahms Sonatas with pianist Samuel Sanders on the Denon label.

### Bound for Glory

Kathy Johnson, singer, with Kinloch Nelson, guitarist, will perform in three live sets on Oct. 21, at 8:30, 9:30 and 10:30 p.m. in the Commons Coffeehouse in Anabel Taylor Hall. Bound for Glory can be heard Sundays from 8 to 11 p.m. on WVBR-FM, 93.5.

### Cornell Folk Song Club

Rod MacDonald, a Newsweek writer turned songwriter, will appear in the first of a series of free coffeehouse concerts Oct. 19 at 8 p.m. in The Henry, Sage Hall.

## RELIGION

### Sage Chapel

Janet Cooper Nelson, university chaplain, Brown University, will deliver the sermon Oct. 21. Service begins at 11 a.m. Music will be provided by the Sage Chapel choir, under the direction of Donald R.M. Paterson. Sage is a non-sectarian chapel that fosters dialogue and exploration with and among the major faith traditions.

### Baha'i

Weekly meetings on campus. Call 257-7971 for information.

### Catholic

Masses: Saturdays, 5 p.m., Sundays, 9:30 a.m., 11 a.m., 5 p.m., Anabel Taylor Auditorium. Daily masses, Monday through Friday, 12:20 p.m., Anabel Taylor Chapel.

### Christian Science

Testimony meetings, Thursdays, 7 p.m., Founders Room, Anabel Taylor Hall.

### Episcopal (Anglican)

Sundays, worship and Eucharist, 9:30 a.m., Rev. Gurdon Brewster, chaplain, Anabel Taylor Chapel.

### Friends (Quakers)

Sundays, 10 a.m., adult discussion; 11 a.m. meeting for worship, Edwards Room, Anabel Taylor Hall.

### Jewish

Morning Minyan at Young Israel, 106 West Ave. Call 272-5810.

Shabbat Services: Friday: Conservative/Egalitarian, 5:30 p.m., Founders Room, Anabel Taylor Hall; Reform, 5:30 p.m., Anabel Taylor Chapel; Orthodox, Young Israel (call 272-5810 for time). Saturday: Orthodox, 9:15 a.m., One World Room, Anabel Taylor Hall; Conservative/Egalitarian, 9:45 a.m., Founders Room.

### Korean Church

Sundays, 1 p.m., Anabel Taylor Chapel.

### Muslim

Fridays, 1 p.m., Anabel Taylor Edwards Room.



**Protestant Cooperative Ministry**  
 Sunday worship, 11 a.m., Anabel Taylor Chapel; Taize Prayer, Tuesdays, 5:30 p.m., Anabel Taylor Chapel; Bible study, Thursdays, 7:00 p.m., G-7 Anabel Taylor; Celebration, Fridays, 7:00 p.m., 401 Thurston Ave. Call Rev. Barbara Beck, chaplain, 255-4224, for information.

**Seventh-Day Adventist**  
 Student association, Fridays, 7:15 p.m., 314 Anabel Taylor Hall.

**Buddhism**  
 Zen practice Tuesdays 6:45 p.m. and Thursdays 4:30 p.m. in Anabel Taylor Chapel. For more information or to arrange beginner's instruction, call Jon Warland at 272-0235.

## SEMINARS

**Applied Mathematics**  
 Backward Error Assertion Schemes for Reliable Computing," Daniel Boley, University of Minnesota, Oct. 19, 4 p.m., 322 Sage Hall.

**Astronomy & Space Sciences**  
 "Three-degree Cosmic Black Body Radiation," Juan Uson, National Radio Astronomy Observatory, Socorro, N.M., Oct. 25, 4:30 p.m., 105 Space Sciences Building.

**Biochemistry**  
 "A Newly Described Family of Luminal ER Proteins Uses Different Carboxyterminal Retention Signals," Michael Green, St. Louis University School of Medicine, Oct. 19, 4 p.m., Large Conference Room, Biotechnology Building.

"Regulation of Transcription, Translation, and the Factor Association and Assembly of a Chloroplast Membrane Protein," John Mullet, Texas A&M University, Oct. 25, 4 p.m., Large Conference Room, Biotechnology Building.

**Chemical Engineering**  
 Title to be announced, Janice A. Phillips, Michigan University, Oct. 23, 4:15 p.m., 255 Olin Hall.

**Chemistry**  
 "Catalysis of Organic Reactions by Inorganic Solids," Pierre Laszlo, Ecole Polytechnique, Oct. 22, 4:40 p.m., 119 Baker Laboratory.  
 Title to be announced, G. Kubas, Los Alamos National Lab, Oct. 25, 4:40 p.m., 119 Baker Laboratory.

**Economics & Regional Planning**  
 "Modernizing Manufacturing: Economic Development in Western New York," Judith K. W. Western New York Economic Development Corp., Oct. 19, 12:15 p.m., 115 Tjaden.

**Ecology & Systematics**  
 "Design of Fluid Transport Systems," Michael LaBarbara, University of Chicago, Oct. 22-20 p.m., A409 Corson Hall.

**Electrical Engineering**  
 "DSP/C: A High-Level Language for Digital Signal Processing," Kevin Leary, Analog Devices, Oct. 23, 4:30 p.m., 219 Phillips Hall.

**Environmental Communication**  
 "Communication Issues in Integrated Pest Management," Curt Petzoldt, Geneva Agricultural Experiment Station, Oct. 25, 12:20 p.m., Bradford.

**Environmental Toxicology**  
 "Involvement of Ligninolytic Peroxidases in the Metabolism of Aromatic Pollutants by the Rot Fungi," Kenneth E. Hammel, NYS University, Syracuse, College of Environmental Science & Forestry, Oct. 19, 12:20 p.m., 14 Fernow Hall.

**Entomology**  
 "Power and Efficiency Analysis of Cutoff-Experimental Designs," Joe Cappelleri, Cornell service studies, Oct. 26, 12:20 p.m., 141 Science Building.

**Culture & Ornamental Horticulture**  
 "Sonnenberg Gardens: How We Have Made It Far," Marianne Bell, Sonnenberg Gardens, Oct. 25, 12:15 p.m., 404 Plant Science Building.

**Food Science & Technology**  
 "The Future of Biotechnology in Food Production," Ralph W.F. Hardy, Boyce Thompson Institute, Oct. 23, 4:30 p.m., 204 Stocking Hall.

**Food & Vegetable Science**  
 "Economic Feasibility of Expanding Fresh Vegetable Production in Central New

York," Gerry White, agricultural economics, Oct. 25, 4:30 p.m., 404 Plant Science Building.

**Geological Sciences**  
 "Finger Lakes Region," Robert Ridky, University of Maryland, Oct. 23, 4:30 p.m., 1120 Snee Hall.

**History & Philosophy of Science & Technology**  
 "The Complementarity of Public and Private Communication in Science: A Case Study of the Chemist Justus Liebig," Regine Zott, Akademie der Wissenschaften der DDR, Oct. 23, 4:30 p.m., 110 Rockefeller Hall.

**Jugatae**  
 "Is Asexual Reproduction a Curable Disease? The Causes and Consequences of Thelytoky in Trichogramma," Richard Stouthamer, University of Rochester, Oct. 22, 4 p.m., 106A Morison Room, Corson/Mudd Hall.

**Landscape Architecture**  
 "The Geographer's Landscape," Anthony Williams, Pennsylvania State University, Oct. 19, 11:15 a.m., 101 West Sibley.

**Latin American Studies**  
 "Caudillos and Caciques: Ideology and Power in the Mexican National Space," Claudio Lomnitz, Oct. 26, 3:30 p.m., 303 McGraw Hall.

**Mechanical & Aerospace Engineering**  
 "Change-of-Phase Heat Transfer in Ultra-thin Liquid Films," Peter Wayner, Rensselaer Polytechnic Institute, Oct. 23, 4:30 p.m., 107 Upson Hall.

**Microbiology**  
 "Papilloma Virus Virology," Wayne Lancaster, Wayne State University School of Medicine, Oct. 22, 12:15 p.m., G-3 Vet Research Tower.  
 "Molecular Microbial Ecology: Polysaccharide Utilization by Gram-Negative Colonic Anaerobes," Abigail Salyers, University of Illinois, Urbana, Oct. 25, 4 p.m., Conference Room, Biotechnology Building.

