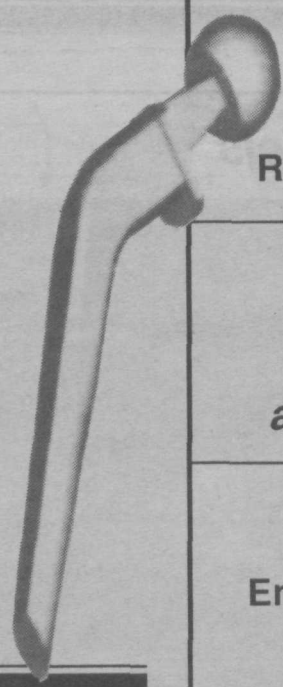


CORNELL CHRONICLE

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IBM provides \$19 million supercomputer upgrade

In a \$19 million upgrade provided by International Business Machines Corp., the Theory Center's two IBM supercomputers will be transformed into the latest top-of-the-line machines, together capable of more than 1.6 billion floating point operations per second, or gigaflops.

In the upgrade, part of a Theory Center/IBM Supercomputing Joint Study, the current IBM 3090-600E's will be upgraded to 3090-600J's, an advanced version of the supercomputer first announced by IBM last October.

The 600J machines will each have from 25 to 50 percent more performance than the

current 600E models for most users, increasing each computer's peak computing speed from 696 million floating point operations per second (megaflops) to 827.6 megaflops.

The upgrades will take place Feb. 23 through 25 for one of the machines and March 9 through 11 for the other.

"We're extremely grateful for this rapid upgrade by IBM to its latest and most powerful model of supercomputer," Theory Center Director Malvin Kalos said.

"This substantial upgrade demonstrates the commitment of both Cornell and IBM to continuing the Joint Study and maintaining

the Theory Center as a leading national supercomputer center," he said.

"The increased performance will enable the Cornell National Supercomputer Facility better to meet an extraordinary demand for supercomputing for projects throughout the range of science and technology."

The CNSF is the Theory Center unit that manages the supercomputer system and provides access to researchers.

"The current machines are effectively saturated, and the substantial performance increase with the enhancements will allow us to serve better the approximately 2,100 researchers now using the machines," Kalos

said.

"The upgrades involve replacing the existing technology with faster computer processors and more memory capacity," said Gordon Wright, manager of the IBM Supercomputing Technology Center here, who is overseeing the upgrade for IBM.

For example, the "cycle time" required to carry out a computer instruction will be reduced from 17.2 nanoseconds (billionths of a second) to 14.5 nanoseconds, he said.

The "real memory" of each machine will be increased from 256 megabytes to 512 megabytes.

—Dennis Meredith

EarthYear aims to raise ecological concerns

A year-long effort to raise the public consciousness about environmental issues is drawing on the varied resources of the university — from biologists, sociologists and business administrators to lawyers, artists and educators.

The program is promoting special events that mark the 20 years since the first Earth Day in 1970, while also highlighting ongoing environment-related activities.

Operating under the banner "EarthYear 1990 at Cornell: Call to Consciousness and Action," the program is based in the Cornell Center for Environmental Research (CER).

Lectures, conferences and seminars, art exhibits and performances are planned throughout the year, although much of the Cornell activity is centered around EarthRise, the April 22 anniversary of Earth Day.

"Cornell is in a position to provide national leadership in the examination of our society and environment, and in the search for creative solutions," said Senior Provost Robert Barker.

"With a strong foundation in environmental research and teaching, Cornell has an excellent balance between policy studies in science and basic research," added Barker, whose office funded part of the planning of EarthYear 1990.

"The combination of colleges, schools, departments, institutes and pro-



David Lynch-Benjamin

Participants take their places on a map of the world to play "World Game," a simulation exercise patterned after military war games, on Feb. 16 in Willard Straight Hall. The game was the kick-off event for Cornell EarthYear 1990, the university's continuing observance of the 20th anniversary of Earth Day.

grams within this university provides the scope and depth necessary to address both social and scientific issues," said David L. Call, dean of the College of Agricultural and Life Sciences, another sponsor of EarthYear 1990.

"Cornell's reputation among other universities, industry and government means the choice to focus on environmental issues will send an influential message to many sectors of American society: Now is the time to address environmental problems."

"When we began planning the 1990 program, we found a lot was already going on," said Robin Tait, program coordinator for EarthYear 1990 here.

She pointed to the ongoing research, analysis and education activities of resources such as the Plantations, the Center for Environmental Research, the Department of Natural Resources, the Laboratory of Ornithology and the independent Boyce Thompson Institute for Plant Research.

"Then the advisory committee for EarthYear widened its scope to realize that virtually every discipline within a university is touched by environmental issues and has something to contribute," Tait observed.

In addition to programs planned by the more traditionally environment-related groups and special activities scheduled on or around Earth Day (April 22), the EarthYear 1990 committee is examining the potential for programs by other university units.

"Perhaps the Johnson Graduate School of Management can put together a panel on the impact of environmental issues on business," EarthYear Coordinator Tait suggested.

"Students in the Environmental Law Society may be able to arrange internships with regional governments or provide legal research help for non-profit organizations. The experts in plant pathology and plant biology can address the issue of pesticides in the environment."

Other activities in the planning stage include exhibits of naturalists' art, a writers' conference on environmental topics and shows in the Center for Theatre Arts. The American Indian Program is considering a conference on minority issues and the environment, and the School of Hotel Administration is in a good position to examine the role of recycling in waste management, Tait noted.

To make certain that information gen-

Continued on page 8

Scholars ask if Soviets will abide by laws after reforms

A KGB agent picked up a dissident one day several years ago to hold a "pre-arrest chat."

"We know about your criminal activities," the agent said. "We haven't arrested you yet for specific reasons. [He was the relative of a well-known man and his arrest would spark publicity.] But we want to warn you." The dissident was told that, unless he stopped speaking out illegally, he would be thrown in prison.

"But I don't agree I was violating the law. My right to speak is specifically guaranteed under Article 25 of the constitution," the dissident replied.

"Please," the KGB agent sighed, "we're having a serious conversation."

Before perestroika, law on the books was just not the same as law in action, said Leon Lipson, the H.R. Luce Professor of Jurisprudence at Yale University. He told this story last weekend during his keynote speech at the Law School symposium, "Perspectives on Legal Perestroika: Soviet Constitutional and Legislative Changes."

But how likely will the Soviets be to abide by the law if they approve legal perestroika, proposed changes to the constitution to parallel the ideas and policies of social and economic perestroika? How likely are they even to codify perestroika as law? And what are the prospects for the law as it now lags behind democracy on the streets?

These were some of the issues addressed by 10 Soviet scholars at the symposium on Feb. 16 and 17, organized by the student-run International Law Journal. Among the participants were Myron Rush, a Cornell professor of government who served as moderator during a round-table discussion; Herbert Hausmaninger, a University of Vienna Law School professor now a visiting professor at Cornell; and Olga Dzhujeva, a Moscow State University Law School professor now studying at Cornell.

Many of the changes in the Soviet Union during the past five years have been greeted enthusiastically in the West, said Robert Sharlet, a Union College political science professor.

"But as welcome as these gestures were, they were policy changes. How do we

Continued on page 8



The Book of Kels



Chris Hildreth

Rollin H. McCarthy (center), 91, a member of the Class of 1922, holds a \$10,000 facsimile of the national book of Ireland, "The Book of Kels," which he and his wife, Clara '22, have donated to the university. The Book of Kels is an elaborate presentation of the New Testament Gospels created by Irish monks in the year 800. With McCarthy is James Jay John (far left), professor of paleography and medieval history, and Roy Wright, a lecturer in the American Indian Program.

Johnstone: SUNY, Cornell strengthen one another

The State University of New York and Cornell's state-related units enhance one another, SUNY Chancellor D. Bruce Johnstone told the Cornell Club of the Greater Capital District on Feb. 16.

At a luncheon meeting of the alumni group in Albany, Johnstone also said that the cost of higher education is increasing only at about the same rate as families' resources, but that the increase still leaves the public with negative feelings.

In discussing the SUNY-Cornell connection, Johnstone explained that the relevant statutes talk about SUNY exercising "general supervision and control" over the four-state related units at Cornell — the College of Agriculture and Life Sciences, College of Human Ecology, School of Industrial and Labor Relations and College of Veterinary Medicine. Actually, there is only "a kind of overarching, if distant," supervision that is "benign, very light-handed," he asserted.

The relationship between SUNY and the Cornell units "is essentially a good one," Johnstone continued. "I'm pleased and proud to claim these units . . . and know they are magnificently governed by the Cornell faculty, administration and trustees."

He said that the bottom line of the rela-

tionship "is that Cornell is enhanced by a strong state university as a whole . . . and SUNY is enhanced by a strong Cornell."

The cost of education was one of the main topics covered during a question-and-answer period following Johnstone's remarks. He was asked by Paul Curry, a 1960 ILR graduate, whether middle Americans would "get costed out of higher education."

Middle Americans may feel that putting a child through Cornell is a little more of a strain than 20 years ago, but only a little more, and the university is better now, Johnstone replied. He said the cost of higher education will keep increasing in general "at the level of family means," but that the cost for "the top schools" will outpace family resources.

He warned the Cornell alumni that he sees public hostility to the cost of higher education in New York state, especially to the cost of an education at Cornell. He noted that, because the rate of inflation reflects the average of a range of prices, half of those price increases are above the rate of inflation, and "it's no surprise" that the cost of higher education is among those costs that rise faster than the rate of inflation.

— Barry Gross

BRIEFS

■ **Women's issues:** Those interested in women's issues are invited to attend the Women's Studies Program Spring 1990 Cafe to get acquainted with others and talk about areas of concern. The cafe meetings will be held in the Statler Hotel's faculty lounge from 4:30 to 6 p.m. on Fridays, Feb. 23, March 9 and 30, and April 13 and 27.

■ **Library fines:** For the first time in 20 years, Cornell Libraries is raising its overdue and recall fines. The daily fine for overdue books has been raised from 10 cents to 25 cents, and it will increase by 25 cents in each of the next three semesters to a level of \$1 in August 1991. The daily fine for recalled material will rise until it reaches \$2.

■ **Garbage tags:** City of Ithaca garbage tags at 12 for \$10 are on sale at the Service Center situated near the east entrance to the campus store.

■ **Goethe Prize:** April 16 is the deadline for entering the 1990 Goethe Prize competition worth up to \$250 for the best essay in either German or English on any topic connected with German literature. More details on the

competition, open to junior, senior and graduate students, is available from Professor Geoffrey Waite, 192 Goldwin Smith Hall, telephone 255-3394, or in Room 185 Goldwin Smith Hall, telephone 255-7670.

■ **Brown awards:** March 30 is the deadline for submitting applications for Beatrice Brown Awards, worth up to \$250, to the Women's Studies Program office at 332 Uris Hall. The awards are available to graduate students working on some aspect of women and gender. Details are available from the Women's Studies Program, telephone 255-6480.

■ **Breakfast with Rhodes:** A number of openings are available for students to have breakfast with President Frank H.T. Rhodes. Those interested are invited to call his office at 255-5201 to make a reservation.

■ **Breakfast with Morley:** Senior Vice President James E. Morley Jr. will be the host for regularly scheduled breakfasts for employees through May. To sign up for a breakfast, call the Office of Human Resources at 255-3621.

Health-benefits arbitration halted

Arbitration requested by United Auto Workers Local 2300 over revisions to health-care plans at Cornell has been halted, according to Thomas M. Santoro, associate university counsel.

A Feb. 15 order signed by New York Supreme Court Justice Robert S. Rose prohibits further arbitration until a lawsuit filed by the university against the UAW seeking to stop arbitration is adjudicated, he said.

Last fall, Cornell announced an increase in employee contributions for health-care benefits for staff in the privately supported units.

The UAW, which represents about 900 employees, claimed that it should have been substantively involved in altering the plans

and was not, and the union filed a grievance challenging the benefits change.

University officials responded that they are required only to notify the union of the change and that they had done so.

