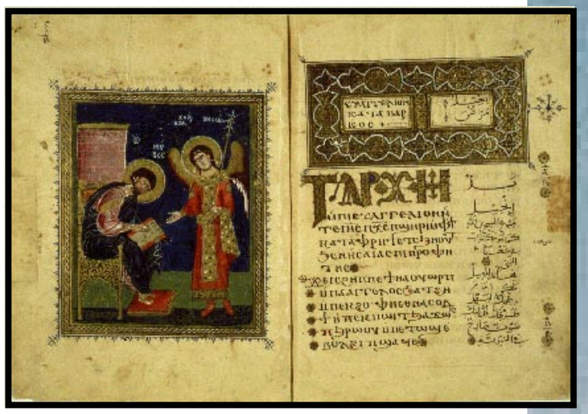
Almanac

Tuesday,
January 30, 1996
Volume 42, Number 18

Historic Images
At near right, pages from The Four Gospels, a treasure of the Vatican Collection. King Tut, to the right of it, and the Sphinx on the cover, are among the images most requested via the African Studies Program's Web site.



What Hath ENIAC Wrought?

As the celebration of its 50th Anniversary counts down to February 14, this issue presents a short history of the invention that changed world communications (pp. 4-7), and two *Compass* features on one of the most popular offspring of ENIAC: the Penn African Studies Program's online resource (pp. 8-9). Please see the back cover for more images of Africa.

Out of Africa

Over 250,000 times a month, someone calls up the Penn African Studies Program Web Page, rich in images of the vast and varied African continent as well as in texts, maps and scholarly exchanges. As described in the Compass *feature on pages 8-9, the Program is now a resource for Philadelphia teachers as well as for advanced scholars throughout the world. These samples, necessarily in black and white, show some of the range that has brought commendation from the Library of Congress among others.*

Africa Today
Stunning in color on the Web are women from the Afar region of Ethiopia, near right, and from the Djbouti Republic,wearing typical jewelry.

South Africa's President Nelson Mandela, in a 1990 photograph by Richard Hofmeister from the Smithsonian Collection.

Above: a postman, c. 1935, is featured in the logo of The Hornet, an electronic information exchange based in Addis Ababa and linked to the African Studies Program via the Web.

At left: One of the many images found under Wildlife via the African Studies home page.

In this Issue

Senate Office Has Moved

The Faculty Senate office has moved temporarily to 210 Houston Hall. Send intramural mail to Box 12 College Hall/ 6303 and email to *burdon@pobox.upenn.edu.* The telephone number remains 898-6943.

— From the Senate Office

Comment on Perelman Quad

VPUL Valarie Swain-Cade McCoullum has extended the deadline for comment on the Perelman project's space allocation plan for student activities (*Almanac* January 23) to *February 15.*

Friends of Moez: Update

After initially ruling last week that Gregory Pennington be tried as a juvenile, Judge J. Temin of the Court of Common Pleas reversed her decision on Friday. Pennington is now scheduled to be tried as an adult along with Antony Archer, Dr. Wolfgang Ziller reports in his continuing Penn Web coverage of criminal proceedings against the five accused in the murder of doctoral candidate Moez Alimohamed.

Judge James Fitzgerald is to preside in the trial of Archer and Pennington. Jury selection is scheduled to begin on Thursday at the Criminal Justice Center, 1301 Filbert. Once the trial begins, Dr. Ziller said, bus transportation will be made available for members of the Penn community who wish to attend the proceedings. Those interested should contact him by e-mail at *wziller@math.upenn.edu.* (The URL for daily Web reports is *http://www.math.upenn.edu/~wziller/moez.html.)*

Earlier Judge Temin decertified one of the five defendants, Khaalis Edmondson; he was convicted in juvenile court of second-degree murder and other counts, and awaits sentencing.

Two of the four charged as adults, Antoine Saunders and Ollie Taylor, have pleaded guilty to murder in the first degree and other charges; their sentencing is expected in March.

PPSA

Educational Fair: February 20

The Penn Professional Staff Assembly's Educational Fair will be held Tuesday, February 20, in Bodek Lounge, first floor of Houston Hall from noon-2 p.m. PPSA also has invited the A-3 Assembly to participate in this event.

The fair will provide information on Penn's part-time educational opportunities including program descriptions, application procedures, employee tuition benefits and applicable taxes.

Organizations represented are:

Benefits
College of General Studies
Dynamics of Organization
Fels Center of Government
Graduate School of Education
Nursing School
SEAS Student Service
SEAS
Training and Organizational Development
Tax Accounting Office
Wharton Evening Division

Rosenfeld Chair: Dr. Doherty

Dr. Doherty

Dr. Neil A. Doherty, professor of insurance and risk management, has been named to the Ronald A. Rosenfeld chair at the Wharton School, established in 1986 by Mr. Rosenfeld, W '61. It was first held by Dr. William Pierskalla, the longtime deputy dean for academic affairs at Wharton who left the University to become dean of UCLA's Anderson School of Business.

Dr. Doherty took his B.A. and B.Phil in economics from the University of York in 1968 and 1969, and his Ph.D. from England's Cranfield Institute of Technology in 1979. Before joining Penn in 1986, he taught at York and Cranfield, at the University of Zamia, University of Albert and University of Illinois. He was also an economic advisor to the United Kingdom's Department of Health and Social Security.

A widely published author and widely consulted specialist in insurance and public policy issues, Dr. Doherty's recent books include *Corporate Risk Management: A Financial Exposition* (McGraw Hill), *The Financial Theory of Pricing Insurance Contracts* (with S. D'Arcy, in the S.S. Huebner Foundation series). Along with some 60 journal articles and book chapters, he has also written a number of influential commissioned reports such as one which produced radical changes in British Petroleum's global risk management policy; one on the harmonization of taxes within the EEC and its impact on the United Kingdom's insurance industry, and several in this country on earthquake insurance and public policy.

He is also called upon as an expert witness for taxpayers in U.S. Federal tax courts on captive insurance cases, including those won in recent years by taxpayers Harper Robinson, Sears Roebuck/ Allstate, and U Haul International.

Dr. Doherty has twice won the *Journal of Risk and Insurance*'s Clifford D. Spangler Award, given for articles that have "withstood the test of time"—in 1990 and again in 1994. He also ranked first in a 1989 survey of insurance research scholars, done for the *Journal* by Professors Larry Cox and Sandra Gustavson, who ranked the field by quantity and quality of research. Three of his articles also won the American Risk and Insurance Association's prize for "best paper in the *Journal*" in the years 1984, 1986 and l991.

Penn's Way: Over $300,000

I would like to thank the University community for their participation in the 1996 Penn's Way campaign. This year's streamlined campaign gave us a chance to still contribute to our favorite charities, while minimizing the use of University personnel and resources. This year's campaign totals show that the people at the University care about making our community a better place to live.

— Carol Scheman, Vice President, Government and Public Affairs
Co-Chair, Penn's Way '96

School/Unit	Employees	Number of Participants	% Participated	Total Contributed
Annenberg Center	27	15	56%	810.00
Annenberg School	31	19	61%	1,985.00
Business Services	330	161	49%	7,159.00
Dental Medicine	406	58	14%	5,749.00
Development & Alumni Relations	182	110	60%	8,159.00
Engineering	217	86	40%	13,892.00
Executive Vice President	161	62	39%	4,219.00
Facilities	736	126	17%	5,174.00
Finance	268	111	41%	8,198.00
Graduate Education	173	60	35%	5,426.00
Graduate Fine Arts	73	16	22%	1,280.00
Human Resources	65	38	58%	5,340.00
Info Systems & Computing	149	69	46%	5,783.00
Intercollegiate Athletics	86	25	29%	886.00
Law School	118	60	51%	15,152.00
Libraries	232	72	31%	6,845.00
Medicine	2264	465	21%	98,412.00
Morris Arboretum	28	17	61%	1,249.00
Museum	90	40	44%	3,752.00
Nursing School	154	36	23%	3,497.00
President	84	60	71%	6,393.20
Provost	219	118	54%	8,822.00
School of Arts & Sciences	917	281	31%	36,896.00
Social Work	56	26	46%	4,471.00
University Life	274	139	51%	10,125.00
Veterinary Medicine	538	92	17%	11,088.00
Wharton	570	197	35%	23,624.00
Total	**8448**	**2559**	**30%**	**$304,386.20**

After the Blizzard:

Thanks from the President...

An open letter to the Penn community:

When I arrived at Penn, I knew that the caliber of staff and faculty was outstanding. In my 18 months here, I have seen daily examples of your loyalty and talent, but, without question, your efforts during the Blizzard of '96 were superlative.

The blizzard stalled the city for some 48 hours. But, thanks to our dedicated staff and faculty, major components of the University, including HUP and the Vet Hospital, remained operational even during the height of the storm.

Since the blizzard, I have heard countless stories of remarkable staff, faculty, and volunteers who walked to work, despite several feet of snow and drifts; who stayed on campus overnight, sleeping in shifts; and who offered their services and four-wheel drives even though they were not considered "essential personnel."

Employees who truly deserve a special commendation are those in our physical plant. In the space of six days they logged more than 3,000 hours of labor. An energetic crew of 37, plus four employees from an outside contractor, cleared the campus of 9,000 tons of snow. In a startling comparison, the University disposes of less than 9,000 tons of waste *annually*. To ward off ice, 65 tons of salt—which arrived in three tractor trailers—were strewn throughout campus. The efforts of our physical plant permitted business to quickly return to normal at Penn.

As many of us well know, out of every crisis rises a hero. I am proud to say that at Penn we have not one, but a legion of heroes.

I thank you all for your extraordinary efforts.

— Judith Rodin, President

...and from the Faculty

On behalf of Penn's faculty, we want to join President Rodin in saluting the Penn people who worked so hard and so long to return the campus to working order after the monster snowstorm. That was a couple of heroic all-nighters they pulled, and we greatly appreciate both the effort and the results. Well done, and thank you.

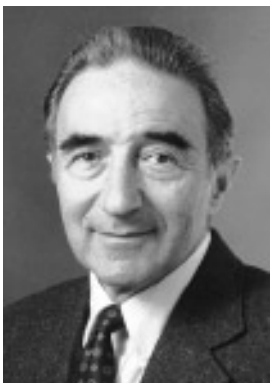
William L. Kissick, Chair;
David K. Hildebrand, Past Chair; and
Peter J. Kuriloff, Chair-elect,
of the Faculty Senate

Photo by Dwight Luckey

A-3 of the Month: Michael Suplick

An instrumentation specialist at Leidy Labs has been selected by the A-3 Assembly as the A-3 Employee of the Month for December. Michael Suplick, who has worked in the Institute of Neurological Sciences' machine shop since 1978, has "endless energy," said his supervisor Fred Letterio. "I believe the main factor that drives Michael is his commitment to please. Michael cares very much about doing an excellent job *every* time, and it shows in the finished product." Mr. Suplick was also cited for working well with his coworkers and adding a little humor while solving the needs of the investigators. He will "always go out of his way for anyone," said Mr. Letterio.

Succession at JA: Dr. Perlmutter



Dr. Perlmutter

Dr. Daniel Perlmutter, professor of chemical engineering, takes office this week as University Judicial Administrator, the Provost has announced.

Dr. Perlmutter succeeds Dr. Stephen Gale, associate professor of regional science and director of the Dynamics of Organization program, who served as JA from 1993 until his resignation effective February 1.

The Judicial Administrator presides over all student disciplinary academic integrity hearings. Dr. Perlmutter, who served as Ombudsman at the University from 1990 to 1993, has been on the faculty since 1967, winning numerous honors including Guggenheim and Fulbright Fellowships. He has also been a member of the Mayor's Science and Technology Advisory Council and served on numerous review panels, including several for the National Science Foundation.

Research Foundation: Applications by March 15

On page 13 of this issue are the updated application procedures for those seeking grants from the internally-funded Research Foundation. The deadline for applications in the Spring Round 1996 is March 15.

Names and projects of faculty members whose projects were funded in the 1995 Fall Round will be published next week.

Graduate Study/Academic Careers: January 30

Several University offices (Ben Franklin Scholars/General Honors Program, Career Planning and Placement Service, The College, and the Office of International Programs) have joined forces to present the Fourth Annual Graduate Study and Academic Careers Series.

These panels, open to all students, are designed to help undergraduates who are considering graduate study explore important issues, such as financing for graduate study, surviving the graduate school experience, and career options for Ph.D.'s.

The first panel discussion, *Getting Money for Your Brains*, will take place on January 30 at 4-5:30 p.m. in the Ben Franklin Room, Houston Hall. The panel will include Beau Ances, Penn B.A. and M.D./Ph.D. student (Thouron); Katie Conrad, Penn Ph.D. student in English (Mellow, Javits, Fulbright Ireland Alternate, and NEH Younger Scholars Award); Dr. Larry Hunter, Penn B.S. and Penn Assistant Professor of Management (Truman and Thouron); Theresa Simmonds, Penn B.A. (Rhodes and Truman).

(For more on the series, see *February At Penn*, under *Conferences*.)

HERS Summer Institute for Women

Once again, the Division of Human Resources and the Office of the Provost will be sponsoring the nomination of two women to the Summer Institute for Women in Higher Education Administration sponsored by Bryn Mawr College and Higher Education Resources (HERS) Mid-Atlantic. If accepted, the University will fund their participation in the program.

The Institute offers women faculty and administrators intensive training in education administration pertinent to the management and governance of colleges and universities. Timely information and perspectives focus on teaching, research, and service in the nineties.

The Institute will be held from June 23 to July 19, 1996 on the campus of Bryn Mawr College. Application for admission is open to women faculty and administrators whose background, experience, and present responsibilities indicate a potential for professional advancement in higher education administration.

For more information, call Judy Zamost, Human Resources/ Training Organization Development at 898-8387.

To provide prospective applicants with more information and an opportunity to speak with HERS graduates, a general information session will be held on February 15 from 3 p.m. to 4:30 p.m. in the Faculty Club.

ENIAC 50

The Birth of the Information Age

A Short History of the Second American Revolution

by Dilys Winegrad and Atsushi Akera[1]

Today, the northeast corner of the old Moore School building at the University of Pennsylvania houses a bank of advanced computing workstations maintained by the professional staff of the Computing and Educational Technology Service of Penn's School of Engineering and Applied Science. There, fifty years ago, in a larger room with drab-colored walls and open rafters, stood the first general purpose electronic computer, the Electronic Numerical Integrator And Computer, or ENIAC. It spanned 150 feet in width with twenty banks of flashing lights indicating the results of its computations. ENIAC could add 5,000 numbers or do fourteen 10-digit multiplications in a second—dead slow by present-day standards, but fast compared with the same task performed on a hand calculator. The fastest mechanical relay computers being operated experimentally at Harvard, Bell Laboratories, and elsewhere could do no more than 15 to 50 additions per second, a full two orders of magnitude slower. By showing that electronic computing circuitry could actually work, ENIAC paved the way for the modern computing industry that stands as its great legacy.

ENIAC was by no means the first computer. In 1839, an Englishman Charles Babbage designed and developed the first true mechanical digital computer, which he described as a "difference engine," for solving mathematical problems including simple differential equations. He was assisted in his work by a woman mathematician, Ada Countess Lovelace, a member of the aristocracy and the daughter of Lord Byron. They worked out the mathematics of mechanical computation, which, in turn, led Babbage to design the more ambitious analytical engine. This machine, which was never built, encompassed many principles of computer operation that have been rediscovered with newer machines a full century later.