**Nutrition**  
 "Mechanisms of Fetal Growth Retardation in the Underweight Mother," Pedro Rosso, Pontificia Universidad Catolica, Santiago, Chile, Oct. 22, 4:30 p.m., 100 Savage Hall.

**Operations Research & Industrial Engineering**  
 "Information Systems for Manufacturing," A.W. Scheer, Institute fur Wirtschaftsinformatik, Oct. 25, 4:30 p.m., B14 Hollister Hall.

**Ornithology**  
 "Bird Life Then and Now: A Look at New York's Birds Through the Eyes of Arthur A. Allen," Bonnie Glickman, Monroe Community College, Oct. 22, 7:45 p.m., Laboratory of Ornithology, 159 Sapsucker Woods Road.

**Peace Studies Program**  
 "Armed Forces and Transition to Democracy in Paraguay," Marcial Antonio Riquelme, Oct. 25, 12:15 p.m., G08 Uris Hall.

**Pew/Cornell Lecture Series**  
 "Food and Nutrition and the Relevant Policies in China," Madam Chen Chunming, president, Chinese Academy of Preventive Medicine, Oct. 25, 3:30 p.m., 100 Savage Hall.

**Physiology & Anatomy**  
 "Baro- and Chemoreflex Control of the Fetal Cardiovascular System," Charles E. Wood, University of Florida, Gainesville, Oct. 23, 4:30 p.m., D-215 Schurman Hall.

**Plant Biology**  
 "Characterization and Manipulation of Meristematic and Phytohormone Genes in Transgenic Plants," June Medford, The Pennsylvania State University, Oct. 19, 11:15 a.m., 404 Plant Science Building.

**Plant Breeding & Biometry**  
 "Anther Culture Research at CIAT," Cesar Martinez, CIAT, Oct. 23, 12:20 p.m., 135 Emerson Hall.

**Plant Pathology**  
 "Biology, Ecology and Control of *Colletotrichum coccodes* on Tomato," H.R. Dillard, Oct. 23, 4:30 p.m., 404 Plant Science Building.  
 "Localization and Function of Calcium in Germinating Uredospores of *Uromyces*," Gabrielle Leinhos, plant pathology, NYSAES, Oct. 24, 3 p.m., 310 Barton Laboratory, Geneva.

**Psychology**  
 "The Origin of Memories," Marsha Johnson, Princeton University, Oct. 19, 3:30 p.m., 202 Uris Hall.

**Science, Technology & Society**  
 "Bloch's Legacy at the NSF," Wil Lepkow-



Patricia Reynolds

Max Fury as Stanley and Carlton Miller as Blanche in the Theatre Arts production of Tennessee Williams' "A Streetcar Named Desire."

## 'A Streetcar Named Desire' opens tonight

Tennessee Williams' most popular play, "A Streetcar Named Desire," will open tonight, Oct. 19, at 8 p.m. in the Center for Theatre Arts' Proscenium Theatre.

Stage Director Bruce Levitt will approach the work differently from traditional stagings. "This is a unique production concept because it tries to incorporate a number of elements that Williams indicates in the script but are rarely staged in other productions," said Levitt. "For example, there are detailed descriptions of the street life in New Orleans and how it impacts Blanche. In this production we'll use live jazz musicians."

To Williams, "Streetcar" was perhaps the play that best represented his emotions and ideals. Dramaturge J. Ellen Gainor, an assistant professor of theater studies, notes, "Although a number of critics feel that 'The Glass Menagerie' is Williams' 'best' play, Williams himself indicated that he felt very close to the character of Blanche and saw parts of himself in Stanley. 'Streetcar' dramatizes conflicts that were present in late-1940s society and plays out conflicts inherent in all people."

"A Streetcar Named Desire" also will be performed Oct. 20, 25, 26 and 27 at 8 p.m. and Oct. 21 and 28 at 2 p.m. in the Proscenium Theatre. Tickets are \$4 to \$7 and are on sale at the Center for Theatre Arts box office. For more information, call 254-ARTS.

## Film-maker Simon, baritone Sanford to lecture tonight on films and music

Film-maker Andrea Simon and baritone Sanford Sylvan will give a lecture demonstration on films and music tonight, Oct. 19, at 9 p.m. in Barnes Hall.

The evening will focus on their work with the brilliant and controversial young stage director, Peter Sellars, whose staging of Mozart's operas has drawn worldwide attention.

Simon will show portions of her most recent film, a documentary of Sellars' Mozart trilogy, which will be broadcast nationwide on public television in December. Those clips will include footage of Sylvan working with Sellars on the role of Figaro in Mozart's "Marriage of Figaro."

Simon currently is writer and director of research for Metropolis, an experimental interactive computer/videodisc program on the history of Western civilization. She also is producer of "City of Dreams," a forthcoming three-part dramatic series for public television on politics and culture in turn-of-the-century Vienna.

Sylvan is a visiting artist-in-residence of the Department of Music and also is sponsored by the Cornell Council of the Creative and Performing Arts.

ski, Chemical & Engineering News, Oct. 22, 12:15 p.m., 609 Clark Hall.

**Sigma Xi**  
 "History and Design in Evolution," Michael LaBarbara, University of Chicago, co-sponsored by ecology and systematics, geological sciences, Oct. 24, 4:30 p.m., Conference Room, Biotechnology Building.

**Stability, Transition & Turbulence**  
 "Long-time Approximation of the Navier-Stokes Equation," Edriss Titi, U.C. Irvine Visitor Mathematical Sciences Institute, Oct. 23, noon, 288 Grumman Hall.

**Statistics**  
 "The Distribution of Restriction Enzyme Sites in E. coli," Gary Churchill, biometrics, Oct. 24, 3:30 p.m., 250 Caldwell Hall.

**Theoretical & Applied Mechanics**  
 "Forming Mechanics for Composite Materials," B. Pipes, University of Delaware, Oct. 24, 4:30 p.m., 205 Thurston Hall.

## SPORTS

### Home Games Only

**Friday, 10/19**  
 Women's Cross Country, Reif Memorial Invitational, 4:30 p.m.  
 Men's Cross Country, Reif Memorial Invitational, 5:15 p.m.

**Saturday, 10/20**  
 Freshman Football, Dartmouth, 9:30 a.m.

Women's Field Hockey, Dartmouth, 10 a.m.  
 Women's Soccer, Dartmouth, 11 a.m.  
 Football, Dartmouth, 1 p.m.

**Sunday, 10/21**  
 Men's Soccer, Dartmouth, 1 p.m.

**Monday, 10/22**  
 Jr. Varsity Football, Milford Academy, 4:30 p.m.

## SYMPOSIA

**German Studies**  
 A conference on Films of Ulrike Ottinger (West Berlin), co-sponsored by several Cornell programs and departments, Oct. 20, beginning at 11 a.m. in 177 Goldwin Smith Hall. Introduction by David Bathrick followed by "Exoticism, Enlightenment and Everyday Life: The Films of Ulrike Ottinger and the Politics of Subjectivity in the New German Cinema," Katie Trumpener, University of Chicago; "Between Cliche and Stereotype," Roswitha Mueller, University of Wisconsin, Milwaukee, 2:30 p.m.; panel discussion with Ottinger, Constance Penley, Laura Mulvey and participants.  
 In conjunction with the conference, films will be shown Oct. 19 (see films).

## THEATER

**Department of Theatre Arts**  
 "A Streetcar Named Desire," by Tennessee  
 Continued on page 12



## THE CORNELL CAMPAIGN: CREATING THE FUTURE



Research and discovery are integral parts of the undergraduate experience at Cornell, and will be strengthened by the capital campaign.

### Concern for faculty salaries recurs in Cornell fund drives

Cornell's first endowment was the \$500,000 Ezra Cornell gave, along with his farmland, when the state agreed to locate its land-grant university here in Ithaca.

The \$1.25 billion campaign Cornell undertakes on its 125th anniversary is the latest reprise of anniversary efforts to regird the university, with special concern repeatedly expressed about faculty salaries.

In the early years, many individuals, whose names mark buildings and towers, helped turn a muddy plateau into the beginnings of one of the world's beautiful campuses. The fund-raising function was first organized, in 1910, with formation of the Cornellian Council.

In 1914, the first campaign was inaugurated, primarily for buildings. Five years later, after wartime inflation had devalued faculty salaries, the chief goal of the semi-centennial campaign was to increase faculty pay. Increased-salary needs were estimated at \$5 million and operating-budget needs at another \$5 million.