Employee contributions for Option One coverage, which pays 100 percent of many health expenses, increased by 8 percent; employee contributions for Option Two coverage, which requires more employee cost-sharing for many health services but has an out-of-pocket maximum for large medical expenses, rose by 2 percent.

Medical inflation is expected to run between 17 and 25 percent, according to Marilyn Paluba, associate director of the Office of Human Resources.

GRADUATE BULLETIN

Dissertation and thesis seminars will be held in the Morison Seminar Room, Corson/Mudd Hall, Monday, Feb. 26, from 11 a.m. to noon for doctoral dissertations and 1:30 p.m. to 2:30 p.m. for master's theses.

Foreign language fellowships: Western Societies Program Foreign Language and Area Studies Fellowships are available for European languages and Turkish for summer 1990. Application forms are available at 130 Uris Hall; deadline is March 1.

Course changes: The last day for dropping courses and changing grade options without a petition is March 16.

Income Tax: Representatives from the federal and New York state tax bureaus will conduct sessions for international students and answer questions on Wednesday, March 7, from 1 to 2:45 p.m., and on Thursday, April 5, from 8:30 to 10:15 a.m., in the second-floor auditorium, Anabel Taylor Hall.

Election: Voting in student trustee and assembly elections will be held March 6 through 8 at The Henry and other campus sites from noon to 4 p.m. Referenda include establishing a separate graduate and professional student assembly.

BARTON BLOTTER

Two thefts of a combined \$7,380 in jewelry were among 21 thefts with losses of \$10,742 in cash and valuables reported on campus, according to the morning reports of the Department of Public Safety for Feb. 12 through 18.

Other thefts included a 1987 Volkswagen worth \$825 taken from the Pleasant Grove Apartments, three vacuum cleaners worth \$1,020 stolen from janitor closets in East Roberts Hall and Academic I; and \$500 in cash thefts from seven wallets and a backpack at various sites on campus.

An Ithaca College student was charged with possessing an altered driver's license. Safety officials are investigating an incident at University Hall No. 3 in which an underage female was found intoxicated about 2:15 a.m. She was treated at Tompkins Community Hospital and released.

Computerized copies of the most current safety report may be called up on CUINFO under the title SAFETY. CUINFO terminals are situated in the main lobbies of Day Hall, Gannett Clinic, Willard Straight Hall, Sage Hall (Graduate Student Lounge) and eight libraries.

CORNELL CHRONICLE

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It is the policy of Cornell University to support actively equality of educational and employment opportunity. No person shall be denied admission to any educational program or activity or be denied employment on the basis of any legally prohibited discrimination involving, but not limited to, such factors as race, color, creed, religion, national or ethnic origin, sex, age, or handicap. The university is committed to the maintenance of affirmative action programs that will assure the continuation of such equality of opportunity. Sexual harassment is an act of discrimination and, as such, will not be tolerated. Inquiries concerning the application of Title IX may be referred to Cornell's Title IX Coordinator (Coordinator of Women's Services) at the Office of Equal Opportunity at 234 Day Hall, Cornell University, Ithaca, N.Y. 14853-2801 - telephone (607) 255-3976.

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

OBITUARIES

Sedgewick E. Smith, professor emeritus of animal husbandry and a member of the Cornell faculty from 1942 until his retirement in 1977, died Feb. 11. He was 75.

Smith worked for the U.S. Department of Agriculture and Animal Husbandry and was an animal physiologist with the U.S. Plant, Soils and Nutrition Laboratory.

Smith earned a B.S. degree at Pennsylvania State University in 1935 and received a Ph.D. from Cornell in 1939.

Surviving are his mother, Annie Lothes Smith, of Ridgeway, Pa.; his wife, Margaret G. Smith, at home; two sons, Edward J. Smith and Mark F. Smith, both of Ithaca; a daughter, Eileen S. Kinsey, of Flanders, N.J.; two grandchildren and three sisters.

Richard H. Comstock, a retired U.S. Army colonel and head of the ROTC program here from 1954 to 1957, died Feb. 7.

Comstock, who earned a law degree at St. Lawrence University in 1929, retired from the Army in 1961 after 30 years service. He then joined the Office of University Development at Cornell and was executive director of the 1965 Cornell Centennial Celebration. He also worked at Ithaca College as director of Estate Affairs and until last year was assistant executive director of Tompkins County Chamber of Commerce.

Surviving are his wife, Alice C. Comstock, of Ithaca; a son, Richard H. Comstock, of Chappequa; two grandchildren and a brother.

Nature's noises

World's largest wildlife sounds archive is used by scientists and film makers

When conservationists wanted to attract dark-rumped petrels of the Galapagos Islands to breed in former nesting sites, they called Cornell's Library of Natural Sounds.

So did the manufacturers of Kiwi shoe polish, when they sought the sound of their namesake bird, and the producers of the movie "Dead Poets Society," in which the honking of Canada geese evokes a feeling of fall.

Those requests for recorded animal noises were among more than 2,500 filled each year by the world's largest archive of wildlife sounds. With its collection of nearly 70,000 items growing by 3,000 to 4,000 a year, the Library of Natural Sounds last year celebrated 60 years of scientifically accurate bird-song recording.



Charles Harrington

Greg Budney uses part of the 40-deck dubbing system to make cassette recordings of sounds on file.

It all started at the movies. In 1929, when Fox-Case Movietone Corp. wanted the sound of a song sparrow for a newsreel, they called on Arthur A. Allen, who was known as one of the foremost ornithologists of the time and who was the first professor of ornithology in the United States. Allen agreed to help, but balked at bringing birds into the Fox studio. He believed that birds should be recorded in their natural habitat.

So a Fox motion picture crew traveled to the southern shore of Cayuga Lake. Using the sound track on the edge of motion picture film, they recorded a house wren, a rose-breasted grosbeak and a song sparrow. The very first bird recordings, which were made on unstable, nitrate film, were lost to history when the film had to be disposed of. However, a copy of the recording of a rose-breasted grosbeak made on safety film survived; it now represents one of approximately 4,600 different bird species at the library.

"We never know how the recordings will be used — for bioacoustical analysis in the study of animal behavior, for example, or for something as 'frivolous' as a television

commercial — so we treat each sound as a piece of scientific data," said Gregory Budney, director of the Library of Natural Sounds.

Budney, a biologist and nine-year veteran of animal-sound recording, led a tour of the library's newly enlarged quarters, adjacent to the Laboratory of Ornithology in the Sapsucker Woods nature preserve.

In one cavernous temperature- and humidity-controlled room are row after row of tape recordings. Some common birds are represented by dozens of sounds. There are warblers chirping, whistling, buzzing, trilling, seeking a mate and warning off enemies. Extremely rare birds left only a few sounds. The dusky seaside sparrow, whose last known representatives perished last year, lives on in magnetic tape in the Library of Natural Sounds.

Some sounds from the library are not what they appear to be. The maniacal cackling noise, which could come from a monkey in "Raiders of the Lost Ark," is actually the call of the Australian bird, the kookaburra, lent to Lucas Films by Cornell. And the signature sound of of Big Bird on "Sesame Street" is actually a house sparrow from the library.

As fast as the library's staff of eight can catalog and re-record sounds in the standard 15-inches-per-second format, associates of the library capture and send in more. The collection is strongest in the birds of North, Central and South America. It also has amphibians, reptiles, mammals, birds and insects. There are frogs of the Amazon, mountain gorillas of East Africa, wolves of Washington, caribou of Canada's Northwest Territory, penguins of Antarctica and musk ox of the Arctic tundra.

While much of the library was collected by professional ornithologists, it continues to grow with the contributions of "amateur" wildlife sound recordists, Budney said.

"Our library associates are not really amateurs, except in the sense that wildlife sound recording is a hobby for most of them as they travel around the world," he noted. "Any good birder can get close to a bird, but it takes an expert to get the best possible performance from the recording equipment. It's sometimes easier to record grand opera than a bird in the rain forest. An opera singer stands in one place and produces sound — for hours. A bird sound may last a fraction of a second — then the source moves somewhere else."

To train wildlife sound recordists, the Library of Natural Sounds conducts summer workshops, usually in California's Sierra Nevada. There, budding wildlife recordists learn to use the specialized tools such as the 'shotgun' microphone, which gathers a variety of sounds the human ear might miss, and the parabolic reflector microphone, which can pick a desired sound out of the surrounding racket. They are taught to match microphones to recorders and to control input levels. And they develop the twin attributes of a successful wildlife recordist: vigilance and patience.

The worldwide network of skilled amateurs is particularly valuable when a scientist needs sounds that are not already in the library, Budney added. The library spreads the word that certain recordings are needed, and the field recordists go to work, collect-



Robert I. Bowman

Greg Budney records a bird's song for the Library of Natural Sounds.

ing high-quality data that otherwise might not be accessible to the scientist.

"A researcher can obtain much more data with the help of volunteer recordists than by working alone," Budney explained. "And the volunteers can participate in professional work that may yield answers to important questions about why birds do what they do."

Other uses of animal sounds include taxonomic classification of species, population studies, conservation and pest control, the library director said. A bird's call is one of the characteristics that distinguishes one species from another, Budney noted.

"Analyzing birds' sounds can help in systematic studies — that is, understanding evolutionary relationships among birds," said Theodore A. Parker III, a Louisiana State University ornithologist who has contributed more than 8,000 recordings to the library. Ornithologists planning to count birds concealed in dense foliage sometimes ask for recordings to train their ears.

Luring rare birds to former nesting sites with recorded mating calls is fair play, Budney said, and the library usually fills such requests in the name of conservation. But providing recordings of distress calls to scare away pests of the same species is more controversial — and doesn't fool birds for long — so the library is reluctant to get involved with pest requests. One they did

fill was for the sounds of the house finches, which were destroying grape crops in California.

Like any archive of rare material, the Library of Natural Sounds does not lend out its originals — only copies. It also produces commercial recordings on tape cassettes, using a 40-deck real-time dubbing facility. One of the current best sellers is "Voices of the Peruvian Rainforest."

Library of Natural Sounds recordings provide some of the realism in a Smithsonian Institution exhibit, "Tropical Rainforests: A Disappearing Treasure," which is touring the country (the exhibit opens at New York City's American Museum of Natural History in February 1991).

Even as items in the collection find new uses, a sense of urgency drives the collectors: The library's collections represent only about half the known species of birds, and many of those are struggling to survive in threatened habitats. One such is the ivory-billed woodpecker, a bird that for a time was believed to be extinct. Before ornithologists sought — and rediscovered — a race of ivory bills in Cuba in 1986, they needed to train their ears with recordings of a bird that hadn't been heard in decades.

Fortunately, Cornell's Arthur A. Allen and Peter Paul Kellogg had recorded ivory-billed woodpeckers in Louisiana in 1935.

—Roger Segelken

Birds star in new radio show

Not-so-loving love birds, the world's ugliest bird, a frequent flier that's never bought a ticket and the bird that is the real harbinger of spring are among the characters on a new radio show from the Laboratory of Ornithology.

"Birdwatch" is a 90-second daily program that is produced and syndicated by Finger Lakes Productions of Ithaca to AM and FM stations throughout the United States. The Laboratory of Ornithology, with its Library of Natural Sounds and staff of 15 researchers, is the program's source for special effects and scientific expertise.

"Each program is built around a little-known fact about birds," explained Todd Culver, an education specialist at the laboratory and one of the scientists responsible for coming up with 260 topics a year. The stars of "Birdwatch" programs include:

- Love birds, the small parrots often purchased in pairs for their sweet, cheery calls. When love birds engage in ritualistic fighting, they fence with their beaks, each trying to nip the other in the toe.
- The South American hoatzin, reputed to be the ugliest bird, with its blue facial skin, stout legs and red, black and white wings that barely keep it aloft.
- Arctic terns, whose migratory flights between the Antarctic and the Arctic take them on 20,000-mile round trips.
- Great horned owls, the earliest singers of the year, whose "Hoo, hoo-oo, hoo, hoo" makes them the true harbingers of spring.

—Roger Segelken

CU, Historic Ithaca agree on proposal to preserve Arts Quad

Cornell is joining the leading local preservation group in support of historic-district designation for part of its central campus.