ENIAC was not the first electronic computing device either. By the early 1930s, physicists were already using radiation counters, which employed vacuum tubes as did the ENIAC, and several laboratories before the Moore School had produced devices known as ring counters, which could count from one to ten. In the later 1930s and early '40s, at least three separate efforts to use electronic circuitry to address the problem of computation were made by John Atanasoff, British Intelligence, and IBM. Between 1937 and 1941, John Atanasoff, who taught physics at Iowa State College and had an interest in the general problem of high-speed computation, set out to design a specialized machine that could solve a complex system of linear equations. The Atanasoff-Berry Computer, developed with substantial contributions from his graduate student Clifford Berry, was close to, if not fully operational by 1941.

By that year, IBM, whose expertise then was in punch-card tabulating equipment, had also designed an electronic multiplier. In the late 1930s IBM began to work with Wallace Eckert[2] of Columbia University to explore how their equipment could be used in various scientific applications. It became clear that an electronic multiplier would greatly speed up the kinds of computations being employed by Eckert. IBM had collaborated with him in designing such a system.

Only British Intelligence's Colossus, a computer built at Bletchly Park around 1942, was a large-scale electronic machine. Atanasoff and IBM were limited by the available funds, whereas Bletchly Park and the Moore School tapped into the immense resources for research and development resulting from the war effort. Though highly innovative, none of these specialized computers, unlike the ENIAC, was designed to carry out general purpose computation but served a specific purpose—much the way specialized particle detectors are designed by experimental physicists to deal with a specific set of phenomena in high-energy physics. The Colossus, a special-purpose machine developed to decode secret messages, performed onlythe logical, as opposed to arithmetical, operations necessary to defeat the famous German code machine Enigma.

In the case of the Atanasoff-Berry computer, the speed was limited by its choice of an electromechanical means of storing numbers, namely the coefficients representing the system of linear equations. As long as Atanasoff's principal scientific interest remained the particular theoretical physics problems motivating the machine's design, his computer was a novel and sufficient solution for those needs. If he chose to use electronics rather than approaching the problem, as he might have done, by means of a complex system of mechanical relays, this reflected a combination of his interests as well as the effectiveness of electronic circuitry with which, like ENIAC's inventors, he had some familiarity.

Invention is almost always a continuous process, with parallel efforts and simultaneous discoveries the norm rather than the exception. This was true for human powered flight as well as for the invention of the electric light bulb, and James Watson and Francis Crick's discovery of the structure of DNA depended greatly on other theoretical and experimental work. This creative tradition of building on the best of the past was true for ENIAC.

Despite its many innovations, ENIAC lacked certain features considered essential to modern computing systems. Without the ability to store a program in its own memory—a feature known as the stored program concept—ENIAC had to be manually wired to execute a particular program. John Mauchly and J. Presper Eckert of the Moore School with John von Neumann and others contributed to this concept. The first machine to operate with this particular design was the EDSAC computer built in 1949 at the University of Cambridge by Maurice Wilkes. Neither ENIAC nor its successor, the EDVAC, had indexed memory and random access memory, which, some might argue going beyond stored program capability, are essential ingredients of modern computer design. Von Neumann and Herman Goldstine at the Institute of Advanced Studies and a team of researchers at the University of Manchester did the most to develop and formalize early computer architectures. Conditional branching—the "IF" statement in a BASIC or FORTRAN program—was not part of the ENIAC's original design.

The Moore School computer nonetheless provided a crucial step in a progression of technological advances; it also served to convince military scientists and technical experts of the value and practicability of electronic computation. The resulting enthusiasm was compounded by the advent of the Cold War; use of electronic computers in the development of the hydrogen bomb laid the foundations for the subsequent computing and information processing industry that has transformed the world since World War II.

ENIAC and the Electronic Computing Revolution

In the 1940s, the nation at war was ready for a breakthrough in computing techniques. At the University of Pennsylvania's Moore School of Electrical Engineering there was fertile soil. A course in the design of electromechanical instruments had been instituted at the School and a differential analyzer, the state of the art machine for general computations at the time, was in constant operation as a result of the national emergency. Scores of "human computers"—young women with mathematics de-

grees, supplemented by specially trained recruits from the U.S. Army's Women's Auxiliary Corps, were engaged in the ballistics computation work assigned to the University. The rate of change in artillery designs and the changing patterns of warfare created demands that exceeded their computational capacity. At any other time, the ideas worked out by John Mauchly and J. Presper Eckert—only 32 and 23 years old at the time that they met—would have been dismissed as impractical. Under other circumstances, their ideas would have been rejected for the simple reason that the ENIAC would cost too much to build.

John Mauchly's interest in calculating machines was associated with a dream he had of solving "the problem of the weather," an interest his father had shared during his lifetime working on similar problems at Carnegie Institute of Washington. Meteorological research necessitated the computation of enormous amounts of statistical data, and Mauchly, a physics professor at Ursinus College, was constantly looking for ways to achieve more and faster computations than were possible using mechanical desk calculators. At Ursinus, he had already investigated the possibility of using cold cathode tubes. Although these were very much slower than the higher-powered vacuum tubes and had a much more limited margin of operation, they were less expensive and consumed a far smaller amount of electrical energy, making projects more manageable. Mauchly's work on digital electronic circuitry was not sufficiently developed to help him in his meteorological research, and for this purpose he built a somewhat more familiar analog device that he named a "harmonic analyzer."

Mauchly still considered himself a meteorologist rather than a specialist in computational devices. But he was also all too aware that most meteorologists considered his theories "crackpot notions." In fact, he had been so sure these colleagues would not take the statistical results of the work with his "harmonic analyzer" seriously, that, when the American Association for the Advancement of Science met at the University of Pennsylvania in 1940, he delivered a paper on weather statistics to the physics section. One of those in the audience who took a clear interest in Mauchly's talk was John Atanasoff.

John Mauchly had a dream of solving "the problem of weather" . . . .

Meanwhile, the brightest graduate student in the Moore School, John Presper Eckert, Jr., had begun his career as an inventor . . .

The two researchers spent considerable time discussing their mutual interests both then and on subsequent occasions. Though the machine developed by Atanasoff and Berry was a special-purpose computer, it used all-electronic circuitry to perform the addition and multiplication operations at the heart of modern computing equipment. It has received much attention because Mauchly visited Atanasoff and Berry in the summer of 1941 to look at their computer with its electronic calculating circuitry. The use of an electromechanical device to store data and the intermediate results of computation limited its overall speed. Mauchly, who was interested in high-speed, general-purpose computation, reflected his own somewhat different vision for the development of modern computing circuitry when he commented on the relatively slow speed of the design. Seeing the Atanasoff-Berry machine may have encouraged Mauchley by indicating that a larger general-purpose electronic computing machine might be a possibility.

When the U.S. went to war in 1941, many of the Moore School's faculty were called away on secret military research projects or active service. With many new demands for military and communications technology, the War Department sponsored courses of training in the operation of increasingly complicated weapons systems. At the Moore School, a program in Engineering, Science, and Management War Training (ESMWT) was underwritten by the government. Mauchly came to Penn to learn about the latest electronic devices and techniques, and he and Arthur Burks, another Ph.D. enrolled in the ESMWT program, were promptly hired to replace Penn professors who had been called up for active duty.

Meanwhile, the brightest graduate student in the Moore School at the time—described as "undoubtedly the best electronics engineer in the Moore School"—was J. Presper Eckert, Jr. Still in his early twenties, Eckert had already developed an electronic device for measuring magnetic fields and for recording this information on film. The Navy had adopted Eckert's mechanism to assess the performance of their airborne mine-sweeping operations, which were then employing magnetic instruments. Eckert had also already begun his career as an inventor by securing a patent for recording sound on film using diffraction patterns. As an instructor at the Moore School in the summer of 1941, Eckert was hired as an assistant responsible for running the electronics lab associated with the ESMWT course.

The laboratory work of the ESMWT was not much different from what John Mauchly had been teaching his own students at Ursinus, which left plenty of time to chat with Eckert about his major preoccupation, a search for a way to apply electronic techniques to the problems of high-speed computation. Mauchly and Eckert continued their discussions over coffee and fruit sundaes at a local restaurant called Linton's, and in the room containing the Moore School's differential analyzer, the only place with air-conditioning in those early days.

Eckert pronounced Mauchley's ideas on electronic computation to be clearly in the realm of the possible. Using all his engineering creativity, and native genius, he set about addressing the problems that would have to be worked out. Encouraged by Eckert's receptivity to his theoretical notions, and spurred by the serious possibility that his ideas might be implemented, in 1942 Mauchly wrote a five-page memo on the subject entitled "The Use of Vacuum Tube Devices in Calculating." This memo became the basis of the report subsequently submitted by The Moore School to the Army's Ballistic Research Laboratory.

With pressure to produce firing tables for new artillery continually mounting, the need to find faster ways to perform ballistics computations became increasingly urgent. Calculating a trajectory could take up to 40 hours using a desk-top calculator. The same problem took 30 minutes or so on a the Moore School's differential analyzer. But the School had only one such machine, and since each firing table involved hundreds of trajectories it might still take the better part of a month to complete just one table. In his report, Mauchly argued that an electronic machine that could perform 1000 multiplications per second would be able to compute complete ballistics trajectories in minutes rather than days.

When the Allied forces landed in North Africa in 1943, they found themselves operating ordnance in terrain that was entirely different from anything they had previously encountered. The military suddenly needed an entirely revised set of firing tables. With requests growing faster than the calculators could handle them, the backlog of firing tables mounted. This military emergency provided the final impetus for large-scale experimentation in the field of electronic digital computers.

Mauchly's memo was turned into a proposal that could be supported by the Bureau of Ordnance by Captain Herman Goldstine, a mathematician stationed at the Ballistic Research Laboratory (BRL), located at the Aberdeen Proving Ground in Maryland. Goldstine realized that the military was more likely than any other organization to take a calculated risk in time of war. With the approval of John Grist Brainerd, who chaired an important faculty committee, Goldstine presented Mauchly's concept to his superior and arrangements were made for a presentation to the head of the BRL and its chief scientist, Oswald Veblen. On April 2, 1943, a proposal for an "Electronic Diff. Analyzer" was submitted. The name was calculated to forestall anticipated skepticism by associating the proposed computer with the existing differential analyzer. In fact, as a digital device the computer would solve differential equations—the particular mathematical equation used in ballistics problems—by *differencing* rather than *differentiation*, the dominant approach at the time. This double entendre was a deliberate subterfuge. More important, the computer described in this report, unlike all previous devices, was to be fully electronic and could compute a ballistic trajectory in under five minutes.

After delivering the initial proposal, Eckert and Mauchly continued to work around the clock to produce supporting arguments and data in anticipation of possible criticisms. On April 9, Eckert's 24th birthday, they presented a more detailed proposal; in May, an agreement was reached; and on June 5, 1942, contract No. W-670-ORD-4926 was signed by the Trustees of the University of Pennsylvania and the U.S. Army Ordnance Department with Brainerd as project supervisor and Eckert as chief engineer. Mauchly was the project's principal consultant, and Goldstine the Army's technical liaison. With a contract now in hand, the machine was named the Electronic Numerical Integrator And Computer, ever after to be known as ENIAC.

Progress Report, 1942-1946

The machine was funded by the United States Army at the University's Moore School of Electrical Engineering in 1942. Although the impetus for the computer's construction was its function to serve the ballistic needs of the Army, construction was not competed until after the end of the war. By that time, the military foresaw ever greater numbers of applications than anticipated. The first public demonstration of ENIAC in February, 1946, truly marked the beginning of the postwar revolution in digital electronic computation.

In 1942, the first critical problem that had to be solved was construction of a reliable decade counter—an electronic subassembly designed to store and increment numbers from zero to nine. The decade counter was the key component used in a larger unit known as the accumulator, which basically consisted of ten decade counters and their associated control circuitry. Assembled in this fashion, the accumulator could add and store positive and negative numbers from zero to ten billion. Four different types of counters, some based on designs developed elsewhere, were tried out during the first six months of the project.

The major obstacle the inventors faced was the reliability, or otherwise, of the vacuum tubes that were the heart of electronics, which some considered an insuperable problem. Unlike the relatively small number of vacuum tubes used in radios, long-distance telephone systems, and even the more complicated fire control systems (developed by the military for anti-aircraft guns), ENIAC employed vast numbers of these tubes, which could fail unpredictably during long periods of operation. With 17,480 tubes operating at a rate of 100,000 pulses per second, there would be 1.8 billion chances of a failure occurring each and every second. Malfunction of any one of the thousands of tubes, resistors, and condensers could ruin the project. As with any digital calculation, a single failure could alter a number dramatically; one glitch could cause an artillery shell being modeled by ENIAC to suddenly be traveling down instead of up or a hundred times faster than its initial velocity.

It occurred to the ENIAC team to add translucent spheres—ping-pong balls cut in half—over the neon bulbs . . . . Ever since, the flashing lights of computers have been part of our social and cultural heritage.

Eckert and his team of engineers tested various vacuum tubes, studying when and why they failed in order to eke out a more delicate mode of operation that would increase the life of individual tubes. Lower power levels and careful design alternatives were sought to minimize the amount of work demanded of the vacuum tubes. Most tubes were found to fail early or late in their lives, which resulted in a regimen of preventive maintenance ensuring that only the "healthiest" tubes were used in the ENIAC.

Beyond these careful vacuum tube studies, Eckert instituted rigid requirements for careful design and construction that had to be met by all engineers and technicians on the project where even a faulty soldering joint could render the entire machine useless. Universal design standards, established collaboratively by all of the Moore School engineers ensured that components such as resistors, as well as the vacuum tubes, operated at a certain percentage of their rated capacity. As a result, ENIAC consistently operated for periods greater than the twelve hours Goldstine had proposed as an optimistic estimate.

In his account of these early days, Goldstine called Eckert a "superb engineer:"

> Eckert's contribution, taken over the duration of the project, exceeded all others. As chief engineer he was the mainspring of the entire mechanism. Mauchly's great contributions were the initial ideas together with his large knowledge of how in principle to implement many aspects of them.[3]

The ENIAC contract described Mauchly's status as that of principal consultant; as a physicist he was not one of the regular members of the ENIAC engineering team though he understood certain concepts about the uses of high speed computing that others were only gradually beginning to comprehend.

During the entire period of its development, work on ENIAC was enshrouded in secrecy. No papers could be published, and discussion was limited to its initiates. Herman Lukoff, an undergraduate hired during the first summer of the project to design a pulse generator—the unit that generated the "ones" and "zeroes" that were both the data and the control signals for the machine—had no knowledge of its purpose. Lukoff was so excited by the work that he returned as a graduating senior to engineer the power supply for the first two accumulators, a task he completed only hours before he was inducted into the Navy.

In May of 1944, the ENIAC team was able to demonstrate ENIAC's workability in what has come to be known as the two accumulator test. In this, one accumulator was made to increment its value from one to five. The number was then transferred into the second unit one thousand times using the limited control circuitry housed in each accumulator, all in just over one fifth of a second, or about the blink of the eye. At the end of the test, the second accumulator sat idle, displaying the number 5,000—hardly the most impressive of mathematical feats. This demonstration nevertheless caused Dean Harold Pender of the Moore School to express "moderate optimism;" as a veteran in the electrical engineering field, the dean knew the risks but had great faith in his school's engineers. Even so, a great many people continued to doubt that the machine would ever function.

For the inventors, it was a time of elation. They would gladly have continued to devise newer, more clever means of solving problems. But at a certain stage it became necessary to "freeze" the classified design in the interest of completing the task at hand. Nonetheless, as the end of the war approached, engineers at the Moore School began to think intensively about developing a more sophisticated computer. From the first, Mauchly had envisaged the construction of a general-purpose computer, and ENIAC was designed to address this principal concern. Eckert had proposed ways to overcome what he recognized as the major shortcoming of ENIAC, which introduced most of the fundamental elements of hardware design that have become the basis of subsequent computing machinery, with the exception of internally stored instructions. Much of the early discussions focused on the need to increase the machine's memory, for ENIAC could store only twenty numbers in high-speed memory. But the stored program would not be implemented till ENIAC's successor machines were built.