Initially, officials thought the semi-centennial campaign would last only 13 days,

but it continued through all of 1920 and finally, in January 1921, the results were in; a total of \$9.45 million was raised.

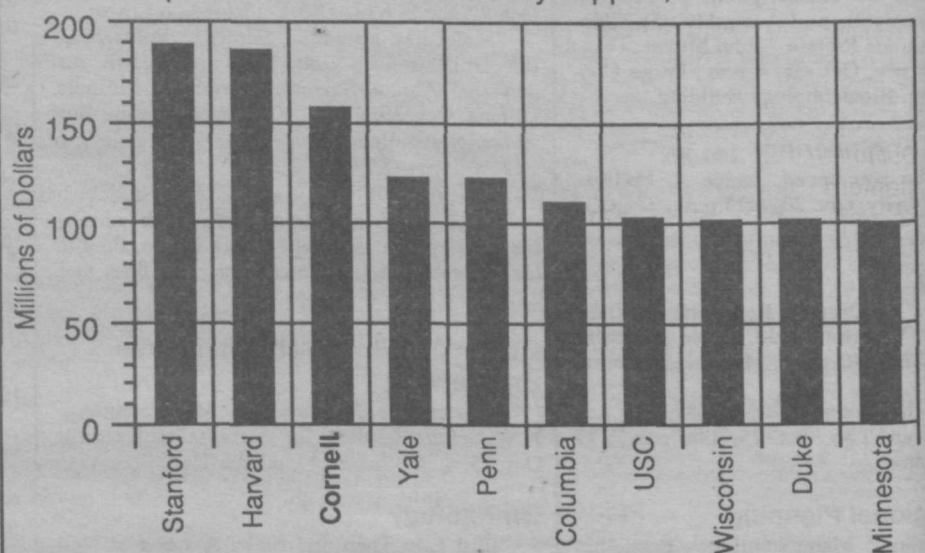
In 1948, the Greater Cornell Fund campaign was launched to raise \$12.5 million. Again, inflation had hurt faculty salaries; and rising enrollment and advances in science and technology had created a need for new facilities. The campaign was extended until 1951, when commitments came to \$12.76 million. The Greater Cornell Fund Committee was reorganized and expanded into the Cornell University Council.

In 1962, Cornell launched a Centennial Campaign to raise \$73.2 million for faculty salaries, facilities, student housing and a freshman center. The campaign closed in 1965 with \$75.5 million collected, plus \$25 million for the Medical College.

Most recently, in 1975, Cornell began a five-year campaign to raise \$230 million. By December 1980, that goal had been exceeded by \$20 million.

—Carole Stone

Top 10 institutions in voluntary support, 1988-89



### Some thoughts about the campaign's importance



"Women and minorities are badly under-represented on engineering faculties today, compared to the make-up of the student population. Only about 2 percent of engineering faculty are women, and a negligible percentage are black or Mexican-American.

"Because such faculty are vital as role models, they can greatly aid efforts to increase the number of women and minorities in engineering. The required elimination of mandatory retirements because of age means we may have fewer faculty vacancies than expected that we could use to add women and minority faculty. However, by endowing more professorships in engineering, we can have the capability to take advantage of opportunities to hire women and minority faculty against future retirements."

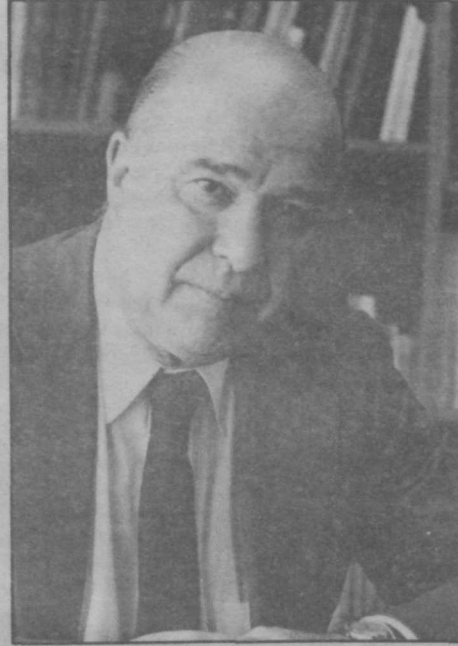
— Dean William B. Streett  
College of Engineering



"A permanent base of support is a must if we are to have the flexibility to move into new areas, experiment, take risks and stay in the forefront, especially in emerging studies of environmental issues and the globalization of agriculture and our economy.

"In general, the campaign is essential if we are to maintain the level of excellence expected of us. The College of Agriculture and Life Sciences, widely perceived as a 'state school,' currently receives only 40 percent of its budget from New York state. Our tuition for New York state residents is the highest in-state tuition of any agriculture college in the country. As a result, endowment for financial aid is imperative if we are to continue reaching the students who will be our future leaders."

— Dean David L. Call  
College of Agriculture & Life Sciences



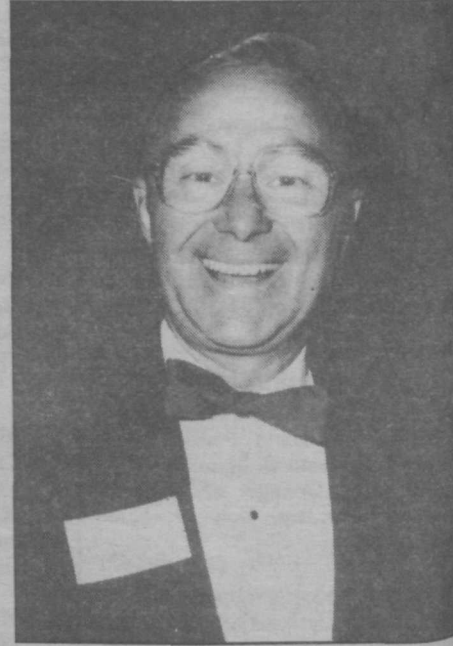
"The number-one need is to support our circulation, especially since much of what we buy we buy abroad, and there has been a tremendous amount of inflation and a lessening of the value of the dollar.

"Our second aim is to endow the preservation and conservation program. Libraries all over the world are losing a tremendous amount of material because of acid-paper problems.

"Third, we hope to be able to endow several positions of directors of libraries and curators of collections.

"Fourth, our aim is to endow professional development programs within the libraries. There are so many changes in university libraries today, it is very important to keep up."

— Alain Seznec  
Carl A. Kroch University Librarian



"If we are going to put Cornell on a footing such that we can continue to deliver quality education, research and service over a long period of time, we are going to have to undergird the university's financial situation now . . . so that our tuition does not get hopelessly out of control.

"If we're going to enter the next century strong and independent and capable of performing our three-way mission, we've got to do this campaign and we've got to be successful at it. Everybody's important. There will be thousands of volunteers before we're done who will be helping us in one way or another. Each and every one of those will be important to us. It's that spirit of dedication, enthusiasm and willingness that is going to take us over the top."

— Robert A. Cowie  
Campaign co-chairman



# THE CORNELL CAMPAIGN: CREATING THE FUTURE

## Endowment's 'Catch 25': less than meets the eye

To understand what endowment means, first divide all numbers by about 25.

That's what you actually get to spend. Since a recent survey shows that most alumni don't really know what endowment is, understanding such details will be important over the next five years, as Cornell's 140,000 alumni hear more and more of the need to build endowment.

Endowment is simply invested capital whose earnings are used, in perpetuity, to support a charitable purpose. The trouble is that most talk of endowment refers to the value of the capital, whereas the charity — or university — has to make an annual budget that includes but a fraction of that value.

An outright gift of \$5 million, if Cornell could spend it all right away, would almost cover the first year of the cost-cutting that President Frank H.T. Rhodes has charged faculty and administrators to do over the next 20 months. But if the same \$5 million were given as endowment, Cornell could spend only about \$200,000 against its impending deficit and would thus still have to find more than \$5 million in economies over the next year.

But the good news would be that the \$5

million endowment gift is in the bank forever — more likely, actually, in a diversified mutual fund.

Cornell, by law, can spend only the income from endowment, which averages about 10 percent a year. But by prudent financial-management standards, it can actually spend no more than 4 percent to 4.5 percent of principal, the rest going back into the "bank" to protect the Cornell of tomorrow against inflation. Current planning assumes spendable income of about 4 percent, which is the reason for dividing by 25.