The university and Historic Ithaca have drafted a proposal that includes creation of an historic district for state and federal registers and have invited the New York State Office of Parks, Recreation and Historic Preservation to join them in the plan.

In a Feb. 16 letter inviting the state office's review, Barbara Ebert, executive director of Historic Ithaca, said the cooperation between Cornell and her organization should enable the state to participate in what "appears to be an admirable opportunity to work with Cornell University on the designation of its historic resources." She added that the state's involvement in developing a plan "could prove a major stepping stone toward future cooperation."

Last fall, Historic Ithaca had proposed to the state a more comprehensive district for

campus. After Cornell officials expressed some concern, Stuart Stein, a Cornell planning professor who is involved with preservation issues and who chairs the state Board of Historic Preservation, arranged for Ebert to meet with John F. Burness, Cornell's vice president for university relations. It was agreed that Cornell and Historic Ithaca would seek to develop a joint proposal.

The Cornell Board of Trustees' Buildings and Properties Committee authorized engaging local architect George Hascup as a consultant, and he began discussions with Ebert in early January. At a meeting today of Ithaca's Landmarks Preservation Commission, Hascup will report on the proposal agreed on by Cornell and Historic Ithaca.

Hascup, a Cornell architecture professor who has served on the landmarks commission, said his designs for buildings must respect historical context.

In asking state help, Hascup and Ebert

envisioned a three-phase process. In their draft plan, the first phase would designate an Arts Quadrangle district, with the exception of Olin Library, which would be considered a "noncontributing building." Second would be designating the "red brick group" — including Sage Chapel, Sage Hall and Barnes Hall — as historic buildings, although not as a district. Another central-campus red brick building, the A.D. White House, already is on the National Register. The third phase would confer historic-building status on the "collegiate Gothic stone group," including the Law School, Anabel Taylor Hall, Willard Straight Hall and the War Memorial and Baker Halls.

The Cornell/Historic Ithaca draft proposes a district only slightly different from that scheduled for review by the Landmarks Preservation Commission today. The commission's recommendation will be forwarded to the city of Ithaca's Common

Council Planning and Review Subcommittee and then to Council. These reviews would determine whether a separate, local historic district should be created in addition to the proposed state and federal ones.

"We're delighted that Professor Hascup and Historic Ithaca have worked effectively to define common goals and a plan for preservation of the Arts Quad and other historic buildings on the central campus," Cornell Provost Malden C. Nesheim said.

"Preservation of the Arts Quad has long been a major priority of our Board of Trustees. Cornell is a dynamic institution, and we want to ensure that its fundamental academic needs today and in the future can evolve in these historic structures," Nesheim added. "This new spirit of cooperation with Historic Ithaca can only benefit our preservation efforts and contribute to our overall planning for the campus."

—Sam Segal

CALENDAR

All items for the calendar should be submitted (typewritten, double spaced) by campus mail, U.S. mail or in person to Joanne Hanavan, Chronicle Calendar, Cornell News Service, Village Green, 840 Hanshaw Road, Ithaca, NY 14850.

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.

A workshop of Hungarian Folkdances, taught by Andor Czompo, Feb. 25, 7:30 to 10:30 p.m., Memorial Room, Willard Straight Hall. Supervised children are welcome. For more information call 257-3156. The Folkdance Party of Peruvian dancing scheduled for Feb. 25, has been postponed to March 4.

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.



D. James Dee

The lithograph "Hot" on view in "Robert Cottingham: A Print Retrospective, 1972-1986," an exhibition at the Johnson Art Museum through March 7.

"Robert Cottingham: A Print Retrospective, 1972-1986," an exhibition featuring more than 50 prints focusing on Cottingham as a print maker, through March 7.

"Vanishing Presence," an exhibition examining blurred and out-of-focus effects in the work of 12 contemporary photographers from the United States and Europe, through March 25.

A bus trip to the Museum of Fine Arts in Boston for the exhibition "Monet in the '90s: The Series Paintings," March 10 and 11. For reservations and questions contact the community relations department, 255-6464.

"Spin a Tale, Make a Puppet, All About a Piece of Art," an Eye Opener Workshop for children, March 3 and March 10. The workshop will be offered for children ages 5 and 6 from 10 a.m. to noon and for ages 7 and 8 from 1 to 3 p.m. Preregistration is required by Feb. 23. A fee of \$10 for members (\$11 for non-members) will be charged. To register and for more information, contact the Education Department at 255-6464.

Center for Jewish Living

"Escape to Hollywood: Emigre Film Makers from Nazi Germany," an exhibit organized by the German Film Museum of Frankfurt, through March 16, 1 to 5 p.m. daily except Saturday and Jewish holidays, Center for Jewish Living, 106 West Ave.

Hartell Gallery

Department of Architecture, through March 2. The gallery is in Sibley Dome and is open Monday through Friday, 8 a.m. to 5 p.m.

Tjaden Gallery

CCPA Individual Grant Exhibition, Jim Biglan, through Feb. 24; CCPA Individual Grant Exhibition, Elizabeth Abeson, Feb. 26 through March 3. The gallery is in Tjaden Hall.

FILMS

Films listed below are sponsored by Cornell Cinema unless otherwise noted. Most Cinema films cost \$3, except for weekend films in Uris and Statler, which are \$4, and are open to the public unless otherwise stated. An (*) means admission is charged.

Thursday, 2/22

"Shri Ram Slays Rakshasa," part of the video saga "Ramayan," an Indian epic, co-sponsored by the South Asia Program and Cornell University Libraries, 7:30 p.m., 310 Uris Library.

"Six in Paris" (1965), directed by Jean Rouch, Jean Douchet, Eric Rohmer, Jean-Luc Godard, Claude Chabrol, Jean-Daniel Pollet, with Barbara Wilknd, Nadine Ballot and Micheline Dax, 7:30 p.m., Uris.

"Penn and Teller Get Killed" (1989), directed by Arthur Penn, with Penn Jillette, Teller and Caitlin Clarke, 7:30 p.m., Willard Straight.*

"Look Who's Talking" (1989), directed by Amy Heckerling, with John Travolta and Kirstie Alley, 9:45 p.m., Willard Straight.*

Friday, 2/23

"Santa Sangre" (1989), directed by Alexandro Jodorowsky, with Axel Jodorowsky, Blanca Guerra and Guy Stockwell, 7 p.m., Willard Straight.*

"Look Who's Talking," 7:30 p.m., Uris.*

"Santa Sangre," 9:30 p.m., Willard Straight.*

"Drugstore Cowboy" (1989), directed by Gus Van Sant, Jr., with Matta Dillon, Kelly Lynch and William S. Burroughs, 9:45 p.m., Uris.*

"Penn and Teller Get Killed," midnight, Willard Straight.*

Saturday, 2/24

"The Summer of the Colt" (1988), directed by Andre Melancon, filmed in Spanish, dubbed in English, co-sponsored by the Ithaca Youth Bureau, shown with the short "Zea," 2 p.m., Willard Straight.* (\$1.50 for children under 12).

"Kagaz Ke Phool, directed by Guru Dutt, with Guru Dutt and Waheeda Rehman, 3:15 p.m., 302 Uris Library.

"Drugstore Cowboy," 7:30 p.m., Uris.*

"Santa Sangre," 7:30 p.m., Willard Straight.*

"Look Who's Talking," 9:55 p.m., Uris.*

"Santa Sangre," 10 p.m., Willard Straight.*

Sunday, 2/25

"A Spy in the House of Love," "Wake Up Call," "Tongues Untied," "Song From an Angel," "Site Film," and "She Bop," Black Maria Film Festival, with guest festival director John Columbus, 2 p.m., Johnson Museum.

"Shri Ram Meets Sugriv," and "Shri Ram and Sugriv Swear Eternal Friendship," part of the video saga "Ramayan," an Indian epic, co-sponsored by the South Asia Program and Cornell University Libraries, 3:30 p.m., 310 Uris Library.

"Santa Sangre," 4:30 p.m., Willard Straight.*

"The Reckless Moment" (1949), directed by Max Ophuls, with James Mason and Joan Bennett, 8 p.m., Willard Straight.*



A scene from "Santa Sangre," directed by Alexandro Jodorowsky and starring Axel Jodorowsky, Blanca Guerra and Guy Stockwell, showing Feb. 23 through Feb. 28, in Willard Straight Theater.

Monday, 2/26

"Amarcord" (1974), directed by Federico Fellini, with Magali Noel, Bruno Zanin and Pupella Maggio, 7 p.m., Willard Straight.*

"Santa Sangre," 9:50 p.m., Willard Straight.*

Tuesday, 2/27

"Metos Jah Hut" (1987), "Harunoo" (1958), and "Nomads of the Jungle" (1947), sponsored by the Southeast Asia Film Series, 4:30 p.m., 310 Uris Library.

New Films From NYU and USC, "Dinner of Cruelty," with guest director Nick Nicastro and "The Eternal Pitch," with guest director Todd Yan, co-sponsored by Theatre Arts Film Program, 7:15 p.m., Willard Straight.*

"Santa Sangre," 10 p.m., Willard Straight.*

Wednesday, 2/28

"The Water Magician," directed by Kenji Mizoguchi, with Takao Irie, Tokihiko Okada and Suzuko Taki, co-sponsored by the East Asia Program, 4:30 p.m., Willard Straight.

"King Lear (Godard)" (1988), directed by Jean-Luc Godard, with Norman Mailer, Burgess Meredith, Woody Allen and Molly Ringwald, co-sponsored by the English Department, 7:15 p.m., Willard Straight.*

"Santa Sangre," 9:30 p.m., Willard Straight.*

Thursday, 3/1

"Shri Ram Proves his Mettle," part of the video saga "Ramayan," an Indian epic, co-sponsored by the South Asia Program and Cornell University Libraries, 7:30 p.m., 310 Uris Library.

LECTURES

Arabic & Islamic Studies

"Women Among the Nomads of Southern Turkey," Leyla Neyzi, rural sociology, February 26, noon, G-08 Uris Hall.

Chemistry Debye Lectures

"Voltammetry Under Unusual Conditions," R. Mark Wightman, Kenan Professor at the University of North Carolina, Feb. 23, 11:15 a.m., 119 Baker Laboratory.

Classics

"Oedipus the King," by Sophocles, part of the Classics Playreading Series, Feb. 23, 8 p.m., Temple of Zeus, Goldwin Smith Hall.

"City Settings," Patricia Easterling, University College London, Feb. 27, 4:30 p.m., Hollis E. Cornell Auditorium, Goldwin Smith Hall. This is the third in the Spring 1990 Townsend Lectures, "Regions of the Mind: Place and Places in Greek Literature."

East Asia Program

"The Religious Symbolism of Mt. Fuji Through Japanese History," H. Byron Earhart, religion, Western Michigan University, Feb. 27, 4:30 p.m., Asian Studies Lounge, 374 Rockefeller Hall.

Education

"Is There Any Sense in Mathematics?" Jack Lochhead, physics, University of Massachusetts, Amherst, Feb. 26, 4 p.m., W.I. Myers Room, 401 Warren Hall. This is the first half of a two-part series "Quantitative Literacy: New Ways of Teaching Mathematical Reasoning." The second part, "Video Presentations of Innovative Mathe-

matics Teaching," will take place March 5. Both events are part of the lecture series on "Exploring New Ideas About Teaching and Learning."

International Agriculture Program

"The Tan Sheep of Central China — A Unique Opportunity for International Development and Cooperation," John R. Sabine, University of Adelaide, Australia, Feb. 28, 4 p.m., 135 Emerson Hall.

Jewish Studies Program

"The Voices of Jewish Women," a workshop, moderated by Liliane Weissberg, University of Pennsylvania, and opening remarks by Irene Heckt, president, Wells College, Feb. 25, 12:30 p.m., Hollis E. Cornell Auditorium, Goldwin Smith Hall.

"Anti-Semitism in Poland," Michel Wieviorka, Ecole des Hautes Etudes, Paris, Feb. 27, 4:30 p.m., 177 Goldwin Smith Hall.