Eckert had experimented with acoustic delay lines early on, drawing on those developed by William Shockley at Bell Laboratories. Now he and his staff investigated the possibility of developing mercury delay lines suitable for use as computer memory. This complex assemblage of mercury tanks, heating units, and electronic control circuitry became the basis of the principal memories in the next generation of computers at the Moore School and elsewhere. These included the EDSAC developed by Maurice Wilkes at Cambridge University (1949); the SEAC developed by Samuel Alexander at the National Bureau of Standards (1950); and the EDVAC, the second large computer built at the Moore School (1951). Eckert and Mauchly also used mercury delay lines in the BINAC (1949) and UNIVAC (1951), two computers they designed and built after leaving the Moore School to establish an independent company.

The idea of storing a program in the same high-speed memory unit as the numerical data, was a major innovation to emerge during ENIAC's construction. It was all too apparent that the manual wiring required to program ENIAC would present an enormous burden that had to be avoided. Before the summer of 1944, Eckert, Mauchly, and other members of the project staff discussed ways of setting up and controlling a computer automatically. In June, 1944, the world renowned mathematician, John von Neumann, joined with the ENIAC team to discuss the formal design of the next generation of computer systems. Most likely drawing upon an earlier version of the stored program concept developed by the famous British mathematician, Alan Turing, von Neumann laid out a formal description of the stored program concept as it might be realized in a high speed computer design. The result of his efforts was "The First Draft Report of the EDVAC Design," a document authored by von Neumann but based at least in part on ideas contributed by others.

In late 1944, the Army Ordnance Department granted a supplemental contract authorizing the Moore School team to begin work on the EDVAC, or Electronic Discrete Variable Automatic Computer.

ENIAC was completed too late to be used for its original purpose of calculating firing tables for artillery weapons. Instead, the first real task assigned to ENIAC during its test runs in 1945 involved millions of discrete calculations associated with top-secret studies of thermonuclear chain reactions—the hydrogen bomb. Nicholas Metropolis and Stan Frankel, both from the Los Alamos Scientific Laboratory, were sent to Philadelphia to set up and supervise the first set of nuclear physics calculations to be run on an all-electronic computer. The first set of calculations was executed on ENIAC in November of 1945, and subsequent calculations continued up through the time of ENIAC's formal dedication in February 1946.

While many military projects were terminated at the end of the war, ENIAC was not among them. The military's interest in high-speed computing and its use in the nuclear weapons development program ensured the Federal government's continued support of the nascent technology. At the same time, the computer's value for applications far different from problems associated with military weapons and national security came to be recognized by the military and others. A press release issued by the War Department on the occasion of ENIAC's dedication described "The Uses of Computers in Industry," with the computer seen as a means of accelerating economic growth and establishing civilian industries after a devastating war. Commercial uses for computing started to be introduced within a decade of ENIAC's development. Computer technology soon matured into a civilian industry whose growth has been astounding.

Today it is impossible to think of a world without computers or to imagine that the ideas from which these developed and that we take for granted might have been strenuously resisted in the past. The fact is that scientists and administrators involved were skeptical—and with good reason. Running through much that appears in the written record, and explaining some of the discrepancies in the recollections of the many people involved are large doubts as to whether computation by electronic machines would ever be a practical reality. If it seems barely credible today that scientists, engineers, and businessmen five scant decades ago might not at first have grasped the implication of the new technology this has been the case more often than not throughout history, throughout the course of human endeavor. Variations on the theme of "Who needs it?" are followed by the reasons why it can't be done. Examples of early responses to innovations that went on to change the modern world range from Lord Kelvin's observation that radio had no future to Harry M. Warner's skepticism about the market for talking movies. John Logie Baird was considered a lunatic, possibly dangerous, for claiming to have "a machine for seeing by radio." Even in the 1950s, Britain's Astronomer Royal dismissed the notion of space travel as "utter bilge."

During the 1950s, the demands of advanced weapons programs, scientific research and engineering development, and an expanding awareness of data processing applications laid the foundations for a civilian computer industry. The early leaders were the Univac division of Remington Rand Corporation and IBM. Remington Rand (later the Sperry Rand Corporation and now Unisys) acquired the Eckert-Mauchly Computer Corporation in 1950, and was the initial leader in the field. IBM, which introduced the IBM 701 in 1952, gained a predominant position in the computer industry by the mid-1950s, largely through sound product strategies and the efforts of their sales and marketing organizations. Other early manufacturers included Engineering Research Associates (ERA). In 1951, the ERA 1103 computer was actually the first computer system available on the open market. ERA was acquired by Remington Rand in 1951.

Critically important to the sales of early computers were their users. The computing needs of the advanced design efforts of military systems engineering firms, and particularly of the aviation industry in Southern California, provided a major impetus for the growth of IBM's business. The expanding bureaucracies of the federal government—whether in the military logistics and procurement operations of the USAF Air Material Command and the Office of Air Comptroller, or the records keeping of the Census Bureau, U.S. Patent Office, or the Social Security Administration—created a large market for data processing systems. Users also contributed by providing a market for computer systems as well as much-needed technical expertise in the early operation of computer systems. The 1950s saw a severe shortage of scientists and engineers, and computer companies had a hard time financing large programs of computer development. In this situation, volunteer users' associations, such as the IBM users' group SHARE (established in 1956), came up with much of the early applications and systems programming, along with hardware modification recommendations, that IBM's own technical staff was unable to provide.

Solid-state electronics, transistors, and integrated circuits were the revolutionary developments that made possible the miniaturization of computers and heralded the world of today. For a time, development was concentrated in the Northeast, where people like Ken Olsen, the founder of Digital Equipment Corporation where the first minicomputers were produced, contributed to the rapid growth and technical innovations of the industry. Then the action moved out west; the increased use of electronics in the U.S. had created regional pockets of distribution where integrated circuits and other electronic components could be picked up almost as easily as a case of Coca-Cola. Many other people, for whom computer components were as familiar as books, typewriters, or hand calculators, worked as hard as the first generation of computer pioneers to bring about the microcomputer revolution.

ENIAC is one in a long series of innovations that made possible the computing industry of today. Building on past insights and a range of prior work, such as the electronic ring counters designed by RCA, the ENIAC team was also inspired by other individuals, such as the Moore School faculty member, Irven Travis, one of those called up for military service, whose writings on ganged, mechanical adding machines greatly influenced Mauchly's first sketch of the ENIAC's architecture and brought him to Penn for the ESMWT course in the summer of 1941.

ENIAC's design also pointed boldly to the future, incorporating concepts and innovations that went well beyond those developed by earlier researchers and inventors. Regrettably, a dispute over the ENIAC patent soured the memories of many people associated with the ENIAC project and other efforts. The Atanasoff-Berry Computer was judged to be "prior art" by the court in 1973, thereby rendering invalid the ENIAC patent as filed by Eckert and Mauchly. The fiftieth anniversary of modern computing marks a time to recognize the common heritage and the wide range of contributions that so many creative individuals have made to the field of computing.

In planning their public demonstration in 1946, it occurred to Pres Eckert and the rest of the ENIAC team to place translucent spheres—ping-pong balls cut in half—over the neon bulbs that displayed the values of each of ENIAC's twenty accumulators. Ever since, the flashing lights of computers, often called electronic or giant "Brains" in the early years, have been part of the scene involving computers and science fiction. The development of computers has come a long way since ENIAC's lights first blinked on; but this is only the beginning. The societal transformation brought about by computers world wide has only just begun. The next years may well be even more exciting than those of the past 50 years.

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1 As special projects assistant to two Penn presidents, Dr. Winegrad has written articles and two histories about Penn, including *Gladly Learn and Gladly Teach* (University of Pennsylvania Press 1978), and *Through Time, Across Continents* (University Museum of Archaeology and Anthropology, 1993). She is now the director/curator of the University's Arthur Ross Gallery, which she helped establish.

Mr. Akera is a doctoral candidate in the Department of History and Sociology of Science at the University.

2 Incidentally, there is no relation to J. Presper Eckert.

3 Herman Goldstine, *The Computer from Pascal to von Neumann.* Second edition. Princeton University Press, 1993. First edition printed in 1972. 156.

Note: The Adobe Acrobat and HTML versions of A Short History of the Second American Revolution *contain changes not available in the print version.*

From Algeria to Zimbabwe

Internet Explorers Find Africa at Penn

COMPASS Feature

By Jerry Janda

Looking to make some contacts in Ethiopia? Writing a report on Togo? Searching for a Kenyan recipe? Then browse the Penn African Studies (PAS) Web Page (http://www.sas.upenn.edu/African_Studies/AS.html). With a few mouse clicks, you can access a wealth of information on Africa.

Originally planned as an academic database, the PAS page is a comprehensive source for anyone interested in Africa. Government employees, nongovernment organizations, students, teachers and others find the page useful. In fact, the Library of Congress considers the PAS page *the* main source for African studies.

Every month, more than a quarter of a million Internauts visit the PAS site. These browsers represent nearly 80 different countries, few of which, ironically, are on the African continent.

"Only a few places in Africa are connected to the Internet," explained Sandra Barnes, director of African studies. "AT&T is now laying fiber-optic cable around the whole continent."

The PAS page first went on-line in March of 1993. Julie Sisskind, a graduate student, designed the page at Dr. Barnes' request. Dr. Barnes expected it to take the shape of an electronic bulletin board. But she got much more than a BBS.

"I had envisioned it as information primarily for faculty and graduate students about jobs, opportunities to travel abroad in Africa, internships, language-study opportunities, fellowship opportunities—information for your general, run-of-the-mill Africanist," Dr. Barnes said. "I did not envision it as information about Africa for the general public."

Yet that's exactly what the page provides. "Julie went much further than I had ever anticipated—but much to my pleasure," Dr. Barnes said.

Since Ms. Sisskind is now doing doctoral research in Ethiopia, the Web page has been placed in the very capable hands of Ali Dinar, a native of Sudan who is experienced in African studies and the Internet. He also shares Ms. Sisskind's enthusiasm.

Photograph by Candace diCarlo

Dr. Ali Dinar (left) and Dr. Sandra Barnes meet regularly to discuss ways of improving the Penn African Studies Web Page.

"I knew he had the knowledge and the skills to succeed her," Dr. Barnes said. "I didn't anticipate that he would be as avid as she is. They both have incredible strengths in different dimensions, and they've both complemented each other in the building of the Web page. They're both jewels. And he really loves it—it's been a real labor of love."

Dr. Dinar's "labor" began in October of 1993, and over the last two years, he has witnessed an explosion of interest in the PAS page. During its first month, the site received 799 hits. In November of 1995, it received 262,808.

Why the dramatic increase? Dr. Dinar explains that a growing number of people are jacking into the Internet, and they're looking for the best on-line resources. And when it comes to providing information about Africa, no other Web site comes close to the PAS page.

"This was the first Web page of its kind in the world," Dr. Dinar offered. "We were the first to provide basic information for all African countries."

"There are other Web pages out there, but no one is as large, no one is as comprehensive," Dr. Barnes added. "We're trying to specialize in several things, one of which is indigenous knowledge. Another is development knowledge. Another is maps and images—visual materials. Another is K-12 teaching resources."

Fine-tuning the page is a daily duty. Dr. Barnes and Dr. Dinar meet regularly to discuss improvements. And they are always looking for ways to expand the site. So they keep their eyes—and ears—open.

"Monthly, there's a new African nation that comes on-line," Dr. Barnes explained, "and the minute they do, we hear about it and make connections."

Dr. Dinar is responsible for keeping the page current. He spends most of his time searching for new material. "My role is to maintain the Web page by adding resources and by contacting people from around the world to provide information," he said.

When Dr. Dinar isn't busy gathering information, he's busy giving it. He is inundated with hundreds of e-mail requests every week.

"He's determined to answer every person, which, to me, is so generous," Dr. Barnes said. "He spends hours."

No inquiry is too outlandish. "We get the most incredible requests for information," Dr. Barnes said, laughing. "A veterinarian from New Zealand once wrote and asked if we had heard about a world specialist from Sudan who specializes in the artificial insemination of camels."

Not only had Dr. Dinar heard of him, he quickly provided the vet with the specialist's fax number. "I said, 'Ali, how did you know that?' and he said, 'Oh, he's my nephew,' " Dr. Barnes continued.

The letters cramming Dr. Dinar's electronic mailbox aren't just from people with questions. Dr. Dinar also receives plenty of compliments. People are always thanking him for his assistance. And they praise the thoroughness of the PAS page.

Africanists who have created their own pages also send Dr. Dinar electronic correspondence. "They ask us to link to their sites," he said.

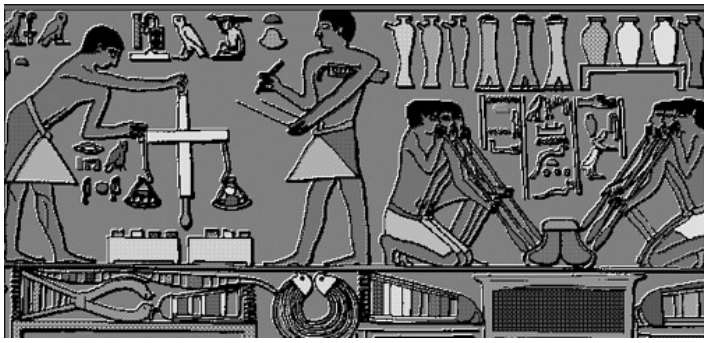
"People really want to be associated with our Web page," Dr. Barnes added. "They want to put their information on it. We actively go after information and knowledge bases, but people come after us, as well."

The PAS page may have developed an impressive reputation over the years, but that doesn't stop Dr. Barnes and Dr. Dinar from promoting it. They give talks and write reports, showing educators how they can use the Internet as a teaching tool. They have prepared presentations for the Department of Education, the University of Illinois, and African Studies Association conferences.

Through their efforts, Dr. Barnes and Dr. Dinar have generated positive publicity for their page, which is good for their program. It doesn't hurt Penn, either.

"The Web page has become famous—not just for African studies, but for the University," Dr. Dinar said.

The Penn African Studies Web Page not only offers information on African culture and countries, it boasts an impressive archive of images, as well. These and other images from the site's directory can be found at http://www.sas.upenn.edu/African_Studies/Home_Page/GIF_Images.html.

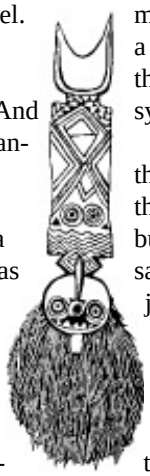


The Internet Brings Africa to Philadelphia Classrooms

Web vets are well-versed in the art of Internet travel. They can easily cruise through its labyrinth of links.

For newcomers, it's a different story.

Everyday, more people get caught up in the Web. And while they are anxious to surf the 'Net, they often manage only to get tangled in it. They cannot maneuver their mouses through the electronic maze.



Realizing that the World Wide Web is not always a user-friendly place, the African studies department has established a series of bimonthly seminars for K-12 teachers. At these sessions—which are held during the fall and spring semesters—Dr. Ali Dinar demonstrates how Philadelphia-area teachers can use the Internet to find resources on African studies.

Before Ali Dinar joined the African studies department, these K-12 meetings were informal and sporadic. Only a few teachers were invited to participate. But Dr. Dinar saw that a real opportunity was being missed. "It was not done systematically until I took over," he said.