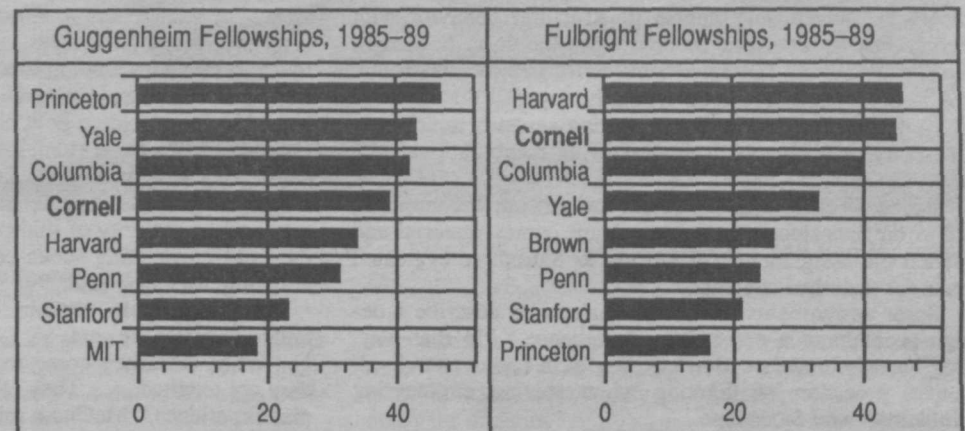
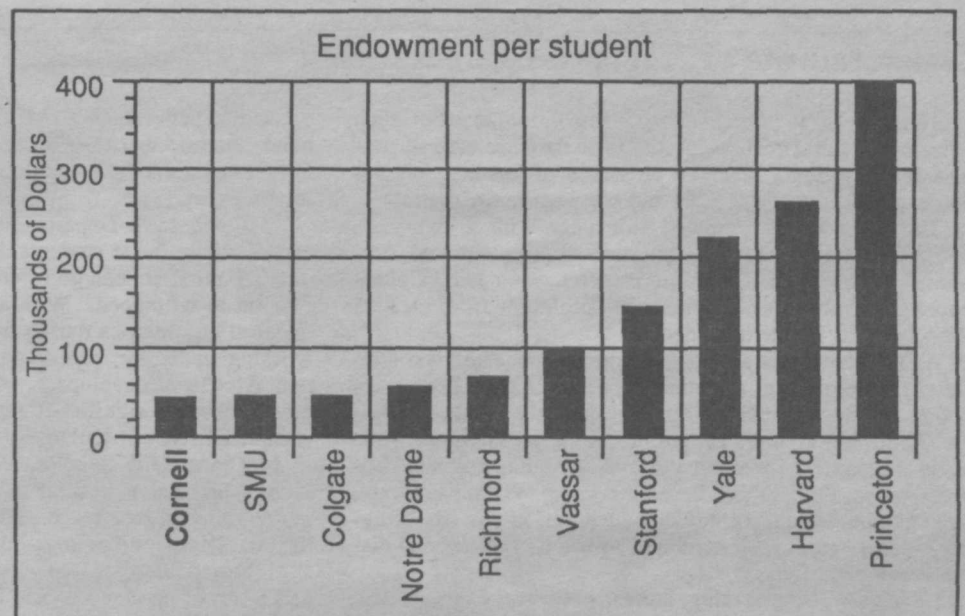
An example clarifies this precaution:

If the \$5 million gift were used to endow book purchases in the libraries and if all income were so spent, the banked amount would remain at \$5 million. You don't have to be an actuary to see that the same \$500,000 in income could buy vastly more books in 1970 than it can in 1990.

But if \$300,000 of the annual earnings had been added each year to the original \$5 million, today's curator would be much better off (though the rising cost of library purchases has, in fact, far exceeded general inflation).

Dividing by 25 also clarifies the overall picture. Cornell's endowment of a little more than \$800 million (before the recent stock slide) annually pays out about \$40 million, a mere 4 percent of current university operations of about \$1 billion. While only nine universities have endowments above \$750 million, Cornell's endowment ranks 79th nationally on a per-student basis, totaling only about one-ninth of Princeton's.

A Princeton official, asked recently what difference that endowment makes when its tuition is so similar to those of its peers, said the larger endowment allows Princeton to compete for faculty who are out of the reach of some universities, to maintain a library of the first order, to pay for faculty time needed to supervise senior theses required of all undergraduates and to meet



"full demonstrated financial need of all admitted undergraduates."

Cornell cannot suddenly match the endowments of much older peers such as Harvard — more than 350 years old — or Princeton, almost 250. Yet a strong, steady increase, says Provost Malden C. Nesheim, can stabilize and strengthen the university's planning, allowing it some budget flexibility to address top academic priorities.

While adding hundreds of millions of dollars in endowment adds only one-25th of the increment to annual budgets, any increment at all means less reliance on tuition income. That, in turn, Nesheim says, means "we can move into the future less buffeted by the uncertainties of government funding and economic changes, and our destiny will be more ours to create."

— Sam Segal

| Research expenditures, 1987-88 |           |
|--------------------------------|-----------|
| Institution                    | Dollars   |
| Stanford                       | \$277,504 |
| Cornell                        | 271,659   |
| Wisconsin                      | 271,418   |
| MIT                            | 270,584   |
| Minnesota                      | 252,027   |
| Michigan                       | 250,169   |
| Texas A&M                      | 231,161   |
| UCLA                           | 209,337   |
| UC San Diego                   | 200,472   |
| Illinois                       | 197,393   |

## The campaign will support ...

**Programs** — In recent years, budget constraints have made it extremely difficult to launch new academic programs. Much of the innovation — such as the development of the biotechnology program — was made possible by reallocation of positions and resources rather than by addition.

This approach must continue, but the campaign will also create a fund to support existing programs and centers and to help launch some new programs.

The fund might strengthen efforts addressing the environment, global studies and urban problems as well as supporting initiatives such as the Cornell International Institute for Food, Agriculture and Development.

**Endowed positions** — To recruit and retain first-rate faculty is a top priority of Cornell, where faculty salaries rank just in the middle of the colleges and universities with which it competes. Competition comes also from business and industry and will get tougher with an expected wave of retirements in coming years.

Competition also requires universities to offer — especially to scientists — costly, new equipment that further burdens operating budgets. And these pressures come at the very time that impending deficits and long-term financial health require all Cornell units to cut their budgets.

Endowing existing positions, mostly for faculty, will honor the new chair-holders, help provide more competitive salaries with less pressure on the budget, and thus relieve pressure on tuition, which now supplies some 70 percent of the revenues of Cornell's endowed, general-purpose budget.

**Financial aid** — Cornell could fill its classes with fine students all able to play full tuition. From its beginning, however, it offered financial assistance; and the trustees have regularly reaffirmed that family income should be no factor in admission and that students demonstrating financial need will be offered help to meet that need.

From 1980 to 1990, federal dollars supporting Cornell financial-aid students rose

by only 9 percent; the university's share, by 372 percent. With Cornell budget contributions to aid rising twice as fast as tuition, the total financial-aid commitment has reached \$45 million, equal to the entire payout from the unrestricted endowment.

So endowing undergraduate and graduate-student aid will relieve pressures on that budget and on the tuition that provides its main income stream.

**Libraries** — Cornell's Mann Library is helping Third World development by putting the core literature of world agriculture on 40 five-inch compact discs. Olin Library, center of the university's 16-unit system, is working with Xerox on innovative ways of storing — then reproducing — books threatened by acidification.

At more than 5 million volumes, Cornell's is the nation's 10th largest research library. With book costs generally growing far faster than inflation and foreign purchases particularly inflated because of the dollar's long-term decline, Cornell is finding it difficult to hold its ground.