Near Eastern Studies

"The Development of Hebrew Poetry from Palestine to Spain," Zvi Malachi, Hebrew literature, Tel Aviv University, co-sponsored by Jewish Studies Program, today, 4:30 p.m., 374 Rockefeller Hall.

"The Israeli-Palestinian Conflict Can Be Solved," Jerome Segal, Institute for Philosophy and Public Policy, University of Maryland, co-sponsored by government, Hillel, Center for International Studies and Peace Studies, March 1, 4:40 p.m., Hollis E. Cornell Auditorium, Goldwin Smith Hall.

Pentangle II

Cecile Starr, New York film critic, will present and discuss animated films on serious themes, March 1, 7:30 p.m., auditorium, Uris Hall.

Romance Studies

"Raul Ruiz, Latin American Cinema and Post-Modernity," Richard Pena, director, New York Film Festival and Columbia University, Feb. 28, 4 p.m., Kaufmann Auditorium, Goldwin Smith Hall.

MUSIC

Department of Music

The "Great Soloist and Orchestra Series" will feature soprano Benita Valente and mezzo-soprano Tatiana Troyanos, accompanied by pianist Warren Jones, tonight at 8:15 p.m., Bailey Hall. The program will include arias from two operas by Mozart, "Cosi fan tutte" and the "Marriage of Figaro," and songs and arias by Johannes Brahms, Alban Berg, Charles Gounod, Faure and Georges Bizet. Tickets for the concert are on sale at the Lincoln Hall ticket office mornings, telephone 255-5144, and at the Center Ithaca Box Office, 11:15 a.m. to 4:30 p.m.

Malcolm Bilson, fortepiano, Sonya Monosoff, violin and Loretta O'Sullivan, cello perform a Beethoven-Schubert concert on Feb. 23, 8:15 p.m., Barnes Hall. Featured works by the trio are Beethoven's Ten Variations on the song "Ich bin der Schneider Kakadu" from the opera "Die Schwwestern von Prag" by Wenzel Muller, Op. 121 and Schubert's Sonata in A Minor, Op. 137, no. 2 for violin and piano and Trio in B-flat Major, Op. 99 (D. 898).

Cornell Contemporary Chamber Players, joined by Ilse Zahn-Wienands, trombonist Mark Scatterday and the Cornell Chorus under the direction of Susan Davenny Wyner, will perform on Feb. 24, 8:15 p.m., in Barnes Hall. "Flammenzeichen" (signal fire); "A. ist der erste am Pol" (the last words by R.R. Scott) and "Monolog" for female voice and kettle drum while playing (tambourin, sleighbells, kettle drum), will be sung by Wienands. The Chamber Players will feature works by Estonian composer Arvo Part and Russian composer Alfred Schnittke. The Cornell Chorus sing Stravinsky's Four Russian Songs, in Russian.

"French Baroque Music for Flute," with Steven Zohn, flutist, joined by Robert Seletzky, violin; Steven Lehning, viola da gamba; Zvi Meniker, fortepiano; and Steven Zohn, flute, will perform works by La Barre, Braun, Blavet, Couperin, Rameau and Marais, on Feb. 28 at 8:15 p.m., in Barnes Hall.

Bound for Glory

Chris Proctor, guitarist and singer, will perform three live sets in the Commons Coffeehouse, Anabel Taylor Hall, on Feb. 25, 8:30, 9:30 and 10:30 p.m. Bound for Glory can be heard Sundays from 8 to 11 p.m. on WVBR-FM, 93.5.

Cornell Concert Commission
 "Erasure" will perform in concert today at 8 p.m. in Barton Hall. General admission tickets are \$12 for students (2 tickets per CU card) and \$16 for the general public. Tickets are available at the Willard Straight Ticket Office, Campus Records, Ithaca Compact Disc, and all Ticketron/Telecharge outlets (1-800-382-8080).

Cornell Jamboree
 The sixth annual Cornell Jamboree will be presented on Feb. 24 at 8 p.m. in Bailey Hall. The concert will feature five a cappella singing groups, including the Hangovers, Pyruge's Waiters, Nothing But Treble, the Pichtones and the Class Notes. Tickets are available at the Willard Straight Box Office and through any groups' members for \$5.

RELIGION

Sage Chapel
 Beverly A Tasy, assistant director, CURW, will deliver the sermon at 11 a.m. on Feb. 25. Music will be provided by the Sage Chapel Choir, joined by the Syracuse University Henricks Chapel Choir under the direction of Dr. Kathryn Pardee, organist and choirmaster, for the performance of Thomas Tallis' motet "All People That on Earth Do Dwell" and G. F. Handel's "Hallelujah, Amen" from the oratorio "Judas Maccabaeus." 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 257-7171 for information.

Catholic
 Mass: Saturdays, 5 p.m., Anabel Taylor Auditorium.
 Mass: 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.
 Ash Wednesday, Feb. 28, 12:20 p.m., 5:15 p.m., and 7:30 p.m., Anabel Taylor Auditorium.

Christian Science
 Testimony Meeting: Thursdays, 7 p.m., Anabel Taylor Founders Room.

Episcopal (Anglican)
 Sundays, worship and Eucharist, 9:30 a.m., Rev. Gordon Brewster, chaplain, Anabel Taylor Chapel.

Friends (Quakers)
 Sundays, 10 a.m., adult discussion; 11 a.m., meeting for worship, Edwards Room, Anabel Taylor Hall. Call 272-8755 for information.

Jewish
 Shabbat Services: Friday, Reform, 5:30 p.m., Chapel, Anabel Taylor Hall; Conservative, 5:30 p.m., Founders Room; Orthodox, Young Israel (call 272-5810 for times). Saturday, Orthodox, 9:15 a.m., Edwards Room; Conservative/Egalitarian, 9:45 a.m., Founders Room.
 Morning Minyan at Young Israel, 106 West Ave. Call 272-5810.

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

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

Protestant
 Protestant Cooperative Ministry: Sundays, Bible study 10 a.m., G-7 Anabel Taylor; worship 11 a.m., Anabel Taylor Chapel.

Zen Buddhism
 Zen meditation: Thursdays at 5 p.m. in the chapel, Anabel Taylor Hall. For more information or to arrange beginner's instruction, telephone Jon Warland at 257-1404.

SEMINARS

Agronomy
 "Modeling Soil Hydrology: Principles, Perspectives, Problems," Jeff Wagenet, agronomy, Feb. 27, 4 p.m., 135 Emerson Hall.



Students in the College of Veterinary Medicine at a rehearsal of "A Day in Hollywood, A Night in the Ukraine." Performances will be at 8 p.m. Feb. 23 and 24 and at 2 p.m. Feb. 25 in the James Law Auditorium. The students are (center): Heidi Heinzering; (front, from left): Elizabeth Sanders, Rich Goldstein, Brooke Hines, Jeff Lapoint, Justine Johnson and James Morrissey; (back, from left): Michael Bukowski, Maria Delaney, Elia Colon, Rosemarie Floetenmeyer and Rob Lee. Admission is \$5.

Anthropology
 "Ethnicity and the Quest for Redress Among Japanese-Americans," Yasuko Takizawa, University of California, Santa Barbara, Feb. 26, 3:30 p.m., 303 McGraw Hall.

Applied Mathematics
 "Promises and Limitations of Signal-Subspace Methods for Detection and Direction-of-Arrival Estimation of Narrowband and Wideband Sources," M. Kaveh, University of Minnesota, Feb. 23, 4 p.m., 322 Sage Hall.

Astronomy
 "Chondritic Meteorites as Clues to Planetary Compositions," Henry Y. McSween, University of Tennessee, Feb. 22, 4:30 p.m., 105 Space Sciences Building.

"Supernovae and the Interstellar Medium," Carl Heiles, University of California, Berkeley, March 1, 4:30 p.m., 105 Space Sciences Building.

Biophysics
 "Crystallography and Drug Design: Phospholipase and Interleukin 1 in Inflammation," Keith D. Watenpaugh, physical and analytical chemistry, The Upjohn Company, Feb. 28, 4:30 p.m., 219 Baker Laboratory.

Biochemistry, Molecular & Cell Biology
 "Ubiquitin-Dependent Regulation in Muscle," Arthur Haas, biochemistry, Medical College of Wisconsin, Feb. 23, 4 p.m., Conference Room, Biotechnology Building.
 "Differential Polyadenylation: New Lessons from Hepatitis B Virus and Retroviruses," Don Ganem, microbiology & immunology and medicine, co-sponsored by Biotechnology Program, March 1, 4 p.m., Large Conference Room, Biotechnology Building.

Boyce Thompson Institute
 "Reductive Dechlorination: New Opportunities for Treatment of Hazardous Chemicals," James M. Tiedje, Center for Microbial Ecology, Michigan State University, Feb. 28, 2 p.m., auditorium, Boyce Thompson Institute.

Chemical Engineering
 "In Situ Addition of Probe Molecules in CO Hydrogenation Reactions Over Supported Ruthenium Catalysts," Donna Blackmond, chemistry and petroleum engineering, Feb. 27, 4:15 p.m., 245 Olin Hall.

Chemistry
 Organic Chemistry Seminar, "One-Electron Bonds: Revival of an Old Paradigm," Joe Dinno, Feb. 26, 4:40 p.m., 119 Baker Laboratory.
 General Chemistry Colloquium, "NMR Investigations During Homogeneous Hydrogenations Using Ortho- and Para-hydrogen," Joachim Bargon, Universitat Bonn, West Germany, March 1, 4:40 p.m., 119 Baker Laboratory.

Communication
 Title to be announced, Zhongdang Pan, University of Wisconsin, Feb. 23, 2:30 p.m., Communication Graduate Center.

Comparative Muslim Society
 "Rethinking the Cultural Manifesto (manikebu)," Gunawon Mohamed, Harvard University, editor, "Tempo" magazine, co-sponsored by Southeast Asia, March 1, noon, 102 West Ave.

Ecology & Systematics
 "Chloroplast DNA Evolution and Legume Phylogeny," Jeffrey J. Doyle, L.H. Bailey Hortorium, Feb. 28, 4:30 p.m., Morison Seminar Room, Corson/Mudd Hall.

Epidemiology
 "An Editor's Perspective on Manuscript Preparation," Hollis Erb, veterinary medicine, Feb. 23, 12:20 p.m., 260 Warren Hall.

Electrical Engineering
 "Modern Development in the Fast Fourier Transform," C. Sidney Burrus, chairman, Rice University, and on leave, M.I.T., Feb. 27, 4:30 p.m., 219 Phillips Hall.

Environmental Toxicology
 "Biodegradation of PAH's and Other Hydrocarbons in an Organic Solvent System," Rebecca Efroymsen, agronomy, Feb. 23, 12:20 p.m., 304 Fernow Hall.

Floriculture/Ornamental Horticulture
 "Basic Design, Design Process and Design Languages in Landscape," Tom Johnson, landscape architecture, Feb. 22, 12:15 p.m., 404 Plant Science Building.
 "Sculpting Space: The Landscapes of Isamu Noguchi," Paula Horrigan, landscape architecture, March 1, 12:15 p.m., 404 Plant Science Building.

Food Science
 "Influences of Exogenous Porcine Somatotropin on Nutritional Composition and Palatability Characteristics of Pork," Donald Beerman, animal science, Feb. 27, 4:30 p.m., 204 Stocking Hall.

Geological Sciences
 "Mantle Metasomatic Fluids," David Egger, Pennsylvania State University, Feb. 27, 4:30 p.m., 1120 Snee Hall.

Hillel
 "Jewish Life in America," Topics in Jewish Tradition, Feb. 26, 8 p.m., 314 Anabel Taylor Hall.

International Studies in Planning
 "The Effect on Labor in Japan of Japanese Economic Deployment Overseas," Muto Ichiyo, visiting professor, SUNY Binghamton, Feb. 23, 12:15 p.m., 115 Tjaden Hall.

Institute for African Development
 "Effects of Climate Change on the Ecology and Agriculture of Sub-Saharan Africa," Mark Harwell, director, Global Environmental Program, Feb. 22, 3:30 p.m., 409 Wing Hall.

Jugatae
 "How Do Pharmacophagous Butterflies Find Their Drugs?" Franz Bogner, neurobiology and behavior, Feb. 26, 4 p.m., Morison Seminar Room, Corson/Mudd Hall.