The seminars provide teachers with thorough exposure to the Internet. They gain real "hands-on" experience. "We teach them how to use the Internet to find African studies resources, but then we also give them the resources," Dr. Sandra Barnes said. "They learn how to navigate using the technology." And, just in case they forget what they learn, the teachers are given pamphlets that describe everything in detail.

Between 10 and 16 Philadelphia school teachers attend every meeting. Dr. Dinar hopes that each educator walks away from the sessions with a new teaching tool. "We try to broaden their scope," he said.

Wheelchair Prototype Climbs to New Heights

COMPASS Features

By Sandy Smith

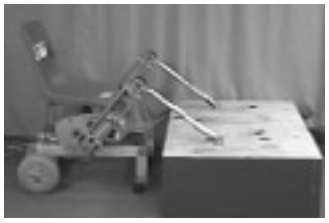
With governments and public agencies across the country scrambling to meet the requirements for wheelchair access mandated by the Americans with Disabilities Act, it's quite likely that some public official somewhere has wondered whether it would not be cheaper simply to build wheelchairs that could climb stairs and curbs.

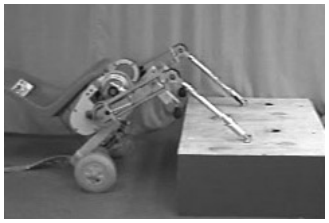
This was not an option at the time the ADA was passed. But a group of researchers in Penn's School of Engineering and Applied Science have been working on it.

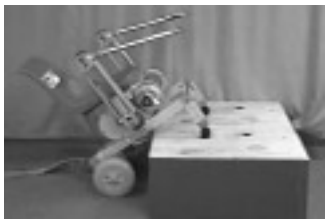
Their work is part of a larger field of research aimed at working around the most notable deficiency of wheeled vehicles: They cannot cross irregular terrain or surmount obstacles well. The engineers working in this field take their cues from nature, trying to design machines that can walk as nimbly as goats or spiders do.

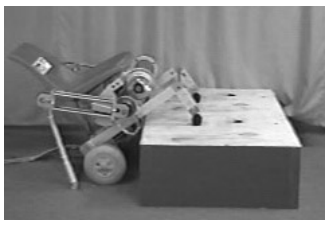
Vijay Kumar, associate professor of mechanical engineering, explained, "Insects and goats represent the ends of the spectrum of models for walking vehicles." Insects are rigid creatures whose legs, like those on a tripod, support their weight and keep their bodies stable as they walk. When goats walk, there is a brief unstable period when all their feet are off the ground, a trait that humans share.

The challenge in designing a chair that can "walk" over curbs is to get it to support its own weight in a stable fashion, so Dr. Kumar and his team opted for the insect model. That in turn gives rise to a new set of challenges, for, as Dr. Kumar put it, "The spider is perhaps the strongest creature on earth," with legs that can support hundreds of times their own weight. By comparison, it is difficult and expensive to design and build a legged vehicle whose legs can support even four times their weight. Wheels, on the other hand, easily bear heavy loads, and the principles of wheeled locomotion are well understood.









Courtesy of Venkat Krovi/GRASP Lab

So Dr. Kumar and his associates, working in Penn's General Robotics and Active Sensory Perception (GRASP) Lab, went to work on a hybrid: a four-wheeled, motorized wheelchair equipped with a pair of "legs." The first working prototype was completed two years ago, and a second prototype was completed last year in the GRASP Lab.

Actually, legs may not be the right term, for they function more like extensions of the arm. While the chair functions as an ordinary motorized wheelchair on dry flat surfaces, the legs help pull the chair along on slick or uneven surfaces, much like a pair of cross-country ski poles. When climbing a stair or curb, the legs act as crutches for the chair, first pulling the front end up, then rotating behind the chair to push its rear end onto the raised surface. When descending a stair or curb, the legs prop up the front end and gently lower it, then steady the rear as it descends.

In addition, the researchers envision the chair's legs eventually performing more of the functions we use our arms for, such as holding open a door for the chair to pass through or grasping and lifting objects, including the user: "The arms could also be used to help the user mount and dismount from the chair, giving a greater degree of independence," research assistant Venkat Krovi explained. Such functions require that the legs be able to rotate horizontally as well as vertically, which is a proposed modification.

The prototype has successfully scaled platforms as high as 12 inches in the lab, thus proving that the basic idea is sound. But there is still much work to do before the chair is ready for commercial adaptation. For instance, the vehicle itself will not tip over backwards, even with a rider, while climbing a foot-high step. As Mr. Krovi explained, "Motorized wheelchairs are designed to be heavy at the bottom to avoid tipping." But the rider's seat tilts back to an angle that causes discomfort. Mr. Krovi believes that this problem can be solved by mounting the seat on a semi-elliptical track so that it can slide forward or back as the base tilts, thus keeping the rider level.

Other problems that remain include incorporating the computerized controls for the arms on board the chair, and fitting the controls and batteries needed to power the chair under the seat.

Dr. Kumar and his research team have applied for and are about to receive a patent on their all-terrain wheelchair technology. Mr. Krovi reports that word of the technology has begun to spread among wheelchair users and rehabilitation-medicine professionals, thanks largely to information found on the World Wide Web (http://www.cis.upenn.edu/~venkat/wheel.html), which includes actual video footage of a curb climb (*see photographs*). But so far, there has been no interest expressed in developing it commercially. However, Mr. Krovi said, "We remain hopeful that some commercial enterprise will see the potential in this technology and seek to exploit it."

Penn Keeps Making the News

The University continues to increase overall visibility through the highest level of media contacts in recent history—both in the U.S. and international media. According to a study by the University of Southern California, Penn was ranked 5th in the number of national broadcast stories of all major private universities and 7th in the number of national print media stories of all major private universities. Following is a sample of recent news stories that mention Penn faculty.

The New York Times interviewed **Richard Gibboney**, GSE professor of public policy, for a lengthy report on the state of U.S. education, "Have Schools Failed?" An excerpt of Dr. Gibboney's remarks: "...our society has the schools it wants, ones that credential, certify, grade and sort people. But we're still tapping a small percentage of the brain power and emotional power that kids have. We're still boring them to death."

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Alan L. Hillman, the Leonard Davis Institute's director of the Center for Health Policy, was a guest on **ABC's Nightline** last month. Dr. Hillman, who is also associate professor of medicine and health-care systems, urged health-care consumers to become better informed about coverage when they join HMOs or managed-care plans.

Dr. Hillman was also quoted by **The Washington Post** on Jan. 19 in an article about companies that are more concerned about cost than quality when selecting employees' health plans.

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In a six-part series, "The Teen Age," **The Washington Post** devoted one article to interracial friendships among teenagers. The Post interviewed **Elijah Anderson**, professor of social science, who commented that the strong sense of ethnicity felt by many African-American teenagers makes them reluctant to seek friendships across racial boundaries. Dr. Anderson also discussed teen pregnancy in a story published by the **Houston Chronicle** on Dec. 17.

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The Washington Post noted a report in the Journal of the American Medical Association about a research study led by **Linda A. O'Brien**, a nurse and epidemiologist at Penn, and summarized the study in its Dec. 19 health section. In the first study of preferences about life-sustaining treatments, physically frail but alert patients who were capable of making decisions were asked about their choices of medical options. The researchers found that the majority of residents want cardiopulmonary resuscitation (CPR) in the event of cardiac arrest, while 33 percent would want to be fed through a gastrointestinal tube if they could not eat because of permanent brain damage.

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In articles published in both the **Houston Chronicle** and the **Chicago Sun Times**, Director of the Center for Bioethics **Arthur Caplan** criticized a new procedure that allows parents to choose the gender of their child before artificial insemination.

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The National Law Journal on Jan. 15 reported a ranking of the most prolific law-school faculties by the number of published articles per faculty member. Penn's Law School jumped from 26th place in a 1990 survey to 6th place in the latest survey, which covered the years 1988-1992. Penn trailed Chicago, Yale, Cornell, Harvard and Texas.

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With the dawn of another presidential election year, news producers are dialing **Kathleen Hall Jamieson**, dean of the Annenberg School for Communications. Within a three-day span last week, she was interviewed by **National Public Radio**'s "Weekend Edition" and by **CNN**'s "Inside Politics" about the value of ad-watching journalism and negative campaign ads. Then **CBS** tapped her to comment on President Clinton's State of the Union Address.

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Regina Austin, Penn law professor, was interviewed by **The Washington Post** for a story that ran on Sunday, Jan. 21, about economic development in inner cities. Professor Austin, who studies black economic development, was asked about ethnocentric marketing, specifically the sales of African-oriented artifacts and books that attact middle-class consumers and European tourists to Harlem. "I don't think black folks can prosper economically, socially or politically without having organs that create good communal feeling and support," she said.

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Penn faculty have recently appeared in several international media: **G. Anandalingam,** associate professor in the Department of Systems Engineering and a member of the graduate group of the South Asia Regional Studies department, was interviewed in December by **Pacifica Radio** about the ethnic conflict in Sri Lanka.

Dr. Anandalingam was asked to comment on the recent push by the predominantly Sinhala Sri Lankan army into Jaffna, the stronghold of the Tamil minorities.

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In early January, law professor **Geoffrey Hazard** commented on class-action suits in the **International Herald Tribune**, and **The Jerusalem Post** reported Wharton professor **Peter Linneman**'s predictions about the Israeli real-estate market.

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The London **Financial Times** has been featuring a number of Wharton professors in a 20-part management series. **David Schmittlein**, chairman of marketing, wrote an article about new strategies in marketing. **Peter Cappelli**, co-director of the Center for Human Resources and the National Center on the Educational Quality of the Workforce, addressed worker attitudes and productivity. Another piece mentioned Wharton's required community service program and quoted **Michael London**, director of the Wharton Undergraduate Leadership Program.

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The **Vancouver Sun** quoted **Peter Sterling**, professor of neuroscience, about his research on electric shock treatments. The **Tokyo Mainichi Daily News** reported a talk about Buddhist ideas on abortion and organ donation by **William LaFleur**, professor of Japanese studies.

Human Resources at Your Service:

Answers to Your Questions About Working at Penn

In order to keep Penn community members informed of University-wide policies and procedures, a regular column from the Division of Human Resources/ Staff Relations appears on these pages once a month. The column uses a question-and-answer format to explain both new and existing policies and procedures, and to answer specific questions from faculty and staff. Following are commonly asked questions about holidays, military duty and a staff member's introductory period.

University Holidays

Question: ***What are the official University holidays?***
Answer: Memorial Day, Monday, May 27, 1996; Independence Day, Thursday, July 4, 1996; Labor Day, Monday, Sept. 2, 1996; Thanksgiving Day, Thursday, Nov. 28, 1996; the day after Thanksgiving, Friday, Nov. 29, 1996; Christmas Day, Wednesday, Dec. 25, 1996; and New Year's Day, Wednesday, Jan. 1, 1997.

Question: ***Do I have to be at work the day before a holiday to be paid for the holiday?***
Answer: Staff members who are absent from work either the work day before a holiday, the work day after a holiday, or both days, will receive holiday pay provided that the absence is charged to preapproved vacation or personal days, or to sick days substantiated by a written note from the staff member's physician.

Military Duty

Question: ***Does the University have a policy for faculty and staff members who are in the National Guard or the U.S. Armed Forces Reserves?***
Answer: Yes, the University grants time off with pay for annual military duty provided the duty is obligatory to maintain military status.

Question: ***How much time would I be paid for?***
Answer: The maximum paid time allowed for annual duty is 10 work days per fiscal year. Any period of time in excess of the 10 days may be taken as vacation time or leave without pay with the approval of the supervisor or department head.

Question: ***What is the procedure for notifying my supervisor of my military duty?***
Answer: A completed "request for time off" form should be submitted to your supervisor at least two weeks prior to duty. The request should include departure and return dates, and must be accompanied by a copy of the official orders.

Question: *How do I receive compensation for my military duty?*
Answer: If military pay is less than University pay, the University pays the difference. In order to receive pay, the faculty or staff member must endorse the military pay check to the Trustees of the University of Pennsylvania and submit it to the departmental business administrator or designee. In addition, a certified statement of the military pay and allowances for the time off must accompany the check. Military pay does not include reimbursement for travel expenses.

Question: ***What happens if I do not turn in my military check?***
Answer: If the staff or faculty member does not submit the military pay, he or she will be charged vacation time equal to the time away from work.

Question: ***Does the University grant leave to staff members who wish to serve full-time in the military?***
Answer: Yes. A leave of absence of up to four years will be granted for full-time military service for staff members called or volunteering for military duty. The individual on military leave must apply for return to active University status within 90 days following discharge from active military duty. The department granting the leave is committed to return the staff member to active status in the same or comparable position, pay grade and salary within the department at the end of the leave.

Introductory Period

Question: ***What is the introductory period?***
Answer: The introductory period is the first four months of a new staff member's employment at the University. This period provides the supervisor with the opportunity to determine if the staff member meets the required standards for continued employment. During this time, the supervisor is encouraged to meet with the new staff member to communicate job responsibilities, expectations, procedures and overall job performance.

Question: ***Can I take time off during the introductory period?***
Answer: Staff members cannot use vacation, personal or floating days during the introductory period. If a staff member is sick during this time, accrued sick days may be used.

Question: ***How will I know if I have completed my introductory period successfully?***
Answer: Prior to the end of your introductory period, your supervisor should complete an "introductory appraisal form" and meet with you to discuss your job performance. In some cases the introductory period may be extended up to an additional two months to give the staff member more time to meet the expectations of the position.

If you have any questions regarding a Human Resource issue, please contact Human Resources at 898-6093 or e-mail us at askhr@pobox.upenn.edu.

Penn's internally-funded Research Foundation is in its 14th year as a source of support for faculty research across the University. Its Guidelines, printed semesterly in Almanac, can now be found on Penn Web year-round, both under Almanac and under the Vice Provost for Research. Awards given in last fall's round are in Almanac February 14, 1995; those given in Spring 1995 will be announced shortly.

The Research Foundation: Application Deadline March 15

The Research Foundation

Statement of Purpose

The Research Foundation encourages the exploration of new fields across a broad spectrum of disciplines. In doing so, the Foundation expands opportunities for faculty to attract support and resources from external sources while encouraging work in fields that are traditionally underfunded. The Research Foundation is principally for faculty.

The Foundation supports two levels of grants. The first level, Type A grants, provide support in the range of $500 to $5,000. The second level, Type B grants, provide support in the range of $5,000 to $50,000. The standard application for a Type A grant is briefer than that for a Type B grant, reflecting respective funding levels. However, the review criteria for Type A and Type B grants are similar, and several general factors are considered in evaluating an application for either type of grant. They are:

- Its contribution to the development of the applicant's research potential and progress.
- The quality, importance and impact of the proposed research project.
- Its potential value for enhancing the stature of the University.
- Its budget appropriateness in terms of the project proposed, including consideration of need and availability of external support.

The Application Process

The Research Foundation Board will review both Type A and Type B applications in the fall and spring of each academic year. Applications for the fall cycle are due on or before *November 1* of each year, while spring cycle applications are due on or before *March 15* of each year. All research projects involving human subjects or animals *must* receive Institutional Board approval *prior* to funding. Questions concerning humans/animal research should be directed to Ruth Clark at 898-2614. All research projects involving the use of hazardous or biohazardous materials must receive approval from the Office of Environmental Health and Safety (OEHS) prior to initiation of experimentation. Questions about this approval process should be directed to Harriet Izenberg at 898-4453.

An Original And Ten Copies of both Type A and Type B proposals should be submitted to the Office of the Vice Provost for Research, 212 College Hall/6381.