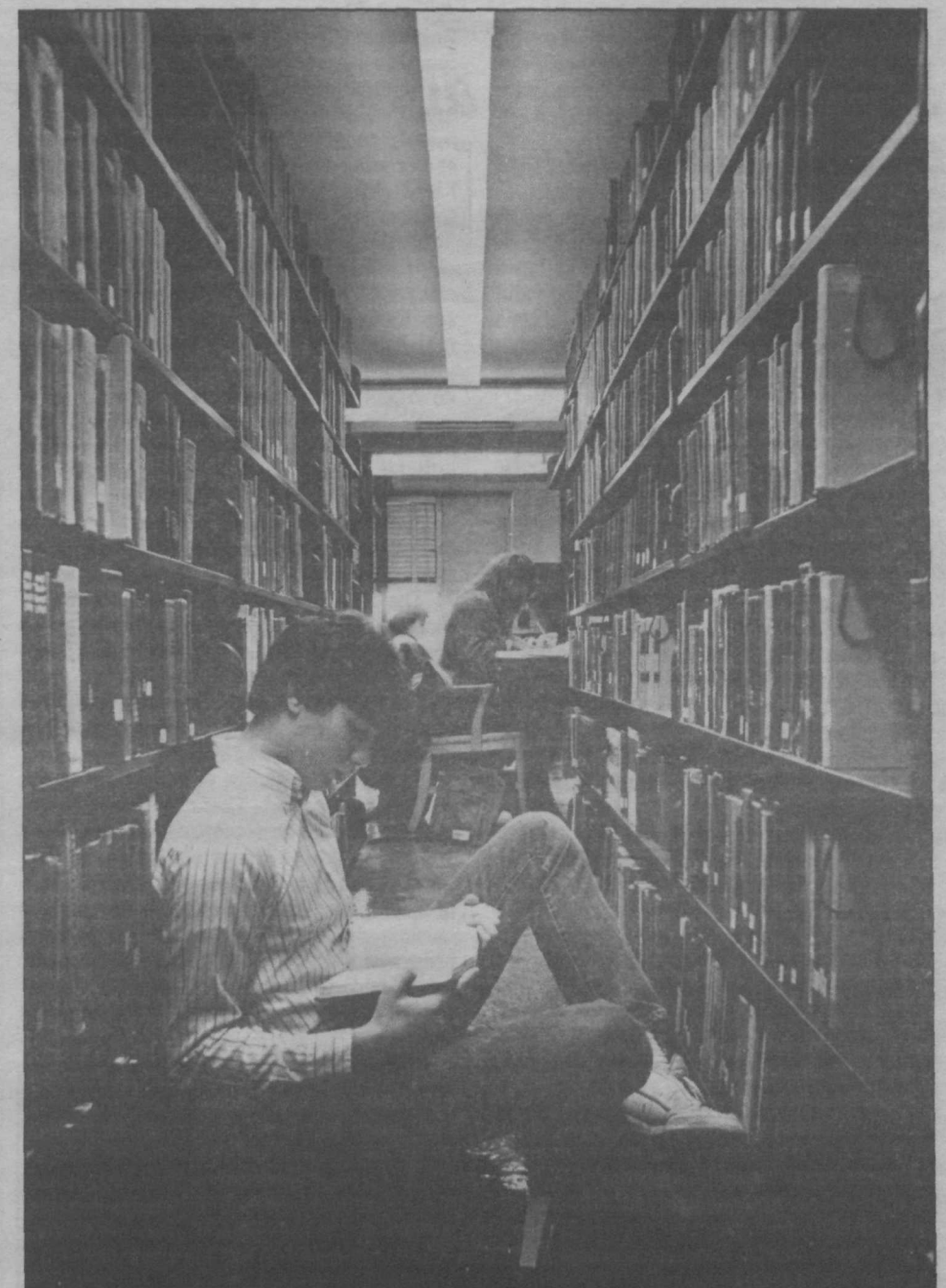
Five years ago, acquisitions represented 5 percent of available materials, now only 2 percent — and that despite acquisition budgets rising twice as fast as inflation.

Campaign funds will not only support the new Olin extension underneath the Arts Quadrangle but will provide permanent endowment for continued purchases of materials.

**Renovation and construction** — It could cost up to \$50 million to renovate the elegant Sage Hall, which was built in Cornell's infancy to house the first female students. Additional on-campus student housing that will integrate students and faculty, life and learning, will cost much more.

A 25-year decline in federal funding of campus facilities and the consequent deferral of maintenance and renovation have created the need to repair the infrastructure of fine old buildings while adding a limited number of new ones.

Endowed funds also will provide for future upkeep.



Providing support for the libraries is a key component of the campaign.



## THE CORNELL CAMPAIGN: CREATING THE FUTURE

### Undergraduate education *continued from page 1*

They are in a particularly good position to offer such help, said Pauk, because "by the time they are emeriti professors, they don't have the pressures of teaching classes and can reflect over the years and see what really matters."

The project, just initiated this year with a two-year, \$35,200 grant to provide honoraria, equipment and supplies, is not yet fully operational. But when it is, Collins hopes to have at least one emeritus professor from each of the schools available to students.

As this project is aimed to improve undergraduate education by exposing students to what emeriti professors know, another President's Fund project, the project in ethnic, Third-World, colonial and post-colonial literature, aims to do the same by making the most of what graduate students know. And a third, the Engineering Writing Program, aims to enhance undergraduate education, in part, by bringing together what professors and instructors of various disciplines know.

"Typically, engineering students are very good with numbers, but they don't like to write," said Mary Sansalone, an assistant professor of civil engineering who has taught an introductory course in structural behavior with Penny Beebe, a writing lecturer with the John S. Knight Writing Program. "By integrating writing in the classroom, we were trying to integrate typically opposed disciplines." They did so to try to help engineering students understand that communication is as important as computational science, she said.

Beebe worked with Sansalone on writing assignments, sat in on Sansalone's lectures to learn course material and graded the assignments for writing as Sansalone evaluated them for technical content.

Some assignments would ask students to describe a design problem to a non-technical audience. "In that way, they usually understood what they didn't understand. It helped precision of thinking when solving engineering problems," said Sansalone.

Other assignments, which enhanced a standard feature of the course — a trip to a building under construction on campus — helped students better observe details. "Before, they listened to the engineer but didn't focus in on the details. When given a writing assignment to give a complete description to a fellow classmate who didn't attend, they really paid attention and observed 100 details. It was great," said Sansalone.

Integrating writing in an engineering class also helped

Sansalone better understand what students failed to comprehend, she said, because instead of just having their calculations to examine, she could see descriptions of their thinking on paper.

In the English Department, meanwhile, five professors and seven graduate students demonstrated how far a President's Fund grant can go when there is great knowledge and passion to be tapped. With a \$13,500 grant that provided material and salaries during the summer of 1989, the team, working under the supervision of English Professor Kenneth McClane, developed eight courses in minority-literature studies, a significant first step toward developing a comprehensive curriculum.

McClane said these courses offer freshman students knowledge that is central to the beginnings of their own undergraduate experience. And he gives most of the credit for their development to graduate students.

"The graduate students were absolutely brilliant. They had a sort of passion you can't fabricate. They realized that you can live in the 20th century without realizing people out there think differently than you do," he said. The passion of the students — African-Americans, Asian-Americans and Native Americans — was also backed up, he said, by "a tremendous amount of knowledge about their cultures and texts they wanted to teach. I had the privilege of acting as traffic cop, deciding how to harness that knowledge."

The courses are particularly valuable, McClane said, because they anticipate the next decade, when the books on the reading lists of such "minority studies" courses will relate to the majority of students more directly than many of the core curriculum books educators nationwide are now debating, McClane said.

They also help explain the freshman experience to undergraduates, he said.