Latin American Studies
 "Chemical Prospecting: Can the Search for New Natural Products Generate Revenue for Conservation?" Tom Eisner, Shurman Professor of Biology, sponsored by NUCLEO VERDE, Feb. 23, 12:30 p.m., 250 Caldwell.

Microbiology
 "Molecular Genetics of Differentiation in *Caulobacter*," Bert Ely, biology, University of South Carolina, Feb. 22, 4:30 p.m., 124 Stocking Hall.
 "Host Cell Invasion and Erythrocyte Binding Proteins of *Plasmodium knowlesi*," John H. Adams, Laboratory of Parasitic Diseases, National Institute of Allergy and Infectious Diseases, Bethesda, Md., Feb. 26, 12:15 p.m., G-3 Vet Research Tower.

Modern Languages & Linguistics
 "How to Use the MacLang Authoring System," Judith Frommer, Harvard University, Feb. 22, 3:30 p.m., 106 Morrill Hall.
 "Prescription, Intuition and Usage: Variability and the Subjective in Canadian French," Shana Poplack, linguistics, University of Ottawa, March 1, 4:30 p.m., 106 Morrill Hall.

Neurobiology & Behavior
 "Sampling the Chemical Environment with high spatio-temporal resolution: Odor Signals, Receptor Cells and Behavioral Decisions," Jelle Atema, Marine Biological Laboratory, Woods Hole, Feb. 22, 12:30 p.m., Morison Seminar Room, Corson/Mudd Hall.
 "A Tale of Two Muscles: Searching for Spinal Interneurons that may Control Locomotion in the Cat," Robert Burke, Laboratory of Neural Control, National Institutes of Health, March 1, 12:30 p.m., Morison Seminar Room, Corson/Mudd Hall.

Nutrition
 "Selenium and Chemoprevention of Cancer," Clement Ip, and Breast Cancer Research Unit, Roswell Park Memorial Institute, Feb. 26, 4:30 p.m., 100 Savage Hall.

Ornithology
 "Gift to Wildlife and You — Partners in Conservation," David Nelson, wildlife biologist, New York State Department of Environmental Conservation, Feb. 26, 7:45 p.m., Laboratory of Ornithology, 159 Sapsucker Woods Road.

Peace Studies Program
 "The Prospects for Peace in the Middle East: Looking at the PLO from the Past Two Years to the Present," Avraham Sela, The Hebrew University of Jerusalem, Feb. 22, 12:15 p.m., G-08 Uris Hall.

Physiology
 "Relaxation Oscillators and Cardiac Excitation: Lessons from a Pipette Washer," Dante Chialvo, pharmacology, SUNY Health Science Center, Syracuse, Feb. 27, 4:30 p.m., G-3 Vet Research Tower.

Plant Biology
 "Metabolic Interactions Between Photosynthesis, Respiration and Nitrogen Assimilation," David Turpin, biology, Queens University, Kingston, Ont., Feb. 23, 11:15 a.m., 404 Plant Science Building.

Plant Pathology
 "Response of *Solanum tuberosum* subsp. *andigena* and Selected Potato Species to in vitro Antiviral Therapy," Willi Sanchez, plant pathology, Feb. 27, 4:30 p.m., 404 Plant Science Building.

Poultry & Avian Sciences
 "Applied Genetic Selection in Table Egg Genetic Stocks," Verne A. Logan, Arbor Acres Farm, Inc., Glastonbury, Conn., Feb. 22, 4:30 p.m., 300 Rice Hall.

Religious Studies
 "Taiken: An Inside View of Japanese New Religions," H. Byron Earhart, Japanese religion, Western Michigan University, Feb. 26, 4:30 p.m., A.D. White House.

Rural Sociology
 "Contemporary Social Movements in Japan: The Peoples' Plan 21," Muto Ichiyo, sociology, SUNY Binghamton, Feb. 23, 3:30 p.m., 32 Warren Hall.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Find home

Pigeons' homing ability leaves biologists mystified; even a 'bird Bermuda Triangle' doesn't confuse them

Hundreds of thousands of homing pigeons have cooperated magnificently with scientists around the world for more than 40 years:

- They've allowed researchers to follow them with airplanes and track them by radio.
- They've worn frosted contact lenses on their eyes and tiny magnets on their backs.
- They've nested in odor-deflecting lofts and in buildings surrounded by electromagnetic coils.
- They've flown through "bird Bermuda Triangles."

Still, biologists can't figure out how homing pigeons, descendants of Mediterranean rock doves (and relatives of common street pigeons), find their way home.

"We've learned that homing pigeons can sense infrasonic sounds, changes in atmospheric pressure, polarized light patterns and ultraviolet light, subtle vibrations and naturally fluctuating magnetic fields," Cornell biologist Charles Walcott reported at the annual meeting of the American Association for the Advancement of Science.

These articles are based on presentations made by Cornell faculty members at the annual meeting of the American Association for the Advancement of Science, Feb. 15-20, in New Orleans.

"We still don't understand how these humble birds sort through all the available cues for orientation and how they switch from one navigation system to the another," Walcott said.

A professor of neurobiology and behavior and director of the Cornell Laboratory of Ornithology, Walcott has based his scientific career on solving the riddle of bird orientation.

Homing pigeons are a convenient scientific model for wild migratory birds, because flight experiments can be repeated many times each year and because the experimental subjects, with carefully chronicled genetic backgrounds, almost always return, Walcott said in an interview. Homing pigeons that fail to come home also can tell scientists something, he added, and he wishes he knew what.

"Given the limitations of our own sensory world and our

bond to the Earth's surface, solving the mystery of how pigeons find their way is a challenging and intriguing goal," Walcott said as he described some of the experiments conducted over the past four decades:

- After biologist Floriano Papi and his colleagues at Italy's University of Pisa reported in 1972 that interfering with a pigeon's sense of smell disrupted its ability to orient and return home, another Italian scientist devised an ingenious test. Emilio Baldaccini raised young pigeons in "deflector lofts" with vertically slotted walls to allow the free passage of air, but with large corner panels to deflect the wind 90 degrees from its actual direction.

Baldaccini reasoned that pigeons learning to sniff their way in the world would have their olfactory "maps" rotated by 90 degrees. That is because scented winds that seemed to come from the north side of the loft were really from the east, for example.

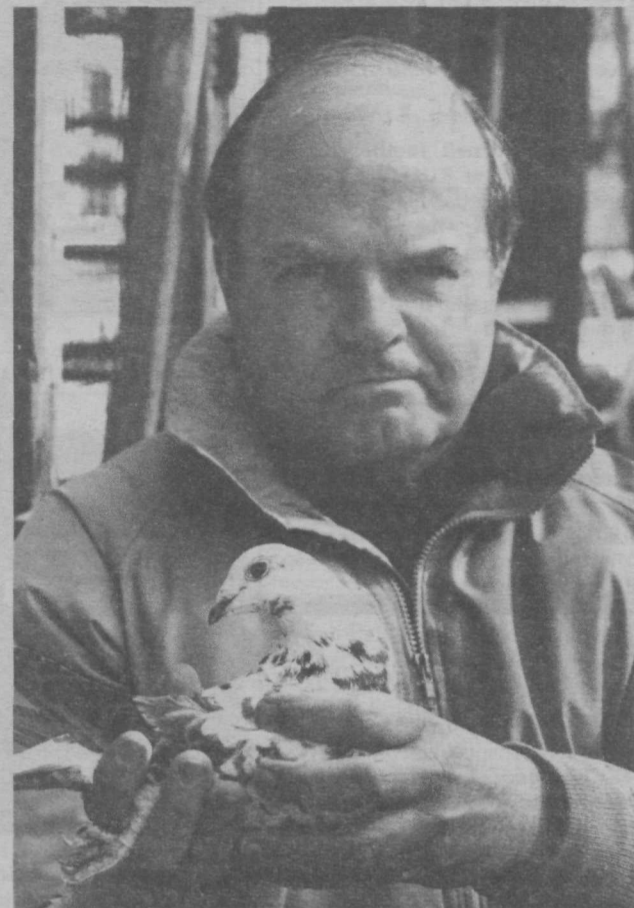
When the Italian pigeons were removed from their 90-degree deflecting lofts and released some distance from home under sunny skies, they headed in the wrong direction by approximately 90 degrees. That seemed to prove that pigeons sense direction with their nostrils.

But when the deflector loft experiments were repeated at Cornell with identical equipment and the birds were released under overcast skies, they were not deflected at all.

• A Cornell pioneer in bird navigation studies, the late William T. Keeton, discovered several launch sites where homing pigeons that normally headed directly home instead consistently flew in other directions. For example, when radio-equipped Cornell pigeons were released at a site 90 miles north of the university and tracked by airplanes, they flew west for 15 miles before somehow getting their bearings and heading south to their Cornell home.

Also, 75 miles west of Cornell, Walcott and his colleagues found a hill from which Cornell birds flew off in all the wrong directions and were never seen again. The biologists thought they had found a "Bermuda Triangle for birds" in southwestern New York state that affected all the pigeons. But when they repeated the experiment with homing pigeons from Rochester, N.Y., the Rochester birds went home without difficulty. So did pigeons the Cornell researchers borrowed from other locations in the Northeast. Only pigeons raised at Cornell were befuddled by the New York Bermuda Triangle, Walcott said, and no one knows why.

- When Walcott was a Harvard faculty member in the



Charles Harrington

Biologist Charles Walcott with a research subject.

early 1960s, he thought he was close to understanding how pigeons navigate by the Earth's magnetic field when they can't see the sun. Pigeons he raised at Linden, Mass., were disoriented by magnetic anomalies — places where the magnetic field of the Earth is disrupted by underground iron deposits. However, when he moved his experiments to Cornell in the early 1980s, Cornell-raised pigeons were not affected by magnetic anomalies in New York or Massachusetts, either. Recently, he found that pigeons raised at the site of his old Massachusetts laboratory are confused by magnetic anomalies, while pigeons from a loft a mile and a half away are not.

"The pigeons seem to be telling us that birds growing up under different conditions may learn to use different strategies," Walcott commented. "That suggests that pigeons — and probably other birds, too — are great opportunists."

—Roger Segelken

Computer-tailored joints could last decades: Taylor

Orthopedic surgeons soon will be able to manipulate an image of a patient's hip or knee on a computer screen to tailor artificial joints to the patient, according to a Cornell engineer who is developing such a computer-design system for hip joints.

The surgeons will even "rehearse" the implant operation, using the 3-D computer graphics to test how the implant, machined in the same hospital, fits and moves within the patient.