Type A Proposals should contain a brief description of the research and the specific needs which the grant will cover. The proposal should include:

I. Cover page(s)
   1. Name, Title, Department, School, Campus Mailing Address, Signatures of Department Chairperson and Dean.
   2. Title of proposal.
   3. Does the project utilize human subjects or animals?
   4. Does the project involve the use of any of the following:
      - potentially infectious agents including human blood, blood products, body fluids or tissues?
      - in vitro formation of recombinant DNA?
      - hazardous chemicals (acutely toxic chemicals, reproductive hazards, carcinogens)?
   5. Amount requested.
   6. 100-word abstract of need.
   7. 100-word description of the significance of the project for the educated non-specialist.
   8. Amount of current research support (including start-up packages).
   9. Other pending proposals for the same project.
   10. List of research support received during the past three years. Include funds from University sources such as schools, department, or Research Foundation. If you were funded by the Research Foundation in the last three years, please submit a brief progress report with publications and grants proposed or received (no more than one page).
   11. A one-page biographical sketch of the investigator(s) listing educational background, academic positions held, and five recent publications.

II. A back-up of the 100-word abstract in the form of a 3 or 4 page mini-proposal.

III. A budget list that justifies the specific items requested and assigns a priority to each item. Budgets should not exceed a two-year maximum time period.

Categories of Research Foundation support for Type A proposals will focus on:

- Seed money for the initiation of new research.
- Limited equipment requests directly related to research needs.
- Summer Stipends, with preference for applications from Assistant Professors.
- Travel expenses for research only.
- Publication preparation costs.

Type B Proposals are limited to ten single spaced pages in length. The following format is suggested for Type B proposals:

I. Cover Page(s)
   1. Name, Title, Department, School, Campus Mailing Address, Signatures of Department Chairperson and Dean.
   2. Title of proposal.
   3. Does the project utilize human subjects or animals?
   4. Does the project involve the use of any of the following:
      - potentially infectious agents including human blood, blood products, body fluids or tissues?
      - in vitro formation of recombinant DNA?
      - hazardous chemicals (acutely toxic chemicals, reproductive hazards, carcinogens)?
   5. Amount requested.
   6. 100-word abstract of need.
   7. Amount of current research support (including start-up packages).
   8. Other pending proposals for the same project.
   9. Listing of publications and research support, including titles, amounts, and grant periods, received during the past three years. Include funds from University sources such as schools, department, or Research Foundation.
   10. A brief curriculum vitae for the principal investigator.

II. Introduction (2 to 3 pages)
   Statement of the objectives and scholarly or scientific significance of the proposed work.

III. Methods of Procedure (3 to 4 pages)
   Description of the research plan and methodologies to be employed.

IV. Description of the significance and impact of the project.

V. Description of how a Research Foundation grant will facilitate acquisition of future research funds.

VI. Budget (one page) 2 year maximum. Each budget item should be listed in order of priority.

Categories of Research Foundation support for Type B proposals focus on several areas of need. These are:

- Matching funds, vis-a-vis external grant sources.
- Seed money for exploratory research programs.
- Support for interdisciplinary research initiatives.
- Faculty released time.

Requests for student tuition and dissertation fees will not be considered by the Foundation.

OPPORTUNITIES at PENN

Listed below are the job opportunities at the University of Pennsylvania. To apply please visit:

University of Pennsylvania Job Application Center
Funderburg Information Center, 3401 Walnut Street, Ground Floor
Phone: 215-898-7285

Application Hours: Monday through Friday, 9 a.m.-1 p.m.

Positions are posted on a daily basis, Monday through Friday, at the following locations:
Application Center—Funderburg Center, 3401 Walnut St. (Ground level) 9 a.m.-1 p.m.
Blockley Hall—418 Guardian Drive (1st Floor and 2nd Floor)
Dental School—40th & Spruce St. (Basement-across from B-30)
Houston Hall—34th & Spruce St. (Basement-near the elevators)
Wharton—Steinberg Hall-Dietrich Hall (next to Room 303)

Job Opportunities and daily postings can also be accessed through the Human Resources Home Page (http://www.upenn.edu/hr/). A position must be posted for seven (7) calendar days before an offer can be made. The Job Opportunities Hotline is a 24-hour interactive telephone system. By dialing 898-J-O-B-S and following the instructions, you can hear descriptions for positions posted during the last three weeks. You must, however, have a push-button phone to use this line.

The University of Pennsylvania is an equal opportunity employer and does not discriminate on the basis of race, color, sex, sexual or affectional preference, age, religion, national or ethnic origin, disability or veteran status.

WHERE THE QUALIFICATIONS FOR A POSITION ARE DESCRIBED IN TERMS OF FORMAL EDUCATION OR TRAINING, PRIOR EXPERIENCE IN THE SAME FIELD MAY BE SUBSTITUTED. POSITIONS WITH FULL DESCRIPTIONS ARE THOSE MOST RECENTLY POSTED.

ARTS AND SCIENCES

Specialist: Nancy Salvatore

ADMINISTRATIVE ASSISTANT III (0161NS) Under limited supervision, perform secretarial & administrative duties, handling highly confidential material for Department Chair & Business Administrator; act as receptionist for large & very busy department; secondary supervisor for work study students; act as computer liaison for the department. **Qualifications:** High school graduate & related post high school training or equivalent; at least two yrs. experience at the AAII level or comparable experience; thorough knowledge of office procedures; familiarity with word processing (WordPerfect) & other office equipment; strong written & oral communication skills. (*End date: 8/31/96*) **Grade:** G11; **Range:** $19,900-25,300 1-23-96 Romance Languages

BUSINESS ADMINISTRATOR III/IV (10513NS) P4/P5; $26,200-34,100/$28,800-37,600 1-5-96 Chemistry

COORDINATOR I (12668NS) (*Ongoing contingent upon funding*) P1; $19,700-25,700 1-8-96 English Language Program

COORDINATOR II (10465NS) (*Minority candidates are especially encouraged to apply*) P2; $21,700-28,200 10-12-95 CGS

COORDINATOR III (MEDIA COORDINATOR) (0109NS) P3; $23,900-31, 000 1-11-96 SAS Computing

INFORMATION MANAGEMENT SPECIALIST I (11589NS) P4; $26,200-34,100 11-24-95 SAS Computing

INFORMATION SYSTEM SPECIALIST I (11548NS) P3; $23,900-31,000 11-8-95 SAS Computing

PROGRAMMER ANALYST II (09318NS) P6; $31,900-40,600 9-12-95 IRIS

RESEARCH SPECIALIST, JR (12688NS) P1; $19,700 - 25,700 1-3-96 Biology

ADMINISTRATIVE ASSISTANT II/III (0110NS) G10/G11; $18,700-23,300/$19,900-25,300 1-12-96 Music

LAB ASSISTANT II (10514NS) G8; $15,700-19,600 10-31-95 Chemistry

OFFICE ADMINISTRATIVE ASSISTANT II (12687NS) G10; $18,700 -23,300 1-3-96 SAS Computing

SECRETARY V (0112NS) G10; $18,700-23,300 1-15-96 Office of the Dean

DENTAL SCHOOL

Specialist: Clyde Peterson

CLERK V (PRIMARY CARE UNIT GROUP) (12643CP) (*Work schedule: M-F, 9 a.m.-5:30 p.m., variable*) G8; $15,700-19,600 12-13-95 Clinic Mgmt.

CLINICAL RECEPTIONIST (40 HRS) (0123CP) (*Work schedule: 8:30 a.m.-5:30 p.m., possible Saturdays*) **Grade:** G8; **Range:** $17,943-22,400 1-17-96 Dental Care Center

DENTAL ASSISTANT I (40 HRS) (07098CP) G7; $16,571-20,686 7-24-95 Dental Medicine

DENTAL ASSISTANT I (40 HRS) (10429CP) G7; $16,571-20,686 10-5-95 Dental Care Center

RECEPTIONIST II (12629CP) G6; $13,600-16,700 12-6-95 Coleman Center

SCIENTIFIC EQUIP. STERILIZATION ATTENDANT (10459CP) G5; $14,286-17,486 10-11-95 IMS

ENGINEERING/APPLIED SCIENCE

Specialist: Clyde Peterson

SYSTEM PROGRAMMER II (08055CP) (*Ongoing Contingent on Funding*) P7; $35,000- 43,700 5-17-95 CIS/IRCS

ADMINISTRATIVE ASSISTANT III (11579CP) G11; $19,900-25,300 12-22-95 Bioengineering

EXECUTIVE VICE PRESIDENT

Specialist: Nancy Salvatore/Susan Curran

ASSOC. DIRECTOR, INFO. SYSTEM (11603NS) P11; $54,500-68,200 11-29-95 Internal Audit

AUDITOR, SR. INFO. SYSTEMS (12632NS) P8; $38,500-48,100 12-7-95 Internal Audit

AUDITOR, SR. INFORMATION SYSTEMS (12644NS) (12645NS) P8; $38,500-48,100 12-11-95 Internal Audit

AUDIT SPECIALIST (10502NS) P9; $42,300-52,900 10-27-95 Internal Audit

COORDINATOR III (0134NS) P3; $23,900 - 31,000 1-16-96 Public Safety

DIR., FINANCE & INFO. SYSTEMS (11614NS) P8; $38,500-48,100 11-30-95 Business Services

DIR., INTELLECTUAL PROPERTY (12673NS) P11; $54,500-68,200 1-5-96 Ctr. for Technology Transfer

DIRECTOR, START-UP BUSINESS DEVELOPMENT (12674NS) P10; $47,400-59,200 1-5-96 Center for Technology Transfer

MANAGER ACCOUNTING OPERATION II (11609NS) P8; $38,500-48,100 11-29-95 Comptroller's Office

OFFICE MANAGER I (0111NS) P1; $19,700-25,700 1-11-96 Publications

PROGRAMMER ANALYST II (11561SC) P6; $31,900-40,600 11-15-95 HRIM

ADMIN. ASSISTANT III (40 HRS) (09341NS) G11; $22,743-28,914 12-4-95 Executive Vice President

ADMIN. ASSISTANT III (37.5 HRS) (0132NS) G11; $21,321-27,107 1-15-96 Business Services

FINANCIAL SERVICES ASS'T. II (11615NS) G10; $18,700-23,300 12-1-95 Student Financial Services

TEACHER, CHILDREN'S CENTER (0133NS) (*Work schedule: variable, 7:30 a.m.-6 p.m. Center hours*) **Grade:** G11; **Range:** $19,900-25,300 1-15-96 Penn's Children Center

GRAD SCHOOL OF EDUCATION

Specialist: Clyde Peterson

ADMINISTRATIVE COORDINATOR (12683CP) P4; $26,200-34,100 1-4-96 CUE/C-FCDRE

ASSOCIATE DIRECTOR NCAL (08267CP) Blank 8-30-95 National Center on Adult Literacy

INFO. MGMT. SPECIALIST I (10490CP) P4; $26,200-34,100 10-20-95 GSE/Computing Resources

ADMINISTRATIVE ASSISTANT I/II (12681CP) G9/G10; $17,100-21,400/18,700-23,300 1-3-96 Philadelphia Writing Project

SECRETARY IV (12682CP) G9; $17,100 - 21,400 1-3-96 CFCDRE

GRAD SCHOOL OF FINE ARTS

Specialist: Clyde Peterson

PART-TIME (ADMINISTRATIVE ASSISTANT III) (28 HRS) (12637CP) G11; $10.934-13.901 12-8-95 Landscape Architecture

PART-TIME (OFFICE ADMINISTRATIVE ASSISTANT I) (24 HRS) (12631CP) (*End date: 6-30-96*) G9; $9.396-11.758 12-7-95 Architecture

LAW SCHOOL

Specialist: Clyde Peterson

ANNUAL GIVING OFFICER II (11582CP) P5; $28,800-37,600 11-22-95 Law Development

FINANCIAL ADMINISTRATOR II (0124CP) P4; $26,200-34,100 1-19-96 Dev./Alumni Relations

PART-TIME (ADMIN. ASS'T. II) (28 HRS) (05003CP) (*Ongoing contingent on funding*) G10; $10.275-12.802 6-8-95 Institute for Law & Economics

MEDICAL SCHOOL

Specialist: Ronald Story/Janet Zinser

PROGRAMMER ANALYST IV (0160JZ) Serve as the computer connection liaison for PennNet, HUPnet and the Wistar Institute, insuring multi-user, sharable connections; serve as the contact for all the information data processing needs with outside consultants, including FDA, NIH, SRA & other governmental groups; analyze needs, design solutions & programs necessary for specialized software, including network connections, sharable multi-user-files & connections to clinical data; implement virus-protection & disaster recovery methods; administer the local electronic mail & the file servers; work with research laboratories & the special service units to insure & develop computer interaction with laboratory equipment & to provide data storage; work with staff to develop computer

OPPORTUNITIES at PENN

image processing & graphic service; set up & perform regular training sessions, including developing user friendly documentation/training manual. **Qualifications:** BA/BS in computer science or equivalent, MS degree in biological sciences strongly preferred; Medical Informatics training & laboratory research experience preferred; six yrs. programming & systems experience including Macintosh networking & software experience; previous Macintosh training & consulting exp. pref.; demonstrated ability to support hardware & software, incl. various peripherals, operating systems & networking; ability to work independently & collaboratively; effective organization, communication & interpersonal skills.(*End date: 1/31/98*) **Grade:** P8; **Range:** $38,500-48,100 1-25-96 IHGT

RESEARCH COORDINATOR (0119RS) Assist in identification of protocol subjects; screen & obtain informed consent; enroll & interview subjects; educate patients about protocol; compile case forms; make twice weekly follow-up home phone calls to enrolled subjects; oversee completion of related components of study; physical exam, blood specimen. **Qualifications:** RN required; previous experience preferred; interviewing experience a plus. (*End date: One yr. from start date*) **Grade:** P3; **Range:** $23,900-31,000 1-24-96 CCEB

RESEARCH SPECIALIST JR./I (0118RS) Make cDNA constructs; run Northern & Southern blots; perform in situ hybridization; perform RT-PCR; run sequencing gels and make retroviral constructs; draft protocols; keep logs & write lab reports; oversee routine computer programming and data entry; demonstrate techniques to lower grade techs & students; attend group meetings; supervise student workers; monitor expenses and evaluate and maintain equipment; order supplies. **Qualifications: RES. SPEC. JR:** BA/BS in scientific or related field; exposure to lab work. **RES SPEC. I:** BA/BS in scientific or related field; one to three yrs. experience. (*On-going contingent upon grant funding*) **Grade:** P1/P2; **Range:** $19,700-25,700/21,700-28,200 1-12-96 Pathology & Lab Medicine

RESEARCH SPEC. I (0131RS) Develop a protocol for a small study of exercise in humans; carry out MR protocols and experiments; analyze data; help troubleshoot experimental problems; assist in preparation of manuscripts; assist in plan for protocol; research experimental design. **Qualifications:** BA/BS with science background; one to three yrs. exp. in a research lab. (*Work schedule: includes some weekends*) **Grade:** P2; **Range:** $19,700-25,700 1-15-96 Radiology

RESEARCH SPECIALIST I (0156RS) Assist residents & participate in surgical experiments; prepare for daily experiments; learn new medical related techniques & concepts; order supplies & equipment; conduct library searches; input computer data. **Qualifications:** BA/BS in science or related field; background in physiology helpful; one-three yrs. experience; experience on extracorporeal perfusion desirable. (*Ongoing contingent upon grant funding*) **Grade:** P2; **Range:** $21,700-28,200 1-23-96 Surgery/HDSR