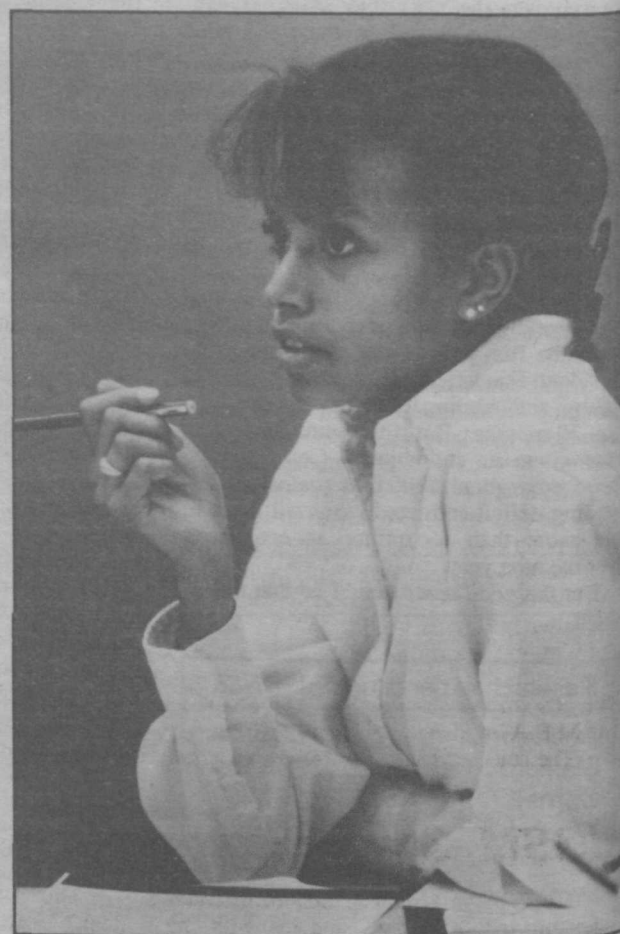
"When freshmen come to Cornell, like any university, they are terrified. . . . They, also, are going through a colonial experience," McClane said, explaining that their world views are challenged by the structure of disciplines they encounter. "They come where there are all these languages, the languages of the disciplines, and they realize that language can be used very treacherously. It can be an imprisoning thing. It is how cultures control people."

As a result, "they are open to the experience of dislocation many of these books talk about," McClane said. For some, it becomes an opportunity to realize, "in some way we are tabula rosa, but before we accepted that; now we see

some things as a help and others as a hindrance."

And, thereby, the students are encouraged to make a healthy adjustment to the experience of undergraduate education, through the work of people with the necessary knowledge and a grant that provides support for its innovative use.

—Lisa Bennett



The campaign will enrich undergraduate education.

### Campaign *continued from page 1*

often put it, "better, not bigger."

The alumni leaders' vision — along with priorities Provost Malden C. Nesheim developed from a comprehensive review with faculty and deans — was reflected in Rhodes' comments.

Also reflected was what Rhodes called the "hostile climate" in which higher education finds itself. He cited ominous world events, economic uncertainty at home, public doubts about management of colleges and universities, the competing and valid priority of improving America's schools and retrenchment in funding from both Washington and the state government in Albany.

"Why, then, do we have confidence in the future of our own university in such troubled times as these?" Rhodes asked. Because, he continued, developing human talent is critical, particularly in troubled times.

"I believe the most precious resource that we can offer . . . is this continuing thin stream of educated, talented, committed men and women — educated as opposed to trained, educated as opposed to simply well informed."

Rhodes emphasized, as he has over the past year, that economies and reductions are essential even if the campaign is fully successful.

He noted that more than \$13.4 million had been cut in the past four years from the university's budget. By July 1, 1992, he told the faculty last month, a further \$10 million must be cut to balance the general-purpose budget and to provide funds for re-allocation to university priorities. That budget serves the colleges of Architecture,

Art and Planning, Arts and Sciences, and Engineering and central-administration functions. And he cautioned that the state's fiscal situation was likely to lead to another round of multimillion-dollar cuts over the next 16 months for the state-supported units at Cornell — the College of Agriculture and Life Sciences, College of Human Ecology, College of Veterinary Medicine and the School of Industrial and Labor Relations.

"Even with a 100 percent successful campaign," Rhodes said, "if we continue to spend our general-purpose funds at a rate of real increase of two percent a year [above inflation], we would liquidate the new endowment in a relatively short period."

While prior cuts have generally been across the board, Rhodes said, future cuts will be made based on clear institutional priorities with cuts targeted "even more selectively and more deliberately." At the end of these budget reviews, "we shall have fewer people," he said.

The \$1.25 billion goal would increase by more than 50 percent the amount Cornell alumni and friends, corporations and foundations now give annually. In the year ended June 30, their giving, totaling \$161 million, was the third highest in the nation, behind Stanford's and Harvard's.

Richard M. Ramin, vice president for public affairs and Cornell's chief fundraiser, says that he sometimes wishes dollar targets could be forgotten because they draw attention away from "the real purpose of a campaign — to provide the support that ensures the excellence of the educational programs we offer our students."

He added that one campaign goal, quite aside from dollar targets, was to increase

the total number of annual gifts by about a third — from 52,000 to 70,000.

Most of the funds raised will go into endowment, invested funds of which income alone — not principal — can be spent. To avoid the erosion caused by inflation, more than half of that income is reinvested, meaning that only 4 to 4.5 percent of the endowment's value is available annually for spending on faculty salaries, financial aid, libraries and other priorities. A \$1 million gift, for instance, might earn some \$100,000 a year; but, after reinvestment of some of the income as a hedge against future inflation, it would provide Cornell only \$40,000 to \$45,000 to spend.

So Cornell's current endowment of about \$800 million — far lower, on a per-student basis, than endowments of its peer universities — can provide only about \$36 million a year to support the academic enterprise.

Nesheim, the university's senior academic and budget officer, noted that Cornell's endowment per student is one-ninth the size of Princeton's and one-sixth of Harvard's; "yet we must compete for faculty with them and other institutions that are also relatively better endowed than Cornell."

By significantly building endowment as a source of income for the operating budget, the university also can reduce the upward pressure on tuition — the main income stream feeding that budget.

The trustees have targeted the \$1.25 billion to be used for five main areas, approximately as follows: support for teaching and learning programs, \$450 million; endowed faculty and other positions, \$250 million; undergraduate and graduate financial aid, \$175 million; library support, \$75 million; and renovation and construction, \$300 million.

Significant federal retrenchment in two areas was a factor in these choices.

Over the past 25 years, Washington has virtually ended federal support programs for campus research and teaching facilities, requiring universities like Cornell to provide ever more of those funds themselves.

Making financial aid a target area is a consequence of a decade-long decline in

federal financial-aid grants for middle-income and needy students. From 1980-90, the federal share of support for Cornell's financial-aid students increased by about 9 percent, while Cornell's own share increased by 372 percent.

"Cornell admits students based on their ability to succeed in and contribute to our academic environment and without regard to a student's financial circumstances," Nesheim said. "The endowment of financial aid will enable us to remain a viable choice for all able students from middle- and low-income families."

The other campaign target areas reflect the priorities of undergraduate learning, of the libraries as the university's lifeblood and, above all, of a first-rank, well-paid faculty as the engine of leadership and achievement within the university and in the lives of its graduates.

"Whether determining the causes and effects of acid rain," Rhodes said, "or developing smaller, faster microchips; whether devising better surgical techniques or developing new programs for disadvantaged preschoolers; whether designing functional housing for the elderly or recreating the music of Mozart on the original instruments, Cornell's programs of research and teaching reach out to the world, sharing the zest and the professional skills of this remarkable campus with a community that is now global in scope."

In more general terms, Rhodes said Cornell must provide itself the means to reassert its original tradition, according to which "Cornell stressed knowledge, not as an end to itself, but as a means to serve human needs, and it exemplified its belief in excellence in the quality of everything it undertook."

In noting that the campaign begins on Cornell's 125th anniversary, Rhodes said: "I believe it is a turning point in Cornell's history, not only because of the difficult times, the rough water, through which we are now moving, but also because this campaign, if successful, will re-endow the university, will transform it in a way that few of us are completely conscious of at this moment."

—Sam Segal

### The volunteer leadership

Chairs of the campaign are trustees Harold Tanner '52, president of Tanner & Company Inc., an investment counseling firm in New York City, and Robert Cowie '55, retired vice president of Dana Corp. of Toledo, Ohio. Co-chairs of the Campaign Council are Austin Kiplinger '39, chairman emeritus of Cornell's board of trustees and president of Kiplinger Letters & Changing Times Magazine in Washington, D.C., and Samuel C. Johnson '50, a former trustee and chairman of the board of S.C. Johnson & Son Inc. of Racine, Wisc.



# Johnson School enhances multicultural focus

## Dean Merten, students discuss race and gender over dinners at home

Alan Merten, dean of the Johnson Graduate School of Management, found himself troubled this spring because his black, Hispanic, Asian, Native American and white students did not understand each other.

After asking black and Hispanic students if they were aware of overt racial discrimination in class, he uncovered, instead, concern about ignorance across ethnic lines and lack of respect for women by men.

A week later, Merten met with members of his school's U.S.-Japan Club. "Talking with them confirmed to me that there was a lack of communication between students of the West and East," Merten recalled.

To deal with cultural differences among his students, Merten, who is a computer scientist by training, considered bringing in outside experts to talk to his classes.