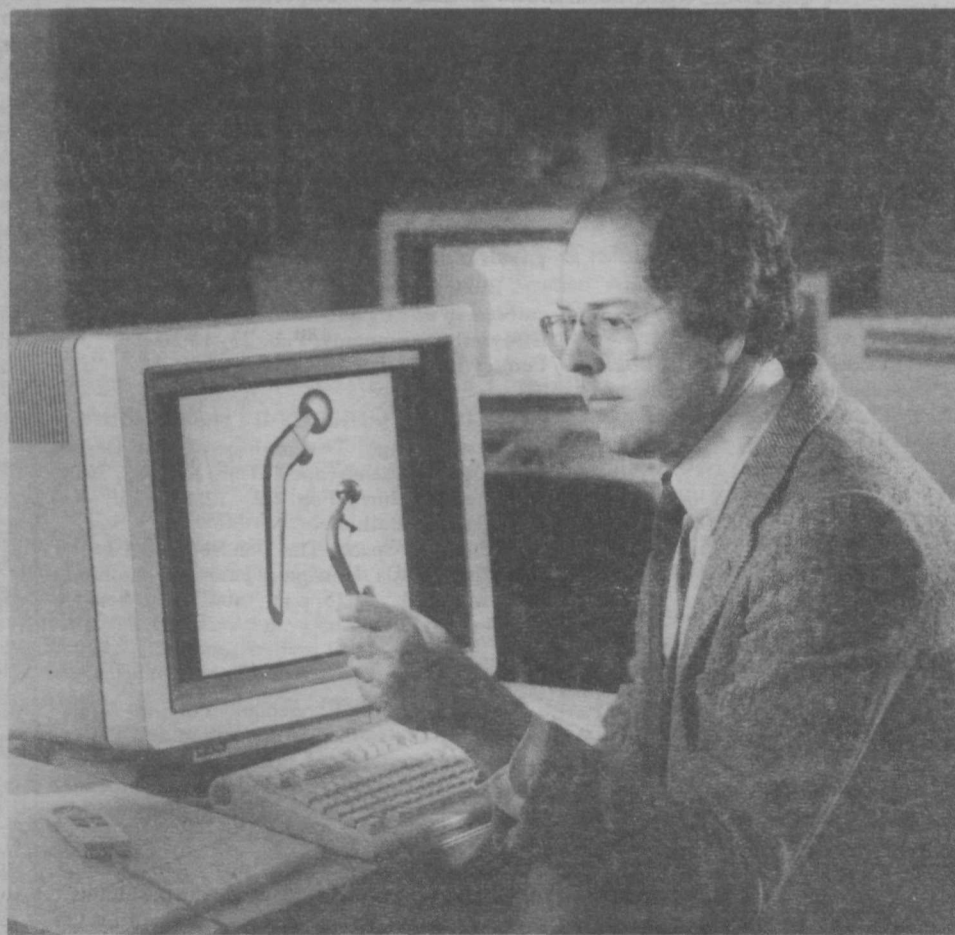
The result of the computer system will be artificial hip and knee joints "tuned" so precisely to patients that the devices will last decades longer than they do currently and be less expensive to construct.

Some 200,000 artificial hip joints are installed each year in this country, said Dean Taylor, an associate professor of mechanical and aerospace engineering. He made his comments during a symposium at the annual meeting of the American Association for the Advancement of Science.

The number of artificial joint implants is expected to rise considerably over the next few decades, given the expected rise in the number of senior citizens. While some hip implants replace joints broken in falls, the majority are performed to restore mobility lost to arthritis or dysplasia, he said.

Speaking at a symposium on "Supercomputing and Science: Improving the Quality of Life," Taylor described the research program by Cornell and the Biomechanics Laboratory at the Hospital for Special Surgery (HSS) in New York.

Currently, a surgeon chooses an implant for a patient from among a limited number of standard-sized devices by superimposing a succession of silhouette templates over X-rays of the joint. Even with X-rays as guides, however, the surgeon must keep several sizes on hand during the operation, because the real three-dimensional joint may be quite different from that reflected by the two-dimensional X-ray. Large hospitals usually must keep an inventory of \$3 million to \$5 million of artificial hip and knee joints on hand, Taylor said.



Dean Taylor holds an artificial joint in front of a computer image of the same joint.

The artificial hip joints installed using this current system now last about a decade, and replacement may be necessary because of loosening of the joint or bone or implant breakage in the dynamic environment of the body.

"Designing an artificial joint is not like designing the landing gear of a 747," Taylor said. "The living skeleton is a very active system, with the bone adjusting itself to altered loads. It's also an extremely tough

chemical environment." What's more, joints are geometrically complex and bone is not a uniform material, varying considerably in density and strength from point to point in the same bone, he noted.

To understand the complexities of stress and remodeling by the complex composite of bone and implant, Taylor and his colleagues have developed structural analysis models on the International Business Machine Corp. supercomputers at the Cornell

National Supercomputer Facility. Their models allow them to analyze how the bone responds to implants by changing its geometry and material properties.

The insights into bone-implant behavior gained from these supercomputer models then are applied to an analysis system running on standard engineering work stations that could be installed in a surgeon's office.

The Cornell-HSS group already has developed a clinical computer system that allows hip joints to be individually tailored.

In the system, data from computerized tomography (CT) scans of the patient's joint are fed into the computer, which displays the joint, employing color, transparency, three-dimensions and dynamic motion to give the surgeon a useful image. The surgeon then can use the image to design and "test" a tailored implant for the joint. The data specifying that implant are fed to a numerically controlled machine tool system that machines down a generic metal casting to the desired geometry.

"With this combination of CT scans and graphics to display information for surgeons, we can achieve a much better fit and design for hip implants," he said. "It's reasonable to expect these improved implants to last decades longer than current devices."

"The system also allows the surgeon to determine potential problems installing a hip joint before the operation, and it increases the surgeon's productivity."

According to Taylor, several research hospitals around the country now use the implant-design system, and he expects to see widespread use in about five years.

Taylor said that their research also could find application for knee implants. However, the Cornell-HSS group has concentrated on artificial hips because they are simpler devices and because hip implants tend to present more longevity problems than do knee implants.

The Cornell-HSS research is supported principally by the Clark Foundation of New York City.

—Dennis Meredith

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Accelerators of tomorrow are in today's labs, physicist says

Even before planning for the gigantic \$7 billion Superconducting Super Collider (SSC) is complete, the seeds of future accelerators potentially far more powerful are being nurtured in laboratories around the world, according to physics Professor Robert Siemann.

Siemann cited as examples proposed particle acceleration techniques of "surfing" beams of electrons along powerful plasma waves created by intense laser pulses, or of dragging them behind larger electron clusters like a car tailgating a truck. Plasmas are high-temperature gases of electrons and electrically charged atoms.

"While the SSC is now the only way we know how to reach the highest energy levels, we are not out of ideas," Siemann told a symposium at the annual meeting of the American Association for the Advancement of Science. Siemann conducts research in the dynamics of high-energy beams and the theory of advanced particle accelerators.

"They all have warts, but there are some nice concepts out there that should be explored by theory and experiment," he told the symposium, "Particle Accelerators of the Future." Further research should reveal which of the dozen or so ideas for accelerating particles to enormous energies could prove technologically feasible and economical as a basis for the next-generation particle accelerator, Siemann said.

The SSC, with its 53-mile ring of magnetically contained proton beams, is the ultimate accelerator possible using today's technology, Siemann said. Using radio waves, the SSC will accelerate the counter-rotating beams to energies of 20 trillion electron volts. Collisions between the beams will produce cascades of short-lived, sub-nuclear particles that will yield insights into the basic nature of matter. To study the most fundamental forces and particles, physicists must collide particles at the highest possible energies.

The key technologies in the SSC and other such machines are those needed to accelerate the protons, to focus the beams, and to contain and guide them to collisions.

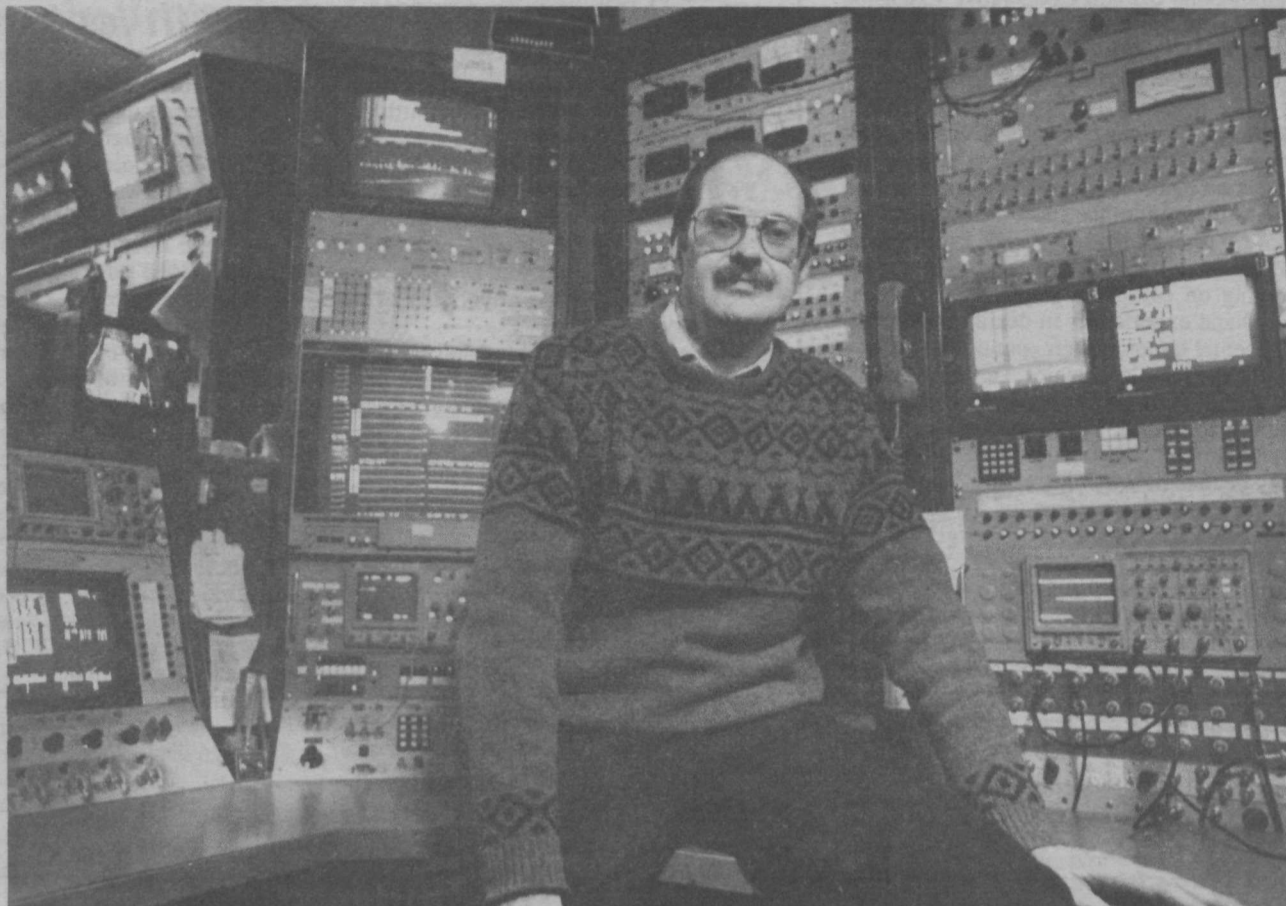
Siemann said that the SSC is probably the last great proton accelerator. The basic ideas behind it — including "alternating gradient focusing" of the beam, the circular colliding-beam technology and superconducting magnets to contain the beam — are reaching the limits of energies they can provide.

However, there is every reason to believe that basic research in accelerator physics will continue the exponential increase in beam energies that have been achieved over the last four decades, he said.

The next generation of accelerators will likely be machines that accelerate opposing beams of electrons along straight lines to achieve high-energy collisions with one another, Siemann said, citing the Stanford Linear Collider as an example.

Collisions of electron beams yield populations of particles that are easier to analyze, and electron beams lose so much energy when forced into circular courses that linear acceleration paths are necessary, he said.

In his talk, Siemann discussed two examples of promis-



Charles Harrington

Robert Siemann in the control room of the Cornell Electron Storage Ring.

ing acceleration techniques: dielectric wakefield accelerators and laser-plasma wakefield accelerators. While the SSC uses traveling radio waves to accelerate protons, the dielectric wakefield accelerates electrons using traveling clusters of other electrons. In such devices, a large cluster of electrons is first launched down the beam line of the accelerator, leaving an electromagnetic wake. A few billionths of a second later, a smaller cluster is launched behind the first, and is accelerated by the wake of the first, like a car tailgating a truck on a highway. The first batch, called the "driver," loses energy to the second, called the "witness."

After a short distance, the spent driver cluster is ducted away from the beam line and replaced by another fresh driver, which accelerates the witness electrons even more.

Dielectric wakefield accelerators, being developed at Argonne National Laboratory, can boost the energy of electrons enormously in only a short distance, Siemann said. For example, Argonne hopes to build a demonstration accelerator that will boost an electron to an energy of more than a billion electron volts in less than a meter.

However, he said that much theoretical work remains to determine whether a high-quality beam could be produced by the driver, which could create electric fields that would deflect and defocus the beam, as well as accelerate it.

Researchers also must learn how to produce drivers with the appropriate number of electrons at the appropriate energies to accelerate the witness. Finally, said Siemann, it is unclear how economical and energy efficient such a scheme would be.