RESEARCH SPECIALIST II (0130RS) Perform experiments in effect of genes on lipid metabolism and atherosclerosis using variety of techniques including somatic gene transfer, molecular & cell biology, nucleic acid purification, construction of recombinant vectors, tissue culture of mammalian cells, breeding, handling and dissection of rodent for harvesting and preparation of tissues, quantitative histologic analysis and photography of tissue specimen, various blotting techniques and hybridization; perform experiments and research using specific experimental design; implement and establish new protocols; analyze lab data; generate figures; write lab reports and papers; work closely with principal investigator; supervise and train other laboratory personnel. **Qualifications:** BA/BS in scientific field required; MS in scientific field preferred; three-five yrs. laboratory experience in working with recombinant DNA techniques, protein biochemistry, tissue culture and histologic techniques required; knowledge of molecular and cell biology and immunohistochemical and in situ hybridization techniques required; ability to work independently, excellent organizational and interpersonal skills; knowledge of computers required. (*Work schedule: M-F, 8 a.m.-5 p.m.*) (*End date: 1/31/98*) **Grade:** P3; **Range:** $23,900-31,000 1-15-96 IHGT

P-T (RESEARCH COORD.) (0119RS) Assist in identification of protocol subjects; screen & obtain informed consent; enroll & interview subjects; educate patients about protocol; compile case forms; make twice weekly follow-up home phone calls to enrolled subjects; oversee completion of related components of study; physical exam, blood specimen. **Qualifications:** RN required; previous exp. pref.; interviewing experience a plus. *(End date: One yr. of hire- 2/1/97)* **Grade:** P3; **Range:** $13,655-17,711 1-12-96 CCEB

CLERK IV (40 HRS) (0129JZ) Perform data entry for routine record keeping in database programs; provide general secretarial support to the IHGT Director & supervisor; assist with telephone coverage for the main telephone; provide telephone coverage for supervisor & other IHGT administrative staff as needed; perform photocopying, which will be heavy at times; maintain an inventory of office & kitchen supplies. **Qualifications:** High school graduate required; BA/BS preferred; at least eighteen months experience with word processing & database systems, Macintosh, MS Word & Excel preferred; solid phone experience & a professional/ courteous phone manner required; ability to handle multiple tasks simultaneously & excellent typing skills essential; strong background with word processing & database systems on a computer desired; individual needs to be organized & flexible. (*Work schedule: M-F, 9-6*) (*End date: 1/31/98*) **Grade:** G7; **Range:** $16,571-20,686 1-22-96 IHGT

RESEARCH LAB TECHNICIAN II (40 HRS) (0117RS) Under general supervision, perform relatively standardized lab procedural analysis and maintain lab supplies and equipment. **Qualifications:** High school graduate with some college course in related field; exposure to lab work. **Grade:** G7; **Range:** $16,571-20,686 1-12-96 Genetics

RESEARCH LAB TECHNICIAN III (0147RS) Under general supervision perform experiments using vaccinia virus; maintain cells in tissue culture, clone & sequence DNA & isolate protein for analyses; train in construction of recombinant vaccinia viruses using molecular biology techniques; demonstrated organizational & writing skills for data collection & document procedures and experimental results; conduct library searches. **Qualifications:** BA/BS with background in science; previous experience in tissue culture techniques in research lab; demonstrated ability to understand research protocols & documentation of results; must have intact immune system to be vaccinated; smallpox vaccination required. **Grade:** G10; **Range:** $18,700-23,300 1-18-96 Infectious Disease

RESEARCH LAB TECHNICIAN III (0159RS) Raise, maintain & organize zebrafish mutant stocks; raise rotifer & brain shrimp cultures; perform genetic & embryological manipulations of developing zebrafish embryos; order & maintain related supplies; perform general lab duties & library searches. **Qualifications:** BA/BS in biology, biochemistry or genetics; some laboratory experience preferred. **Grade:** G10; **Range:** $18,700-23,300 1-25-96 CDB

SCIENTIFIC EQUIPMENT STERILIZATION ATTENDANT(40 HRS) (0146RS) Operate autoclave to sterilize glassware; operate high temperature automatic washing machines; prepare glassware/equipment for washing; maintain materials supply; pick-up & deliver glassware. **Qualifications:** High school graduate or equivalent; some lab experience preferred; ability to lift 25lbs.; ability to follow detailed oral and written instructions. **Grade:** G5; **Range:** $14,286-17,486 1-18-96 Center for Experimental Therapeutics

TECH, PSYCH I (0105RS) Recruit patients; screen for eligibility; review patient charts; collect, enter and analyze project data; assist PI in problem-solving and trouble-shooting; assist PI in maintaining/administering records and preparing progress reports. **Qualifications:** BA/BS in scientific field; at least one year experience with research projects; familiarity with psychiatry or related field; able to enter data and write technical reports. **Grade:** G10; **Range:** $18,700-23,300 1-8-96 Psychiatry

ASSISTANT MANAGER II (05057JZ) P2; $21,700-28,200 5-18-95 Ophthalmology

CLINICAL SPECIALIST (11538RS) (*End date: pending funding*) P6; 31,900-40,600 11-9-95 Medicine/ Experimental Therapeutics

COORDINATOR III (12646JZ) P3; $23,900-31,000 12-14-95 Biomedicine Graduate Studies

FISCAL COORDINATOR II (11620JZ) (*End date: 12/31/97*) P2; $21,700-28,200 12-1-95 IHGT

MANAGER VI (11619RS) (*End date: 12/31/97*) P7; $35,000-43,700 12-1-95 IHGT

PROGRAMMER ANALYST I (11581JZ) P4; $26,200-34,100 11-22-95 Psychiatry

PROGRAMMER ANALYST III (10447JZ) P7; $35,000-43,700 10-25-95 General Medicine

PROGRAMMER ANALYST III (0120JZ) P7; $35,000-43,700 1-15-96 Psychiatry

PROJECT MANAGER II (10445RS) P7; $35,000-43,700 10-10-95 Cancer Center

REIMBURSEMENT ANALYST I (05104JZ) P6; $31,900-40,600 9-8-95 Medicine/Billing

RESEARCH COORDINATOR (10442RS) P3; $23,900-31,000 10-10-95 Cancer Center

RESEARCH COORDINATOR (11543RS) P3; $23,900-31,000 11-7-95 Pathology & Lab Medicine

RESEARCH COORDINATOR, SR. (06006RS) P4; $26,200-34,100 11-6-95 Radiation Oncology

RESEARCH INVESTIGATOR, SR. (11627RS) Blank 12-11-95 Pathology & Lab Medicine

RESEARCH SPECIALIST, JR. (10428RS) (*End date: 10/31/97*) P1; $19,700-25,700 10-6-95 IHGT

RESEARCH SPECIALIST I (08206RS) P2; $21,700-28,200 9-26-95 Medicine/Renal

RESEARCH SPECIALIST III (08240RS) P4; $26,200-34,100 9-7-95 Radiology

RESEARCH SPECIALIST III (11621RS) P4; $26,200-34,100 12-11-95 Cancer Center

RESEARCH SPECIALIST IV (10509RS) (*End date: 6/30/98*) P6; $31,900-40,600 10-30-95 IHGT

ADMIN. ASSISTANT I/II (11567JZ) G9/G10; $17,100-21,400/$18,700-23,300 11-30-95 Surgery/HDSR

ADMIN. ASSISTANT II(40 HRS) (11594JZ) G10; $21,371-26,629 11-30-95 Psychiatry

ADMIN. ASSISTANT III (37.5 HRS) (11596JZ) G11; $21,321-27,107 11-30-95 Continuing Med. Educ.

CLINICAL RECEPTIONIST(40 HRS) (11540JZ) G8; $17,943-22,400 12-8-95 Ophthalmology

OFFICE ADMIN. ASSISTANT I (0145JZ) G9; $17,100-21,400 1-18-96 Biomed. Graduate Studies

OFFICE ADMIN. ASST III (0128JZ) (*End date: 6/30/96*) G11; $19,900 - 25,300 1-16-96 Psychiatry

OPERATOR, COMP COMP II (09353JZ) G10; $18,700-23,300 9-19-95 CCEB

OPERATOR, DATA ENTRY (0127JZ) (*End date: 6/30/96*) G7; $14,500-18,100 1-15-96 Psychiatry

RESEARCH LAB TECHNICIAN III (40 HRS) (08174RS) G10; $21,371-26,629 8-8-95 Anesthesia

RESEARCH LAB TECHNICIAN III (09310RS) (*Ongoing contingent upon grant funding*) G10; $18,700-23,300 9-11-95 Pathology & Lab Medicine

RESEARCH LAB TECHNICIAN III (10475RS) (*Ongoing contingent upon grant funding*) G10; $18,700-23,300 10-16-95 Pathology & Lab Medicine

SECRETARY, SR. (05083JZ) G11; $19,900-25,300 10-26-95 Vice Dean for Education

P-T (COLLECTION ASSISTANT) (08276JZ) G10; $10.275-12.802 8-31-95 Ophthalmology

P-T (SCIENTIFIC EQUIPMENT STERILIZATION ATTENDANT) (20 HRS) (11622RS) G5; $6.868-8.407 12-1-95 Cancer Center

P-T (SUPERVISOR SOM SECURITY UNIT) (22 HRS) (11597JZ) (*Applicants pass a Police background security check; position considered essential*

OPPORTUNITIES at PENN

personnel) (*Work schedule: Sun.-Sat., 8 p.m.-8 a.m.*) G10; $10.275-12.802 12-1-95 Arch. & Fac. Mgmt.

NURSING

Specialist: Ronald Story

PROJECT MANAGER (0108RS) Supervise research and community-based staff to ensure fidelity of research implementation and coordinate multifaceted research activities; manage and supervise participants recruitment, retention, tracking procedures; develop and implement a protocol for managing intervention sessions and data collection; exercise resource stewardship; ensure compliance with related University policies and procedures. **Qualifications:** Master's degree in nursing, psychology, public health, social work, business administration or related field, with five or more yrs. of professional experience working in African American communities; driver's license, access to car, ability to work on Saturday's and proficiency with Macintosh computers required. **Grade:** P7; **Range:** $35,000-43,700 1-12-96 Nursing

RESEARCH SPECIALIST IV (0107RS) Develop intervention curriculum to reduce the risk of HIV infection, unintended pregnancy, heart disease and cancer; design training manuals, train and supervise facilitators. **Qualifications:** Master's Degree in Education, Psychology, Public Health, Nursing, or related field and four or more years of professional experience working in African American Communities; a valid drivers license, access to car; proficiency with Macintosh computers; *must be able to work some Saturdays.* **Grade:** P6; **Range:** $31,900 - 40,600 1-16-96 Nursing School

PART-TIME (ADVANCE PRACTICE NURSE) (20 HRS) (0149RS) Provide gerontologic nursing consultation to hospital and nursing staff, patient-subjects & their families; promote high quality individualized care with/without minimum usage of physical restraint; act as liaison between nursing home and hospital staff; deliver education programs to hospital staff regarding quality gerontological care. **Qualifications:** Master's degree in nursing with speciality in gerontology preferred; one yr. post-MSN degree in advanced practice role; two yrs. experience in hospital experience as nurse. (*End date: 5/97*) **Grade:** P9; **Range:** $24,170-30,233 1-22-96 Nursing

ADMINISTRATIVE ASSISTANT II (12685RS) Organizes the administrative aspects of the HIV Prevention Mothers and Sons research project including coding, entering and verifying data, assisting with data collection, preparing, editing and administering questionnaires and materials using the Macintosh computer; develops, organizes and maintains research data filing systems both hard copy and electronic; interprets standard policies and procedures in response to questions; coordinates office workflow to ensure optimal administrative functioning of the research office and its interface with other departments in the school and university and with the community; disseminates national HIV curriculum materials, conducts appropriate follow-up and maintains contact with various national committees for Principal Investigator; schedules meetings, types correspondence, answers telephones, conducts literature searches, maintains supplies and equipment. **Qualifications:** Completion of high school business curriculum and related post high school training or equivalent; BA/BS in health related field preferred; at least two years work experience at the AAI level or comparable background with two or more years general work experience with African American communities; thorough knowledge of office procedures, practices, computers and office equipment; excellent organizational skills with the ability to maintain a high standard of accuracy and attention to detail in processing and verifying research data; strong interpersonal skills in developing and maintaining relationships with research team and participants; self-starter with demonstrated initiative and responsibility; driver's license and/or access to car, proficient skill with Macintosh computers preferred; understanding of African-American culture and experience with culturally diverse populations desired; *both male and female minority candidates are encouraged to apply; ability to work some Saturdays* (End date: 9/30/2000) **Grade:** G10; **Range:** $18,700-23,300 1-4-96 Nursing

SECRETARY IV (12684RS) Provides secretarial support for the HIV Prevention Mothers and Sons research project including compiling, coding, entering and verifying data using the Macintosh computer. Assists with data collection including preparing, assembling and administering questionnaires and materials for the project intervention sessions; organizes and maintains research data filing systems both hard copy and electronic; responds to standard inquiries regarding policies and procedures; types and proofreads correspondence and materials for mass mailings, answers telephones, conducts literature searches, copies and faxes materials as needed. **Qualifications:** Completion of high school business curriculum and related post high school training or equivalent; BA/BS in health related field preferred; at least two years work experience at the Secretary III level or comparable background with one or more years general work experience with African American communities; knowledge of office procedures, practices, computers and office equipment; strong organizational skills; ability to maintain a high standard of accuracy and attention to detail in processing and verifying research data; strong interpersonal skills in developing and maintaining relationships with research team and participants; driver's license and/or access to car, proficient skill with Macintosh computers preferred; understanding of African-American culture and experience with culturally diverse populations desired; *both male and female minority candidates are encouraged to apply; ability to work on Saturdays* (End date: 9/30/2000) **Grade:** G9; **Range:** $17,100 - 21,400 1-4-96 Nursing

PART-TIME (SECRETARY IV) (21 HRS) (0140RS) Answer and screen calls; handle wide of variety of routine requests and inquiries from students, parents, staff and external contacts and follow-up; type/proofread standard and complex/confidential materials such as correspondence, grants, reports, manuscripts; agendas and minutes; maintain Assistant Dean's calendar; arrange appointments, conferences, meetings and other special events; make travel and lodging arrangements; develop and maintain electronic and hard copy filing systems. **Qualifications:** High school graduate and related post high school secretarial training; two yrs. secretarial experience; excellent wordprocessing and communication skills are needed; ability to type at least 55 wpm; experience with both IBM & MAC wordprocessing software. **Grade:** G9; **Range:** $9.396-11.758 1-18-96 Nursing

INFORMATION MANAGEMENT SPECIALIST II (11580RS) P6; $31,900-40,600 12-1-95 Nursing

PRESIDENT

Specialist: Susan Curran/Janet Zinser

ASSISTANT DIRECTOR IV/ASSOCIATE DIRECTOR V (12653JZ) P5/P7; $28,800-37,600/$35,000-43,700 12-14-95 Development & Alumni Relations

ASSOCIATE DIRECTOR INDIVIDUAL GIFTS (09366JZ) P7; $35,000-43,700 9-21-95 Development & Alumni Relations

DEVELOPMENT OFFICER II (07082JZ) P10; $47,400-59,200 7-19-95 Dev. & Alumni Relations

DIR. ALUMNI RELATIONS(09309JZ)P11; $54,500-68,200 9-7-95 Development & Alumni Relations

DIR. DEVELOPMENT RESEARCH (11585JZ) P8; $38,500-48,100 11-22-95 Dev. & Alumni Relations

DIRECTOR, UNIVERSITY COMMUNICATIONS (10473SC) Blank 10-18-95 University Relations

EDITOR, ALUMNI MAGAZINE (11572JZ) P9; $42,300-52,900 11-16-95 Dev. & Alumni Relations

EXECUTIVE DIRECTOR RESOURCE, PLANNING & BUDGET (09344SC) Ungraded; Blank 9-14-95 Office of the President

PROGRAMMER ANALYST I (08194JZ) P4; $26,200-34,100 8-11-95 Development & Alumni Relations

PUBLICATIONS DESIGN SPECIALIST (10449JZ) P5; $28,800-37,600 10-10-95 Development & Alumni Relations

SENIOR WRITER (11584JZ) P7; $35,000-43,7000 11-22-95 Development & Alumni Relations

STAFF WRITER II (04062JZ) *(Two Writing Samples Must Accompany Application)* P3; $23,900-31,000 4-24-95 Development and Alumni Relations

PROVOST

Specialist: Clyde Peterson

COORDINATOR V (0151CP) Organize & manage the work of the Collegiate Planning Board; design & implement four collegiate projects for fall 1996; assist the faculty chair; identify & plan initiatives for the next phase of collegiate development; coordinate & provide support for other 21st Century projects, such as the Electronic Oversight Committee, Admission Committee, Committee on Research, Working Group on Service-Oriented Academic Programs, Curriculum Committee & Foreign Language Across the Curriculum; serve as a resource person & liaison to the Council of Undergraduate Deans regarding the 21st Century Project; work closely with the Provost to develop & implement an overall strategic plan for the 21st Century Project which includes timeliness for implementation, funding requirements & preparation of written materials. **Qualifications:** BA/BS degree & college teaching experience or equivalent; four-six yrs. professional experience; strong commitment to undergraduate teaching, student advising & scholarly activities; candidates having a current academic ap-

Classifieds

FOR SALE

E. Lansdowne $79,900. Renovated twin with great space. First floor family room, 2 car garage, fenced yard, new roof and much more. Close to Philadelphia, 10 minutes to U. of P. Walk to transportation and shops. (610) 622-7391 Leave message.