"But I knew that was a cop-out. In corporations, ethical concepts are determined by the tone from the top. I had to do this thing myself."

And he did. First, he arranged a three-day orientation program for new students that featured simulated situations in which students played the roles of people of different cultures, films on ethnic and cultural problems, and speakers from the Soviet Union. Then Merten and his wife, Sally, opened their large suburban home to all first-year M.B.A. students. The Mertens served soft drinks, wine and a buffet dinner followed by exchanges of views on working with people of differing cultural and ethnic backgrounds, and workplace problems of males and females.

The dean invited 240 first-year M.B.A. students, and 233 attended one of the 10 dinners held over 22 days. Students from various ethnic groups found chairs or sat on the living room floor to air their problems. Most were in their late 20s with several years of work experience before starting M.B.A. studies.

"The students took it seriously," Merten said. "All who



Chris Hildreth

Alan Merten (left), dean of the Johnson Graduate School of Management, talks about race and gender issues with M.B.A. students during a dinner at his home.

spoke offered vivid examples of gender, cultural or ethnic discrimination that they had experienced. We are a small school, but many of the students did not know each other until they came to my house."

Merten has asked his professors to initiate classroom

discussions of cultural-diversity problems and to mix students of diverse cultural backgrounds when assigning group projects. Similar diversity programs are planned for second-year students.

—Albert E. Kaff

## JGSM, Soviets to exchange students

The Johnson Graduate School of Management will exchange students with the Soviet Union for the first time next year in what Dean Alan Merten calls "a classic barter deal" because it involves no money exchanges.

One student from the U.S.S.R. will enter the school's two-year M.B.A. program in August 1991. In exchange, 25 Johnson School students will go to the Soviet Union next January. During their two-week stay in the Soviet Union, they will attend lectures on recent changes in that nation, visit Soviet businesses and meet with young Soviet managers.

The arrangement was spelled out in an agreement signed by the Johnson School, the Union of Managers of the U.S.S.R. and the Plekhanov Institute in Moscow.

Student reaction here was fast. Just two hours after a notice of the exchange program was placed in student mailboxes, more than 30 students wrote that they were interested, and by mid-October the number had reached 85.

"This arrangement is a classic barter deal," Merten said.

"By exchanging education services, we avoid the problems caused by a lack of hard currency in the U.S.S.R."

The Soviet student selected for M.B.A. studies at Cornell "will be chosen through a rigorous selection process, and the Johnson School will provide full financial aid and help him or her secure a summer job with an American company," said James Schmotter, associate dean of the Johnson School.

"Given the growing attention to the Soviet Union as a market for American goods, this will hardly be a problem. Already several U.S. companies have expressed an interest in obtaining a Soviet M.B.A. student."

Merten and Schmotter said they hope that the program will grow in future years.

Only a dozen or so Russians now are attending M.B.A. programs in the United States, Schmotter said.

—Albert E. Kaff

## M.B.A. students aid European business

Fourteen graduate schools of business in the United States, including the Johnson Graduate School of Management, have established the M.B.A. Enterprise Corps to help the nations of Eastern Europe develop free economies.

"Our obvious model for this endeavor is the Peace Corps that was started by President Kennedy," said James Schmotter, associate dean and the Johnson School representative on the corps' board of directors. "We believe that the insights and hard work of energetic, well-trained American M.B.A.s can make a real difference to Eastern European enterprises as they attempt to privatize."

M.B.A. graduates from member schools will spend one year in Hungary, Poland, Czechoslovakia and Yugoslavia "to provide Western business and management expertise for the economic challenges now faced by the countries of Eastern Europe," Schmotter said. Within two years, the corps plans to be sending 30 to 50 M.B.A. graduates to Eastern Europe annually.

From the Johnson School, eight students worked as interns in Hungarian businesses this past summer and had "an overwhelmingly positive experience in Budapest, and it gives us great encouragement for what can be accomplished by corps members over the longer period of 12 months," Schmotter said.

Three recent M.B.A. graduates from the University of North Carolina now are working in Hungary and Czechoslovakia as prototypes for the M.B.A. Corps.

In addition to Cornell, participating graduate business schools are at Dartmouth College; Columbia, Northwestern, New York, Southern Methodist, Duke, Indiana and Stanford universities; and the universities of California at Los Angeles, California at Berkeley, Michigan, Virginia and North Carolina at Chapel Hill.

The program is administered by the Frank Hawkins Kenan Institute of Private Enterprise at the University of North Carolina.

—Albert E. Kaff

## Solitude



Tim Moersch

Yi-An Lee, a sophomore majoring in biology, rides his bicycle through a light fog behind Barton Hall.

## Rhodes to take his vision of a global university to Asia

President Frank H.T. Rhodes will carry his vision of global universities to East Asia in late October and early November.

Rhodes will visit the Republic of China on Taiwan, Japan, Hong Kong and South Korea to meet with leaders in higher education, research and industry. He will preside over symposiums on global issues and initiate exchanges with Asian scholars.

He leaves for Asia on Saturday, Oct. 27, and will end his trip Wednesday, Nov. 14.

To mark Cornell's 125th anniversary, the university will conduct symposiums in Asia during Rhodes' visit. Speakers are:

- Walter LaFeber, the Marie Underhill Noll Professor of American History, on "Political Challenges for the 1990s."

- Alfred Kahn, the Robert Julius Thorne Professor Emeritus of Political Economy, on "Economic Challenges for the 1990s."

- Norman Scott, vice president for research and advanced studies, on "Technological Achievements and Research and Development Initiatives for the 1990s."

The group will include Karen Brazell, a professor of Japanese literature and director of the East Asia Program.

Rhodes believes that university research must keep abreast of the rapidly increasing internationalization of science, business,

manufacturing and finance. He advocates exchanges of researchers, faculties and students among the world's universities.

"Institutions of higher education must take a global role as the economies of the world's nations become more intricately interwoven," Rhodes said. "Cornell has a long history of involvement in Asia, and we plan to strengthen existing programs and expand research ties and academic commitments throughout Asia."

"Areas of research that the university wishes to explore with Asian institutions and scholars include biotechnology, engineering, microfabrication, agricultural technology, humanities and the environment."

For generations, Cornell scientists have worked in Southeast Asia, China, South America and Africa on problems in agriculture, medicine, nutrition, population growth and other issues in developing nations.

In Taipei, Rhodes will present Cornell's first Outstanding International Alumnus Citation to Lee Teng-hui, president of the Republic of China, who earned his Ph.D. degree in agricultural economics here in 1968. Rhodes will meet with other Cornell graduates in the Taiwan government including Huang Ta-chou, mayor of Taipei.

—Albert E. Kaff



## Watchful gaze



Amy Epstein, a senior history major, studies in the Temple of Zeus in Goldwin Smith Hall.

Tim Moersh

# NSF-sponsored university coalition to help reform engineering education

In efforts ranging from transforming classrooms that have changed little technologically in the last century, to introducing curricula that teach young engineers the societal impact of their work, a new university coalition will aim at remaking the education of the people who create bridges, automobiles, computers, power plants and all the other machines of modern life.

Such a profound technological, social and philosophical reform of engineering education is the goal of a \$30.6-million program aimed at remedying a severe shortage of engineers expected by the year 2000.

The National Science Foundation has awarded a \$15.3-million grant for the five-year project of the eight-university National Engineering Education Coalition. The grant is to be matched equally by university, corporate and foundation funds. The coalition consists of Cornell, California Polytechnic State University at San Luis Obispo, Hampton University, Iowa State University, Southern University, Stanford University, Tuskegee University and the University of California at Berkeley.

The coalition was formed to represent a diversity of geographical location, size, mission and institutional type.

The eight-university coalition will pursue a two-fold quest to develop high-technology methods of teaching engineers in the next century, as well as seeking to make engineering far more attractive and relevant to students, particularly women and minorities.

For example, the coalition will build the prototype of a computerized library — called the National Engineering Education Delivery System (NEEDS) — that will be accessible nationwide via high-speed computer networks and satellites.

With NEEDS, engineering professors and students could tap into the library to call up videos, teaching programs, simulations and mathematical models developed at universities around the country. A professor might use the library to simultaneously display in her multimedia classroom a video of a bridge being built, a computer simulation of the bridge, a history of bridge architecture and mathematical equations governing bridge design.