At the AAAS meeting, Siemann also outlined the status of another promising acceleration technique: the laser-plasma wakefield accelerator.

In this device, a powerful laser pulse is sent through a hot

plasma consisting of electrons and ionized atoms. The pulse creates a plasma wave that courses down the beam line. If an electron bunch is injected just behind the laser pulse, it will "surf" along this wave, gaining enormous energy.

Siemann said that such a technique could accelerate electrons by 2.6 billion electron volts for every meter of its length, or 100 times the acceleration developed in the Stanford Linear Collider. Thus, just three such laser-plasma accelerators strung together could accelerate a beam of electrons to one trillion electron volts in only a kilometer, 20 times the energy achieved with the Stanford Linear Collider.

Until recently, scientists believed that a major difficulty with this technique was that the laser pulse would not remain focused for longer than about a meter, Siemann noted. However, physicist Phillip Sprangle of the Naval Research Laboratory in Washington, D.C., has developed theoretical models showing that the plasmas would form an "optical guide" that could contain the laser pulse over about 100 meters. Such a longer "stage length" greatly increases the likelihood that the technique will be useful.

Besides a need for better theories, other problems with the laser-induced plasma accelerator include the fact that electrons travel faster than the plasma waves, losing energy as would a surfer outrunning an ocean wave. Also, the technique demands that more powerful lasers that deliver shorter pulses be developed. Finally, said Siemann, the whole accelerator must be energy efficient enough to operate economically.

"These ideas and the many others being studied could have a tremendous impact on science, but not for another decade or so," Siemann said. "Given the history of accelerator research, we can be hopeful that at least some of them will bear fruit."

—Dennis Meredith

Kalos: Computers are changing the face of science

From complex computer models that allow scientists to "experimentally" alter Earth's climate to data-analyzing programs that sift through signals from space to reveal new stars, the wide use of the computer has changed the face of contemporary science, according to Malvin Kalos, director of the Center for Theory and Simulation in Science and Engineering.

The public, as well as many scientists, does not appreciate how thoroughly computers have permeated scientific research and how much they are extending the human intellect into formerly inaccessible realms of complexity, Kalos said.

In a talk at the annual meeting of the American Association for the Advancement of Science, Kalos outlined how computers are extending the human intellect in science. He spoke at a symposium on "The Computational Paradigm in Science and Engineering."

While some observers have called computation a third component of science, distinct from theory and experiment, Kalos minimizes that distinction.

"I think it's important to realize that computation has been integrated thoroughly into the fabric of science," he said in an interview before the meeting.

"For example, the public might read a gee-whiz article about a new particle accel-



Janet Charles

Malvin Kalos

erator without being aware that the device was designed by computers, that every experiment was preanalyzed by computers, and that computers analyzed the data looking for the desired product particle — the physics equivalent of looking for a needle in

a haystack."

Many of the most exciting phenomena in science would remain undetected without computers, whether they are analyzing cascades of radio signals from space to look for stars called pulsars or organizing a massive jumble of seismic echoes to reveal the structure of the Earth's crust, Kalos said.

Computers also have allowed scientists to build complex simulations to extend their explorations far beyond those possible with experiments, he continued, citing efforts to understand the physics of liquids, including the simple case of a liquid produced by cooling the inert gas argon.

"Traditionally, scientists proceeded by attempting to find approximations that would permit predictions about the liquid," Kalos said. "They were constrained by the mathematical techniques at their disposal."

"But with advanced computing, they can build models using a hypothetical argon atom," he explained. "They may not know exactly the properties of argon, but can do computer 'experiments' by changing the atom's properties and studying how the model liquid behaves compared with the real thing. They're no longer simply making approximations in the dark."

However, some theoreticians still believe that such models are "less than proper science," Kalos said. "They feel that it's

somehow cheating; that you're supposed to understand nature by thinking about it, not by computing."

Particularly important in such modelling is that the computer allows scientists to explore complex, real phenomena and not simplified "linear" versions, he noted.

"Isaac Newton made great advances in understanding the solar system thanks to the fact that the laws of orbiting bodies he was thinking about were simple, relative to the mathematical tool of calculus he had developed," Kalos said.

"But we can no longer limit ourselves to thinking about the nature that can be described by such linear mathematics. Without a computer, we could measure, but not really reason about or predict, more complex, non-linear phenomena of nature, from weather to subnuclear structure," he said.

Computer analysis is more than just a means to numerically analyze data, he emphasized; it yields real insight into scientific problems.

"Computation forces you to think harder; it clears your mind," he said. "Often the best insight comes from setting up the computation. As soon as you can reason mathematically, you can begin to think about more subtle phenomena rigorously and quantitatively."

—Dennis Meredith

EarthYear continued from page 1

erated by EarthYear 1990 goes beyond the campus, the Cornell Cooperative Extension network is prepared for a special outreach effort, said David W. Gross, senior extension associate in natural resources.

"We will look for opportunities to capitalize on the campus events with video taping, satellite up-links and the publication of conference proceedings for use by extension agents throughout the state," Gross said.

"There will be a two-way exchange of information during EarthYear, with agents coming on campus to share some of their first-hand experiences in dealing with environmental issues in their counties."

EarthYear Coordinator Tait said that of all the available resources at Cornell — the faculty members, the researchers and analysts, and the educators — the most vital may be the students.

"Much of the impetus for the first Earth Day came from students of that generation, students who are today's educators, researchers and policy makers," she said.

"We look to students in such organizations as Ecology House, Cornell Greens, the Environmental Law Society and the Jordani natural history society for the energy and imagination to produce a new environmental consciousness in the 1990s," Tait added.

—Roger Segelken

EarthYear 1990 opens with lectures, panel discussions

Among the scheduled public lectures and panel discussions for EarthYear 1990 are these:

- A lecture on "Gift to Wildlife and You: Partners in Conservation," by David Nelson, senior wildlife biologist, New York State Department of Environmental Conservation, on Monday, Feb. 26, at 7:45 p.m. at the Laboratory of Ornithology.

- Center for Environmental Research lecture on global environmental problems by William Clark, senior research associate, Harvard University, on Thursday, March 1, at 4:30 p.m. in the Boyce Thompson Institute Auditorium.

- "Loons from Alaska to Florida: Their Ecology, Behavior and Conservation," a lecture by Judith McIntyre of Utica College, on Monday, March 5, at 7:45 p.m. at the Laboratory of Ornithology.

- "Comments on the Land Ethic," EarthRise lecture by Carl Leopold of the Boyce Thompson Institute for Plant Research, on Tuesday, March 6, at 7:30

p.m., at a location to be announced.

- A lecture on "Marine Geology, Biological Oceanography and Ecological Theory: The Role of the Individual," by Robert Paine, University of Washington, on Thursday, March 15 at 4:30 p.m. in the ground floor conference room of the Biotechnology Building.

- "Homage to St. Patrick or Why There Are So Few Bird Species in Ireland," a lecture by Raymond J. O'Connor, University of Maine, on Monday, March 12, at 7:45 p.m. in the Laboratory of Ornithology.

- "Environmental Impacts on Minority Communities," proposed EarthRise panel discussion with Clay Carter, Citizens Clearinghouse for Toxic and Hazardous Waste; Hubert Dixon, Center for Health Services; and Benjamin Chavis, director of the Commission for Racial Justice. Tuesday, March 20, at 7:30 p.m. in Anabel Taylor Hall.

- "Indigenous Peoples' Connection to their Environment," EarthRise lecture by Jose Barreiro, editor of Northeast Indian

Quarterly, and Dr. Carol Rubenstein, who worked with indigenous people of Borneo. Tuesday, March 27, at 7:30 p.m. in Anabel Taylor Hall.

- "Studies in Marine Chemical Ecology and Biotechnology," Biological Resources Program Lecture by William Fenical, Scripps Institution of Oceanography, on Thursday, March 29, at 4:30 p.m. the Biotechnology Building ground floor conference room.

- "Global Environmental Change," Bartell Lecture by Frank Press, president of the National Academy of Sciences, on Thursday, March 29, at 7:30 p.m. in Bailey Hall.

- "Economics and Ecology: Can Development be Sustainable?" Eco-Justice Conference, Friday and Saturday, March 30 and April 1, at 7 p.m. in Anabel Taylor Hall.

- "Wetlands and the Politics of Protection," EarthRise Lecture by Barbara Bedford, Ecosystems Research Center, Tuesday, April 3, 7:30 p.m. in Anabel Taylor Hall.

Stroika continued from page 1

know if they will last? . . . We are waiting to see if the policy changes will be put into law," Sharlet said.

In the meantime, however positive the changes seem, they also have sparked problems in Soviet society, he added. Democracy in the streets is being used "more and more to pursue uncompromising individual or non-negotiable ethnic, nationalist agendas," Sharlet said. And, because the Soviet Union lacks a history of tolerating differences, "a lot of these activities . . . are tearing at the social fabric of society."

"Problems? Yes. Problems remain.

Problems arise. Problems abound," Lipson said. Not only those sparked by perestroika, but those perestroika was designed to remedy still exist, he said.

Among them are agriculture, alcoholism, cooperatives, collective labor, corruption, crime, ideology, military morale, national party unity, what used to be called satellite countries, shortages, trade unions and competing unions, he said.

In response, the Soviets are considering lessening the role of the Communist Party and broadening constitutional rights. Proposed constitutional changes would expand

freedoms of speech, assembly and property ownership. In the area of criminal procedure, proposals would establish the presumption of innocence, introduce a jury for some cases and broaden redress to citizens injured by illegal action by the state, Lipson noted.

But if put on the books, will the new laws become compatible with law in practice? "In the Soviet Union, the jury is still out," Lipson said.

A positive answer, nonetheless, would require the Soviet Union to overcome 70 years of "monopoly-power privileges over

official posts; monopoly power over the media and communications; systematic secrecy; routine mendacity; frequent official disparaging of the importance of the legal profession; deep-seeded, far-reaching lawlessness on the part of state officials; policies and practices that have the effect of encouraging corruption and mockery of the independence of the judiciary," Lipson said.

"Time is needed" to train new leaders, to adjust expectations, to build a new political culture and rebuild the economy, he added. "The question is whether it's available."

—Lisa Bennett

CALENDAR

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Science, Technology & Society

"Skepticism and the Sociology of Science," Michael Lynch, sociology, Boston University, Feb. 26, 4:30 p.m., 609 Clark Hall.

"Governing Technological Systems: Toward Lower-Cost Political Learning," Edward J. Woodhouse, Rensselaer Polytechnic Institute, Feb. 27, 4:30 p.m., 609 Clark Hall.

South Asia Program

"Parting is Bad: Reflections on Love and Other Real Problems in a Rajasthani Folk Epic Tradition," Ann Gold, South Asia Program, Feb. 28, 12:15 p.m., 153 Uris Hall.

Southeast Asia Program

"Philippine Livelihood Strategies: Leyte Key Study," Julie Leones, agricultural economics, Feb. 22, 12:20 p.m., 102 West Ave. Extension.

"Rethinking the Cultural Manifesto (Manikebu)," Gunawan Mohammad, chief editor TEMPO, Jakarta, March 1, 12:20 p.m., 102 West Ave. Extension.

Stability, Transition & Turbulence

"Grapplings with the Flow Simulation of Polymer Molding and Encapsulation," S-F. Shen, mechanical and aerospace engineering, Feb. 27, 12:30 p.m., Grumman Conference Room, Grumman Hall.

Textiles & Apparel

"Overview of Circuit Board Composite Materials," David Wong, manager, IBM, Feb. 22, 12:20 p.m., 317 Martha Van Rensselaer Hall.

"Environmental Impact of Synthetic Polymers," James F. Kinstle, James River Corp., Wisconsin, March 1, 12:20 p.m., 317 Martha Van Rensselaer Hall.

Theoretical & Applied Mechanics

"History and Technology of Scanning Probe Microscopy," H.K. Wickramasinghe, IBM, Yorktown, Feb. 28, 4:30 p.m., 205 Thurston Hall.

Vegetable Crops

"Expert Systems for Horticultural Research and Extension," Jan P. Nyrop, entomology, Geneva, Feb. 22, 4:30 p.m., 404 Plant Science Building.