Wilmington - 50 min. from Penn. 4 BR, 3 BA colonial in quiet suburban area on 1/2 acre. $194,000. Call 898-3632 (days), (302) 239-4742 (eves.)

FOR RENT

Luxury Condo for rent. The Academy House - 3 BR (3rd BR converted into DR), 2.5 baths, 1550 sq. ft. Very high wrap-around corner floor, panoramic view of Delaware and bridges, doorman/concierge/porter, health club/pool/Jacuzzi/sauna, new appliances, central convenient location. $1,985 (including all utilities)/month + s/d. Nonsmokers preferred. (215) 790-9798.

VACATION

Pocono Chalet, 3 bedroom, one bath. Near Jack Frost/BB. Firewood incl. $350/weekend. (215) 573-9048.

SUBJECTS NEEDED

Healthy people ages 40 to 60 are needed for a three night sleep study. Study will not interfere with daytime job. Volunteers will be compensated. Call Dr. Richard Ross at (215)823-4046 for information.

Note: Classifieds are accepted and compiled at the offices of The Compass. Call 898-8721 for rates and procedures.

OPPORTUNITIES at PENN

pointment at Penn preferred; knowledge of & participation in 21st Century Project helpful. **Grade:** P5; **Range:** $28,800-37,600 1-25-96 Provost's Office

P-T (LIBRARIAN II) (0141CP) (20 HRS) Process & catalog manuscript & archival materials under the direct supervision of Curator of Manuscripts; sort & provide elementary preservation, archival housing & bibliographic description of recently acquired materials; participate in retrospective conversion of manuscript holding; enter AACRII cataloging records in RLIN & prepare manuscript registering using a PC; provide reference service; participate in departmental events. **Qualifications:** ALA-accredited MLS or equivalent in knowledge or experience; graduate degree preferred; minimum two yrs. professional experience in manuscript/archival work; experience with online cataloging in MARC format preferred; PC literate; working knowledge of at least two foreign languages; excellent written & oral communication skills required; broad knowledge of Western culture & contemporary research interest desirable; previous supervisory experience helpful. **Grade:** P5; **Range:** $16,453-21,486 1-26-96 University Libraries

ASSISTANT COACH I (07132CP) P3; $23,900-31,000 7-28-95 DRIA

CHAPLAIN (08247CP)Ungraded 8-23-95 Provost's Office

COORDINATOR IV (0122CP) P4; $26,200-34,100 1-15-96 ULAR

INFORMATION SYSTEMS SPECIALIST I (12659CP) (*May involve some evenings or weekends hours*) P3; $23,900-31,000 12-19-95 CRC

JUDICIAL INQUIRY OFFICER (12665CP) P8; $38,500-48,100 12-21-95 Provost's Office

PROGRAMMER ANALYST II (09365CP) P6; $31,900-40,600 9-21-95 IRHE

RESEARCH SPECIALIST IV (08303CP) P6; $31,900-40,600 9-7-95 LRSM

SYSTEMS ANALYST II (11558CP) P7; $35,000-43,700 11-10-95 UMIS

SYSTEMS PROGRAMMER IV (12633CP) P9; $42,300-52,900 12-7-95 DCCS

TECH. TRAINING SPECIALIST (06085CP) P5; $28,800-37,600 6-21-95 Tech. Learning Services

VICE PROVOST FOR RESEARCH (08248CP) Ungraded 8-25-95 Provost's Office

ADMIN. ASSISTANT III (11611CP) G11; $19,900-25,300 11-29-95 University Libraries/Reference

ADMINISTRATIVE ASSISTANT III (12675CP) G11; $19,900-25,300 1-3-96 Undergraduate Admissions

ADMINISTRATIVE ASSISTANT III (12676CP) G11; $19,900-25,300 1-3-96 Undergraduate Admissions

AIDE LAB ANIMAL (40 HRS) (07016CP) (07017CP) (*May include shifts other than M-F, overtime, weekends and holiday work*) G5; $14,286-17,486 7-10-95 ULAR

EDITORIAL ASSISTANT I (10461CP) G10; $18,700-23,300 10-16-95 University Press

SEC. IV (11606CP) G9; $17,100-21,400 12-6-95 Student Dispute Resolution Center/Judicial Inq. Office

TECH, ELECTRONIC III (03006CP) G11; $19,900-25,300 3-3-95 DCCS

TECH, VET II (40HRS) (12658CP) (*Work schedule: 7:30-4:30 p.m., may include weekends, holidays & overtime*) **Grade:** G10; **Range:** $21,371-26,629 12-21-95 ULAR

P-T (ADMIN. ASS'T I) (20 HRS) (10507CP) G9; $9.396-11.758 10-27-95 Special Collections-University Libraries

P-T (PHOTOGRAPHER I) (20 HRS) (11605CP) G7; $7.967-9.945 11-29-95 University Libraries-Fine Arts/Slide Collections

VETERINARY SCHOOL

Specialist: Nancy Salvatore

RESEARCH SPEC. JR/ I (12671NS) P1/P2; $19,700-25,700/ 21,700 -28,200 1-3-96 Clinical Studies

RESEARCH SPECIALIST I (12680 NS) P2; $21,700-28,200 1-3-96 Pathobiology

RESEARCH SPECIALIST I (08190NS) P2; $21,700-28,200 8-11-95 Pathobiology

STAFF VETERINARIAN (07101NS) (*Position in Kennett Square, PA; no public transportation)* Blank 7-25-95 Clinical Studies-NBC

LAB ASSISTANT II (09327NS) G8; $17,943-22,400 9-13-95 VHUP-CLM

LARGE ANIMAL ATTENDANT I (40 HRS) (0148NS) (*Position in Kennett Square, PA; no public transportation*) G5; $14,286-17,486 1-19-96 Large Animal Hospital

RESEARCH LAB TECHNICIAN III (40 HRS) (06040NS) (*Position in Kennett Square, PA; no public transportation*) G10; $21,371-26,629 6-12-95 Clinical Studies/NBC

RES. LAB TECH. III (40 HRS) (07100NS) (*Position in Kennett Square, PA; no public transportation)* G10; $21,371-26,629 7-25-95 Clinical Studies-NBC

SEC'Y IV (40 HRS) (0144NS) (*Schedule: M-F, 8:30 a.m.-5 p.m.*) G9; $19,543-24, 457 1-18-96 Fac. Mgmt.

SECRETARY V (11532NS) G10; $18,700-23,300 11-7-95 Small Animal Hospital

TECH, HISTOLOGY I (0121NS) (*Work schedule: 8 - 4*) G7; $14,500-18,100 1-15-96 Pathobiology

TECH, VET. I/II (40 HRS) (09328NS) (*Work schedule: rotating/ nights/weekends*) G8/G10; $17,943-22,400/$21,371-26,629 9-13-95 VHUP

TECH, VET I/II (40 HRS) (0142NS) (0143NS) (*Position located in Kennett Square, PA; no public transportation available*) G8/G10; $17,943-22,400/ $21,371-26,629 1-18-96 Large Animal Hospital

VICE PROVOST/UNIVERSITY LIFE

Specialist: Clyde Peterson

ADMINISTRATIVE ASSISTANT I (0139CP) Provide administrative & clerical support for the Greenfield Intercultural Center, which includes preparing weekly reports on fiscal/payroll activity; receive, distribute & process materials coming into center; maintain computerized office system; arrange & coordinate schedule for events & meetings; train & supervise work study staff; compile & summarize data for reports. **Qualifications:** High school graduate, related post high school training or equivalent; at least two yrs. clerical and/or secretarial experience or equivalent; knowledge of office procedures; computer experience in DOS, Filemaker Pro, WordPerfect, Excel preferred; organized, excellent oral and communication skills; experience in working in a culturally diverse setting preferred. **Grade:** G9; **Range:** $17,100-21,400 1-22-96 Greenfield Intercultural Center

MASON (0138CP) Install ceramic tile, vinyl tile, cove base, sheetrock, brick & block; prepare surfaces for painting, caulking & waterproof; remove brick, block & sheetrock for access to mechanical, plumbing & other operating equipment. **Qualifications:** High school graduate or equivalent; graduation from recognized masonry training school or apprenticeship program; minimum three yrs. experience as journeyperson mason; ability to climb & to lift 50 lbs.; valid driver's license preferred. **Grade/Range:** Union 1-22-96 Residential Maintenance

PAINTER (0135CP) Prepare surfaces for painting, mix paint; paint interior & exterior surfaces; stain, seal and varnish surfaces; remove & replace broken glass. **Qualification:** High school graduate or equivalent; graduation from a recognized painting training school or apprenticeship program; minimum three yrs. experience as journeyperson painter; ability to climb & to lift 50 lbs.; valid driver's license preferred. **Grade/ Range:** Union 1-22-96 Residential Maintenance

STEAMFITTER (0136CP) Test, repair & replace high & low pressure piping on pumps, heat exchangers & hot water generators; clean, repair & replace heating & cooling coils; install & maintain flow metering devices; must be familiar with & adhere to task related safety standards & procedures. **Qualifications:** High school graduate or equivalent; graduation from a recognized HVAC technical school or apprenticeship program; minimum three yrs. experience as journeyperson steamfitter; ability to climb & to lift 50 lbs.; valid driver's licensed preferred. **Grade/Range:** Union 1-22-96 Residential Maintenance

ASSISTANT DIRECTOR RESIDENTIAL MAINTENANCE (07043CP) (*End date: 6/30/97)* P6; $31,900-40,600 7-13-95 Residential Maintenance

ASS'T MANAGER RADIO STATION (0101CP) *(End Date: 12/31/96)* P6; $31,900-40,600 1-3-96 WXPN

DIR., FRATERNITY & SORORITY AFFAIRS (12651CP) P8; $38,500-48,100 12-13-95 VPUL

UPWARD BOUND COUNSELOR (12650CP) (*Work schedule: Tuesday-Saturday*) (*End date: Grant supported, ongoing continuation contingent on funding*) P3; $23,900-31,000 12-13-95 Department of Academic Support

OFFICE ADMINISTRATIVE ASST III (0137CP) G11; $19,900-25,300 1-16-96 International Programs

WHARTON SCHOOL

Specialist: Janet Zinser

SECRETARY IV (0153JZ) Type & proofread standard & complex confidential material, including mathematical examinations & manuscripts; develop/maintain record & filing systems; schedule/coordinate appointment, meetings conferences; pick-up, distribute & screen mail; handle inquiries requiring some interpretation of policies/procedures; suggest & implement changes in office procedures; compose routine correspondence & forms. **Qualifications:** Completion of high school business curriculum & some related post high school training or equivalent; at least two yrs. secretarial experience; ability to type 55 wpm; experience with word processing packages & office automation equipment; strong oral & written communication skills. **Grade:** G9; **Range:** $17,100-21,400 1-23-96 Statistics

DIR. VII (11535JZ) P10; $47,400-59,200 11-8-95

INFORMATION MANAGEMENT SPECIALIST II (12678JZ) P6; $31,900-40,600 1-3-96 WCIT

INFORMATION SYSTEMS SPECIALIST I (12638JZ) P3;**:** $23,900-31,000 12-11-95 WCIT

MAJOR GIFT OFFICER I/II (11549JZ) (11550JZ) P7/P8; $35,000-43,700/$38,500-48,100 11-10-95 External Affairs

PROGRAMMER ANALYST I/II (09354JZ) P4/P6; $26,200-34,100/$31,900-40,600 9-19-95 WCIT

PROGRAMMER ANALYST II (09387JZ) P6; $31,900-40,600 9-28-95 Statistics

PROGRAMMER ANALYST II/III (10528JZ) P6/P7; $31,900-40,600/$35,000-43,700 11-8-95 WCIT

SYSTEMS PROGRAMMER I/III (0126JZ) P6/P8; $31,900-40,600/$38,500-48,100 1-15-96 WCIT

TECH WRITER (09417JZ) (*Final candidates may be asked to submit writing sample*) P6; $31,900-40,600 10-4-95 External Affairs

TECH, WRITER/EDITOR (09419JZ) (*Final candidates may be asked to submit writing sample*) P8; $38,500-48,100 10-4-95 Deputy Dean

ADMINISTRATIVE ASSISTANT II (12630JZ) G10; $18,700-23,300 12-5-95 Finance

EXEC. SECRETARY (N/E) (40 HRS) (12628JZ) G12; $25,371-32,686 12-5-95 Dean's Office

EXECUTIVE SECRETARY (N/E) (37.5 HRS) (0125JZ) G12; $23,786-30,643 1-15-96 Steinberg Conference Center

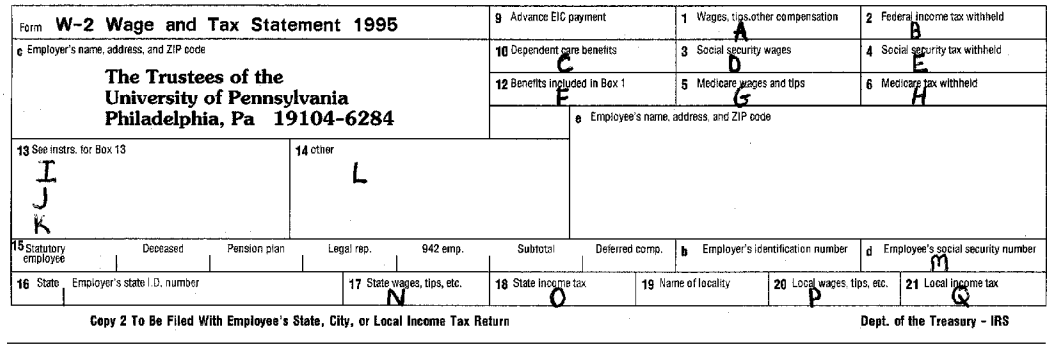
OPERATOR, DUPLICATING MACHINE IV (10529JZ) (*No vacation will be approved during August, September, December and January*) (*Overtime is a requirement of this position*) (*Work schedule: 5 p.m.-1 a.m.*) G10; $18,700-23,300 11-3-95 Wharton Reprographics

LIMITED SERVICE (AUDIO/VISUAL TECH I/II) (07105JZ) G10/G11; $18,083-22,532/$18,945-24,085 12-8-95 Classroom Support Services

RECEPTIONIST III (40 HRS) (12679JZ) G8; $ 17,943 - 22,400 1-3-96 Development Services

P-T (ADMIN. ASS'T. I) (25 HRS) (11616JZ) G9; $9.396-11.758 12-1-95 Wharton Communications

The W-2 Form for Calendar Year 1995



Form **W-2 Wage and Tax Statement 1995**

c Employer's name, address, and ZIP code

The Trustees of the University of Pennsylvania Philadelphia, Pa 19104-6284

9 Advance EIC payment

1 Wages, tips, other compensation — A

2 Federal income tax withheld — B

10 Dependent care benefits — C

3 Social security wages — D

4 Social security tax withheld — E

12 Benefits included in Box 1 — F

5 Medicare wages and tips — G

6 Medicare tax withheld — H

e Employee's name, address, and ZIP code

13 See instrs. for Box 13 — I J K

14 other — L

15 Statutory employee | Deceased | Pension plan | Legal rep. | 942 emp. | Subtotal | Deferred comp.

b Employer's identification number

d Employee's social security number — M

16 State | Employer's state I.D. number

17 State wages, tips, etc. — N

18 State income tax — O

19 Name of locality

20 Local wages, tips, etc. — P

21 Local income tax — Q

Copy 2 To Be Filed With Employee's State, City, or Local Income Tax Return

Dept. of the Treasury - IRS

The University has recently mailed over 26,000 Calendar Year (CY) 1995 W-2 Forms to our employee's home addresses as they appear on the current Payroll File (Employee Data Base). Accordingly, it is now appropriate to publish an explanation of some of the amounts and other data that appear on your W-2 Form in order to assist you in preparing your Federal and State Income Tax Returns.