Some of the universities have already developed a con-

siderable amount of material that will appear on NEEDS. For example, Cornell's project SOCRATES has produced more than one dozen free graphics-based engineering programs that allow students in hundreds of universities to crack bridges, assemble electronic circuits and erect skyscrapers — all on a computer screen. SOCRATES, which stands for Study of Complementary Research and Teaching in Engineering Science, will continue under the coalition.

A separate Standards Study Project will join the universities and industry representatives to tackle problems of common standards for hardware and software. The project will also plan how NEEDS will use the National Research and Education Network, a high-speed "data superhighway" being planned for this country.

The other principal coalition program aimed at promoting engineering, is called Project ME, which stands both for Marketing Engineering and also for "the readily recognizable personal pronoun celebrating each person as an individual." As part of Project ME, the coalition of universities will reach into high schools and secondary schools to build excitement about engineering, using engineering computer games, hands-on laboratories and other outreach efforts. To attract more students to engineering, the coalition will seek to change fundamental engineering education philosophy to emphasize political, economic and environmental, as well as technical, aspects of engineering.

Coalition project director and Cornell Professor Anthony Ingraffea emphasized the importance of coalition efforts in attracting more minorities and women into engineering. He pointed out that minorities constitute 25 percent of the population but only about 3 percent of engineering undergraduates; that women constitute 50 percent of the population but only 13 percent of engineering undergraduates.

By the year 2000, about 47 percent of the school-age population will be minorities, and women will still constitute 50 percent of the populace, said Ingraffea.

"Unless we drastically change engineering education to attract talented women and minority students, the U.S. will find itself desperately short of engineering talent," said Ingraffea.

—Dennis Meredith

## 'Cold' neutron-beam facility will improve studies of matter

A supercold, hockey-puck-sized container of liquid and a curved line of 13 nickel-coated, square glass tubes are the key components of a new instrument under construction here that will give researchers an improved tool for analyzing materials ranging from old paintings to rock samples.

Speaking Oct. 18 at the Seventh International Symposium on Capture Gamma-Ray Spectroscopy in Calif., David Clark, director of the Ward Laboratory of Nuclear Engineering, described progress toward constructing a "cold neutron-beam facility" by next spring that uses a neutron beam from the university's research reactor.

The cold neutron facility will efficiently filter from the beam unwanted high-energy neutrons and gamma rays to yield a pure stream of "cold" neutrons for use as a research, analytical and teaching tool.

Working with Clark on the project are graduate students Carol Ouellet and Alexander Atwood. Past students have been J. Scott Berg, Takashi Emoto, Elissa Pekrul and Lydia Young.

The facility will be the only one of its kind at a university, and its progress is being followed with great interest by other universities with small research reactors, said Clark. The only other comparable facility in the United States is at the National Institute of Standards and Technology

(NIST). However, NIST's cold neutron beam system operates on a much larger reactor than the typical university research reactor and is more complicated and expensive than the planned Cornell facility. Development of the cold neutron source is being supported by the Department of Energy and university funds.

Cold neutrons, also called slow neutrons, are those with low energies, and they are necessary for a powerful, but little-used analytical technique called Prompt Gamma Analysis (PGA) that gives scientists a fingerprint of elements in a sample. In PGA, scientists bombard a material with cold neutrons and measure the energies and intensities of gamma rays produced. Using PGA, scientists can determine quickly and easily the kind and amount of some 44 elements in a sample.

PGA is more versatile than the more widely used technique of neutron activation analysis, in which a sample of material is actually inserted into the core of the reactor, then removed and the gamma rays measured from the elements in the sample that have been made radioactive. While activation analysis can be used to measure some 40 elements, it cannot measure such important elements as hydrogen, boron, carbon and nitrogen because they do not transform into radioactive elements whose radioactiv-

ity can be measured by the technique. However, almost all elements produce gamma rays under neutron bombardment.

Also, because the cold neutron beam will emerge from the apparatus in a separate room, it can be used to probe paintings and other precious artifacts without removing samples of them, as must be done with neutron activation analysis and other such analytical techniques. PGA could also be applied to materials as diverse as rock samples and fabric samples to determine their elemental components.

Cornell's small TRIGA research reactor is similar to five dozen other facilities in the world. Its fuel rods contain zirconium, hydrogen and uranium, with about seven pounds of the fissile isotope radioactive uranium-235. The reactor is rated at 500 kilowatts — about the energy produced by two automobile engines — but rather than produce electricity, the reactor produces radiation such as neutron beams and radioactive isotopes for use in engineering, chemistry, geology, physics and biology.

To create the clean, cold neutron beam, the Cornell scientists are combining a technique developed in Japan for cooling, or "moderating" neutrons and one invented in Europe for filtering the beam of contaminating fast neutrons and gamma rays.

The neutron beam emerging from the

Cornell reactor will be moderated by first passing it through a hockey-puck-sized aluminum container of an organic liquid called mesitylene. The mesitylene, maintained at a temperature of about minus 240 degrees Celsius, slows most of the neutrons to lower energies. The container is cooled by a cryogenic refrigerator that extracts heat from the apparatus.

Then, the beam is directed into a 13-meter long series of square glass tubes called "neutron guides," arranged in a slight curve. The slow neutrons reflect along the inside of the nickel-coated tube much as light reflects along the length of glass optical fibers in light-wave communications systems. However, the fast neutrons and gamma rays are not reflected along the neutron guide. The resulting pure, cold neutron beam emerges in an adjacent laboratory, where it will bombard a sample.

"We're developing this unique design to show that moderate-sized research reactors can have a cold neutron source and guide system that is safe, simple and reliable," said Clark. Also, "we can set up experiments for undergraduates to see quantum mechanical phenomena, and graduate students will have a chance to learn about cold neutron phenomena by working with an actual source."

—Dennis Meredith

## CALENDAR

continued from page 7

Williams will be directed by Bruce Levitt and performed Oct. 19, 20, 25, 26 and 27 at 8 p.m., and Oct. 21 and 28 at 2 p.m., Proscenium Theatre, Center for Theatre Arts.

## MISC.

### Christian Science Monitor Resource Files

The Christian Science Monitor resource files will be in the lobby of Willard Straight Hall on Wednesday and Thursday, Oct. 24

and 25, from 10 a.m. to 4 p.m. The files contain free, up-to-the-minute newspaper articles on more than 150 topics useful for writing papers, preparing speeches, studying, teaching, etc.

### Cornell Plantations

"Designs from Nature," a design class will be offered Mondays, Oct. 22, 29, Nov. 5 and 12 from 8 to 10 p.m. Each class will explore the design, not execution, of a specific project and help find and focus designs for cards, bookmarks, small boxes, etc. Preregistration is required; \$28 for members, \$33 for non-members. For more information call 255-3020.

### CUSLAR

The Committee on U.S.-Latin American Relations will hold a business meeting and discuss recent events in Latin America, Mon-

days, 5:15 p.m., Commons Coffeehouse, Anabel Taylor Hall. For more information, call 255-7293.

### Narcotics Anonymous

Meetings for recovering addicts to help each other stay drug free are held Tuesdays at 6 p.m. in G-18 Anabel Taylor Hall.

### Personal Education Workshops

New series begins week of Oct. 22. Topics include assertiveness, building self-esteem; building satisfying relationships; gay/bisexual, a men's support group; stress management; women, food and self-esteem; lesbian/bisexual, a women's support group; life planning and self concept; support group for issues of sexual identity; and support group for bisexual men. All groups are free and confidential. For more information or to sign up, call 255-3608 or stop by 103 Bames Hall.

### Tae Kwon Do

Self-defense open to beginners of all ages. Women are strongly encouraged. Classes will be held Sundays, 7 to 8 p.m.; Monday through Thursday, 6 to 7 p.m. For more information, call Sandy at 255-7923 or 272-5766.

### Writing Workshop

Writing workshop walk-in service: free tutorial instruction in writing. Monday through Thursday, 3:30 to 5:30 p.m. and 7 to 10 p.m., 178 Rockefeller Hall; Sunday 2 to 8 p.m., 178 Rockefeller Hall; Sunday through Thursday 10 p.m. to midnight, 340 Goldwin Smith Hall; Sunday through Thursday, 8 to 11 p.m., Clara Dickson Macintosh Computer Room; Sunday through Thursday, 8 to 11 p.m., First Floor-South, Noyes Center.