"Effects of the Fungus *Pyrenochaeta terrestris* (Pink Root) on Onion Growth and Yield," Pam Coleman, vegetable crops, March 1, 4:30 p.m., 404 Plant Science Building.

Western Societies Program

"Nationalist Conflict and the Federal Reform: The Case of Belgium," Liesbet Hooghe, University of Leuven, Feb. 23, 12:15 p.m., 153 Uris Hall.

Veterinary Pathology

"Growth Inhibition, Repression of the C-FOS Protooncogene and the Differentiated State of Fibroblasts and Lung Epithelial Cells," Judith Campisi, biochemistry, Boston University, School of Medicine, March 1, 12:30 p.m., Hagan Room, Schurman Hall.

SPORTS

Thursday, 2/22

Men's Wrestling, Syracuse, home, 7 p.m.

Thursday, 2/22-Sunday, 2/25

Women's Swimming, Easters at Pittsburgh

Friday, 2/23

Men's Jr. Varsity Basketball, Casenovia, home, 5 p.m.

Women's Basketball, at Brown, 6:30 p.m.

Men's Basketball, Brown, home, 7:30 p.m.

Men's Hockey, at Vermont, 7:30 p.m.

Friday, 2/23-Sunday, 2/25

Men's Track, Heptagonals at Cornell

Women's Track, Heptagonals at Cornell

Saturday, 2/24

Men's Gymnastics, Ivy Championships at Princeton

Men's Fencing, Columbia, Penn and Air Force, home, 11 a.m.

Women's Fencing, Columbia, Penn and Air Force, home, 11 a.m.

Men's Jr. Varsity Basketball, Alfred, home, 5 p.m.

Women's Basketball, at Yale, 6 p.m.

Men's Basketball, Yale, home, 7:30 p.m.

Men's Hockey, at RPI, 7:30 p.m.

Men's Polo, Unadilla, home, 8:15 p.m.

Saturday, 2/24-Sunday, 2/25

Women's Hockey, Ivy Tournament at Harvard
Men's Squash, ISA Championships at Pennsylvania

Tuesday, 2/27

Women's Basketball, Marist, home, 6:30 p.m.

Thursday, 3/1-Saturday, 3/3

Men's Swimming, Easters at Army

MISC.

Alcoholics Anonymous

Meetings are open to the public and will be held Monday through Friday at 12:15 p.m. and Thursdays at 9:30 p.m. in Anabel Taylor Hall. For more information, call 273-1541.

Committee on U.S.-Latin American Relations (CUSLAR)

Meetings are held Mondays at 5 p.m., in the Common Coffeehouse, Anabel Taylor. For more information call 255-7293.

Cornell Badminton Club

The club meets Wednesdays and Sundays at the Henry St. John gym. For more information, call Bill at 272-3594 or Tom or Lisa at 533-7384.

Cornell Nursery School

Applications for Cornell Nursery School for 1990-91 are now available by calling 255-3074. Openings for 5 days a week, morning or afternoon, for children three years of age before Dec. 1, 1990. For further information or to arrange a school visit, call Sue West, 257-5872. Application deadline is March 2.

Intramural Sports

Intramural table tennis for men, women; \$2 entry fee, deadline 4 p.m., Feb. 27, in 305 Helen Newman Hall. Tournament will be held on March 3-4.

Intramural badminton for men, women, co-ed; \$5 team entry fee, deadline 4 p.m. March 1 in 305 Helen Newman Hall. Tournament starts on April 9.

Macintosh Users' Group

MUGWUMP, the Macintosh Users' Group for Writers and Users of Mac Programs, meets on the first Thursday and second Wednesday of each month. Meetings are free and beginners are welcome. For more information, call Andrew Merkle, 277-2239.

Narcotics Anonymous

A group of recovering addicts who live without the use of drugs, including alcohol. Membership requirement is a desire to stop using. Meetings are held weekly at 6 p.m., G-18 Anabel Taylor Hall.

Peer Educators in Human Relations

A six-week series promoting awareness of oppression issues will take place Thursday evenings from 7 p.m. to 9:30 p.m., through March 15, with an additional weekend retreat March 2 through 4. To register or for more information call 255-7450.

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.; 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., Noyes Center Browsing Library.

CORNELL EMPLOYMENT NEWS

Including Job Opportunities

Volume 2, Number 8

February 22, 1990

Many Staff Development Opportunities Offered in Spring Training Calendar

The spring calendar of workshops was mailed last week to all employees' campus addresses. You are encouraged to review the offerings and talk to your supervisor about signing up for a course that interests you. Below are frequently asked questions on the training programs.

What is the first step in signing up for a training course?

First, discuss your interest with your supervisor. Supervisors are encouraged to work with employees to allow participation in training programs where the employee has shown an interest or the supervisor sees a need. *(See below for details on *Career Development Concepts for Managers* - a course designed to explore how supervisors can use career development to enhance employee motivation.)

What programs are offered this spring?

Over 60 different courses are being offered now and they fall into five main topics: human relations and communication skills, management and supervision, work skills development, personal and career development, and health and safety procedures.

When are the training programs usually offered?

Training and development programs are usually offered during normal working hours and, once registration is approved, hours spent in class are generally considered hours worked.

If there is a charge associated with a particular course, who is responsible for paying the fee?

Individual employees are never charged for courses offered through the training calendar. Any charges associated with specific programs are charged to the employee's department or unit; certain courses require no fee at all. Also, course materials are provided at no cost to the employee.

How do I register for a training calendar program?

Submit a registration form complete with all information and signatures to Training and Development, 107 Day Hall. If you need a registration form, call 5-7170.

Eight New Courses Offered this Spring

The new workshops available this spring cover a variety of subjects:

- *Graphic Design for Nondesigners* - learn about the computer's role in graphic design.
- *Selling Your Ideas* - how to improve your presentation skills in order to sell your ideas.
- *Myers-Briggs Type Indicator* - increase understanding of yourself and others with opportunities to apply this knowledge to various situations.
- *Short-term and Long-term Disability* - learn departmental responsibilities regarding disability.
- *Improving Interpersonal Effectiveness* - strategies for interacting more skillfully and working more effectively with others.
- *Practical Tips and Support for Family Caregivers* - suggestions on how to deal with the psychological and physical aspects of being a caregiver.
- *Creative Accomplishment* - setting and achieving goals for personal development.
- *Understanding of Self: An Awakening* - learn to utilize hidden potential for enabling greater insight, initiative and effectiveness in job and family tasks.

Practical Skills Building Courses

The following courses offer work skills development: *Business Correspondence Writing Skills; Building Grammar and Punctuation Skills, Using Cornell Libraries, Telephone Tech-*

niques, Resume Writing and Interviewing Skills, Public Speaking.

Courses of Interest to Supervisors

The following are just a few of many programs offered with needs of supervisors in mind.

- *Career Development Concepts for Managers* - this program, through a formalized approach to career management, helps supervisors ensure that employees have opportunities to maximize their potential. When employee career needs are aligned with those of the organization, the result often is an improvement in the employee's self worth, personal growth, productivity, creativity, and overall department morale.
- *Bringing Out the Best in Others: Improving Employee Performance* - guidelines and skills for successfully coaching, motivating and inspiring employees. Supervisors learn essential people skills for boosting productivity and enthusiasm in the workgroup.
- *Meetings: Key to Improving Management* - learn how to make your meeting more effective and discover the benefits of proper planning, agenda structuring, room arrangement and problem solving as related to departmental meetings.
- *Effective Delegation* - is designed to explore methods and techniques related to effective delegation.

Please note: *Understanding of Self: An Awakening* was advertised as a four-session program in the training calendar. This is actually a one-session (all-day) program in which you may enroll in any of four different sessions on either Friday March 23 or Tuesday April 24, or Friday May 18 or Friday June 22 from 9:00am until 4:30pm. This program is designed to help participants gain new insights into themselves and the world by unleashing creative, self-vitalizing forces.



Age Discrimination in Employment Act Protects Older Persons

by Valerie O. Hayes, associate director Office of Equal Opportunity

In 1963, Congress passed the *Age Discrimination in Employment Act (ADEA)* to protect older persons from being discriminated against in the workplace solely because of their age. The Act covers persons aged 40 and older from intentional discrimination. ADEA, like other equal employment opportunity laws, seeks to eliminate harmful assumptions, misconceptions and stereotypes about the capabilities of older persons to be productive and valuable resources. These preconceived notions tend to unduly interfere with equal opportunity owed any applicant or employee.

While the Act prohibits intentional discrimination, it does not prevent an employer from:

1. differentiating between persons based upon reasonable factors other than age; for example, if an applicant does not have the minimum skills required for the job, the employer can legitimately refuse to hire that person;
2. using age as a reasonable bonafide occupational qualification necessary to the normal operation of the employer's business; for example, placing applicant age limitations for entry into apprenticeship training programs; and
3. establishing a good cause reason for making an adverse employment decision; for example, terminating an employee for failing to perform the essential duties required in the job.

ADEA's coverage is extended to bonafide fringe benefit programs, including "those

plans in which the employer makes no contribution, but merely serves as administrator of a plan that is paid for completely by the employees." In addition, "the plan must be genuine or authentic, and pay benefits, in order to be recognized as bonafide." The benefit plan must be communicated to employees and the terms of the plan must be observed by the employer.

Employers are permitted under ADEA, however, to observe bonafide employee benefit plans which include age limitations or differentials, such as retirement, pension, and insurance plans, as long as their purpose is not to arbitrarily and intentionally discriminate against persons because of their age in non-fringe benefit areas. The Act, therefore, prohibits an employer to intentionally refuse to hire an older person, for example, because its premiums (or contributions) to a plan may increase. The Act, in the alternative, does not prohibit the employer from passing along to all employees any increased costs which have a substantial financial impact upon the employer.

An employee who wishes to challenge an employee benefit plan under ADEA bears the burden of proving that the plan was implemented by the employer to avoid the purposes of the Act, namely to eliminate employment discrimination based upon age.

Complaints of discrimination based on age can be reported to the Office of Equal Opportunity, 234 Day Hall, for investigation and resolution.

Signed, Completed Employment Application Policy Enforced

Beginning April 1, 1990, no regular full or part-time newly hired employees will be appointed (paychecks will be held) without a copy of a signed, completed employment application attached to the Personnel Action Form. Employee transfers do not require a new employment application.

The university has long had this policy in effect but voluntary compliance has resulted in signed, completed employment applications for approximately only half of all new hires.

Why is it necessary for the university to have a signed employment application for all new hires?

1. The employee's signature on the employment application provides a legal basis for checking any information on the application. A hiring supervisor should never check references without this authorization.
2. The employment application provides valuable information not usually found in a resume about reasons for leaving previous jobs and salary history. Again, the applicant's signature attests that the work history provided is complete and truthful.

3. If individuals have engaged in conduct which led to dismissal or resignation (e.g., theft, racial or sexual harassment) they may not be desirable candidates for reemployment. A signed employment application makes it possible for Staffing Services to identify such individuals and evaluate their work history in relation to the new position they are seeking. Also, omission or falsification of information on the employment application provides grounds for dismissal should a hire or rehire occur.

4. The Audit Department has advised Staffing Services that this policy must be enforced.

Hiring supervisors, payroll representatives, Personnel Support Group representatives and others with a need to know will be informed of the effective date of April 1, 1990 for requiring a signed, completed employment application for all newly hired employees. Paychecks will be held if a properly prepared employment application is not attached to the Personnel Action Form.

If you have any questions on this policy, please call Manager of Staffing Services Judith Stewart.

March 31, 1990 Deadline Metropolitan and Select Benefit Claims

Select Benefits Claims: All medical and dependent claims for 1989 must be submitted by March 31, 1990. Under federal law, amounts remaining in a reimbursement account at the of the plan year cannot be returned to the employee. If you have any questions please call 255-3936 (endowed) or 255-4455 (statutory).

Metropolitan Claims: All claims for 1989 services and PAID prescription drug claims for 1989 must be submitted by March 31, 1990. If you have any questions please call Statutory Finance and Business Services at 255-7995.