An explanation of the contents of the various boxes on the form is as follows:

A. Wages, tips, other compensation: this represents the total amount of Federal Taxable compensation paid or imputed to you during calendar year 1995 through the University Payroll System.

This amount includes:

a. The value of your taxable graduate and/or professional tuition benefits, if you, your spouse and/or your dependent children have received such benefits;

b. The value of Group Life Insurance coverage for amounts greater than $50,000. The premium payments for this excess coverage, if any, have been included as imputed income (see Excess Insurance Premium below);

c. Certain other fringe benefits relating to imputed income are included here as well. If you have received any of these benefits, you will be or were contacted individually concerning their taxability.

Amounts which are excluded from this amount are:

d. Tax-deferred annuity contributions (i.e., TIAA/CREF);

e. Health and Dental insurance premiums that have been sheltered;

f. Amounts voluntarily contributed to a dependent care or medical reimbursement account.

B. Federal income tax withheld: this represents the amount of Federal Income tax which was withheld from your earnings during the year and paid to the Internal Revenue Service, on your behalf, by the University.

C. Dependent care benefits: this represents the total amount which you have voluntarily "sheltered" for dependent care expenses, regardless of whether you have been reimbursed by the University for the expenses associated with this "shelter" as of December 31, 1995.

D. Social security wages: this represents the total amount of compensation paid to you during calendar year 1995 which was subject to Social Security (FICA/OASDI) tax, including all of your tax-deferred annuity contributions and excess life insurance premiums, if applicable, but excluding health and dental insurance premiums and any voluntary dependent care or medical reimbursement account contributions which you have "sheltered."

E. Social security tax withheld: this represents the total amount of Social Security (FICA/OASDI) tax which was withheld from your earnings during the year and paid to the Social Security Administration, on your behalf, by the University.

F. Benefits included in Box 1: if you have received certain fringe benefits, the value of such benefits is shown here, and is also included in Box 1, Wages, tips, other compensation. These benefits include the value of taxable graduate and/or professional tuition benefits and other benefits relating to imputed income. If you have received any of these benefits the University has recently advised you, individually and personally, concerning their taxability; please refer to those communications specifically.

G. Medicare wages and tips: this represents the total amount of compensation paid to you during calendar year 1995 which was subject to Medicare tax, including all of your tax-deferred annuity contributions and excess life insurance premiums, if applicable, but excluding health and dental insurance premiums and any voluntary dependent care or medical reimbursement account contributions which you have "sheltered."

H. Medicare tax withheld: this represents the total amount of Medicare tax which was withheld from your earnings during the year and paid to the Social Security Administration, on your behalf, by the University.

I. Excess insurance premium: the Internal Revenue Service requires that the premiums paid by an employer for group life insurance coverage in excess of $50,000 be imputed as income to the employee. The amount which appears in Box 13 and labeled (C) is the value of the premiums paid for this excess insurance coverage. This amount is based on an Internal Revenue Service (IRS) table which identifies premiums for different age groups.

J. Tax-deferred annuity contributions: this represents the total amount of contributions made by an employee to a retirement plan on a tax-deferred basis. The amount is shown in Box 13 and labeled (E).

K. Excludable moving expense reimbursements: this represents the nontaxable moving expenditures that were paid to you as a reimbursement or paid directly to a third party. The amount is shown in Box 13 and labeled (P). If any reimbursements or third party payments were deemed to be taxable income you were notified of these amounts under separate cover.

L. Other: this is the total amount of State Unemployment Tax (S.U.T.) that was withheld from your earnings during calendar year 1995 and paid to the Commonwealth of Pennsylvania, on your behalf, by the University.

M. Employee's social security number: this is the number that the Federal and State Governments use to identify you with the tax returns that you file, so please review it for accuracy. If the number is incorrect, then the University Payroll system is also inaccurate and you should contact the Payroll Office immediately, before you file your returns.

N. State wages, tips, etc.: this represents the total amount of compensation paid to you during calendar year 1995 which was subject to Pennsylvania State Income Tax, including all of your deferred annuity contributions.

O. State income tax: this represents the total amount of Pennsylvania State Income Tax withheld during calendar year 1995 and paid to the Commonwealth of Pennsylvania, on your behalf, by the University. If you do not live in Pennsylvania and if you submitted the "Employee Statement of Nonresidence in Pennsylvania" form to claim exemption from Pennsylvania State Income Tax, no amount will be reflected in this box.

P. Local wages, tips, etc.: this represents the total amount of compensation paid to you during calendar year 1995 which was subject to Philadelphia City Wage Tax, including all of your deferred annuity contributions.

Q. Local income tax: this represents the total amount of Philadelphia City Wage Tax withheld from your earnings during calendar year 1995 and paid to the City of Philadelphia, on your behalf, by the University.

When you receive your W-2 Form, please review it immediately to ensure that your name is spelled correctly and that your Social Security number is correct. If you feel that any information on your W-2 is incorrect, review your calculations carefully and compare the information on the form with your final 1995 pay stub. If you have availed yourself of certain taxable benefits please review any additional information which was provided to you, under separate cover, concerning these benefits and their impact on your tax status. If you still believe that your W-2 is in error, please contact the W-2 Office at 573-3277 or write to James Curran, W-2 Office, Room 310, Franklin Building/6284.

You should have received, via the U.S. Postal Service, your Federal and State Income Tax Forms and related instructions for filing. Federal Tax forms are available at the Internal Revenue Service, 6th & Arch Streets, Philadelphia, and most U.S. Post offices and at certain banks. Pennsylvania Income Tax forms are available at the State Office Building, 1400 Spring Garden Street, Philadelphia, State Stores and may be obtained by writing to the Department of Revenue, Personal Income Tax Bureau, Harrisburg, Pennsylvania 17129.

— Alfred F. Beers, Comptroller

Faculty Club Exhibit: Landscape Transformation

Environmental art by two Penn graduates is on display through February 2 at the Burrison Art Gallery in the Faculty Club.

Kathryn Kester Lundgren earned her master's in landscape architecture in 1983. In 1988 she was awarded first prize for her entry in the design competition for Philadelphia's Penn Square and City Hall. She was commissioned to illustrate numerous technical publications including the 1996 National Park Service publication "Managing Our Rivers, Volume 2." She has since prepared comprehensive Park Development Master Plans for Fort Delaware State Park on Pea Patch Island and for Deer Park Church Camp Grounds in New Hope.

Adam Kuby, who earned a B.A. in environmental studies at Penn in 1983, also took an M.F.A. in sculpture in 1992 at the University of North Carolina. His environmental designs and sculpture have generated a number of commissions, grants and distinguished awards in Florida, North Carolina, New York City and Philadelphia. He is presently a consultant to the Bronx Zoo, working on a major design project, a new African Congo Gorilla Habitat Exhibit.—*M.F.M.*

Above: Lundgren's *View of Desert Garden.*

At right: Kuby's *Cliff Dwelling,* which in the Faculty Club show is accompanied by text explaining how to integrate wildlife habitat and urban architecture.

The University of Pennsylvania Police Department Community Crime Report

About the Crime Report: Below are all Crimes Against Persons and Crimes Against Society listed in the campus report for ***January 15, 1996 through January 21, 1996.*** Also reported were **Crimes Against Property, including 47 thefts (including 5 burglaries, 2 thefts of autos, 17 thefts from autos, 4 bicycles and parts, 5 incidents of criminal mischief and vandalism.** Full crime reports are in this issue of *Almanac* on the Web *(http://www.upenn.edu/almanac/v42/n18/crimes.html).—Ed.*

This summary is prepared by the Division of Public Safety and includes all criminal incidents reported and made known to the University Police Department between the dates of **January 15 through January 21,** 1996. The University Police actively patrol from Market Street to Baltimore Avenue and from the Schuylkill River to 43rd Street in conjunction with the Philadelphia Police. In this effort to provide you with a thorough and accurate report on public safety concerns, we hope that your increased awareness will lessen the opportunity for crime. For any concerns or suggestions regarding this report, please call the Division of Public Safety at 898-4482.

Crimes Against Persons

34th to 38th/Market to Civic Center: Aggravated assaults—1, Simple assaults—1, Threats & harassment—2

1/16/96	11:50 PM	Upper Quad	Dispute between students
1/18/96	1:00 PM	Quad Office	Employee harassed by supervisor
1/18/96	5:46 PM	Williams Hall	Officer assaulted/arrest
1/18/96	8:34 PM	3700 Blk. Locust	Unknown male following female

38th to 41st/Market to Baltimore: Purse snatches—1, Threats & harassment—1

1/18/96	4:25 PM	3925 Walnut St.	Purse taken from complainant
1/20/96	3:47 AM	Low Rise North	Harassing phone calls received

41st to 43rd/Market to Baltimore: Robberies (& attempts)—2

1/15/96	6:32 PM	42nd & Chestnut	Purse taken by drunk male with gun
1/19/96	7:47 PM	4200 Blk. Pine	2 robbed by unknown males with gun

30th to 34th/Market to University: Threats & harassment—2

1/18/96	1:56 PM	Lot #36	Threatening note left on auto
1/19/96	12:27 PM	Bennett Hall	Complainant harassed

Outside 30th to 43rd/Market to Baltimore: Robberies (& attempts)—2, Threats & harassment—1

1/19/96	8:23 PM	43rd & Baltimore	Robbery by 2 unknown males with gun
1/19/96	9:38 PM	New Bolton Ctr.	Staff being harassed by husband
1/21/96	6:12 PM	100 Blk. S. 36th	Robbery by unknown person

Crimes Against Society

34th to 38th/Market to Civic Center: Disorderly conduct—1, Alcohol & drug offenses—1

1/19/96	1:05 AM	Upper Quad	Possible marijuana confiscated
1/20/96	9:29 AM	3744 Spruce St.	Person causing disturbance/cited

30th to 34th/Market to University: Disorderly conduct—1

1/20/96	4:36 PM	Hutchinson Gym	2 persons refused to leave pool area

Almanac

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February

AT PENN

ACADEMIC CALENDAR

16 *Drop Period Ends.*

CHILDREN'S ACTIVITIES

3 *Animal Safari;* children, ages 8-12 take an imaginary journey to Africa and make a mask or musical instrument; 10 a.m.-noon; University Museum; information/registration: 898-4016; $5/materials fee.

14 *Brotherly Love;* Paul Rajeckas and Neil Intraub perform the play of a love-hate relationship between brothers; Young Adult Theatre Series; 10 a.m. and 12:30 p.m.; Zellerbach Theatre, Annenberg Center; tickets/info: 898-6791; $8. *Repeated Feb. 15.*

17 *Salsa Caliente;* Teddy Panama and His Latin Jazz Group demonstrate the African, Spanish and African American influences in Latin music; Everybody Makes Music Series; 1 p.m.; International House, 3701 Chestnut St.; $6, $3/children 12 and under; tickets/information: 895-6546.

22 *African American Dance Ensemble;* participatory educational program introduces the audience to African dance, music, rituals and cultural history; suggested for preschool-6th grade; Theatre for Children Series; 10 a.m. and 12:30 p.m.; Zellerbach Theatre, Annenberg Center; tickets/information: 898-6791; $6. *Repeated Feb. 23, 10 a.m. and 12:30 p.m.; Feb. 24, 11 a.m. and 2 p.m.*

24 *Family Workshop;* 11 a.m.; Institute of Contemporary Art. *Repeated Feb. 25, 1 p.m.*

EXHIBITS

Admission donations: University Museum: $5, $2.50/seniors and students with ID, free/members, with PennCard, children under 6; *Institute of Contemporary Art:* $3, $1/students, artists, seniors, free/members, children under 12, with PennCard, and on Sundays 10 a.m.-noon; *Morris Arboretum:* $4, $3/seniors, $2/students, free/with PennCard, children under 6; *all other galleries:* free.

Upcoming

2 *Robert Montgomery Bird: Literary Writer/Visual Artist;* a retrospective view of drawings and paintings, never before publically exhibited, by the multi-talented 19th century artist (Penn Med 1827); Kamin Gallery, Van Pelt-Dietrich Library. *Through April 1.*

3 *City Into Country: Nineteenth-Century French Paintings from the Charlotte Dorrance Wright Bequest and Other Collections of the Philadelphia Museum of Art;* 45 Barbizon, Impressionist, and early Modernist works curated by Christopher Riopelle, PMA; Arthur Ross Gallery, Fisher Fine Arts Library, Furness Building. *Through March 31.*

5 *Marvin Friedman: Provocations;* portraits explore not only the physical features and sitter's personality, but, with accompanying text, comment on lifestyle and philosophy; opening reception, Feb. 6, 4:30-6:30 p.m.; Burrison Art Gallery, Faculty Club. *Through February 29.*

10 *Withershins;* Gary Hill's Golden Lion Award-winning video installation allows viewers to walk through a maze which gives messages (both spoken and in sign language) with each step taken; in association with the 50th anniversary of ENIAC *(see also Special Events)*; preview reception, Feb. 9, 5-7:30 p.m.; ICA. *Through April 14.*

Jeanne Silverthorne Sculpture; debut exhibit of nontraditional items (including picture hooks, lightbulbs and chandeliers) cast in traditional techniques to give them a heavy, dense appearance; preview reception, Feb. 9, 5-7:30 p.m.; ICA. *Through April 14.*

Now

John W. Mauchly and the Year of the Computer; an overview of the evolution of computing with an emphasis on Mauchly's involvement in ENIAC's creation; Rosenwald Gallery, Van Pelt-Dietrich Library.

Somewhere East of Suez: People and Places; photographs by Leonard Evelev of his 40 years of travel throughout Asia; First Floor Sharpe Gallery, Museum. *Through April 7.*

Lyn Haber; photographs of ancient bristlecone pines and other plants of the American west; Morris Arboretum. *Through June 30.*

Images of Victory: Woodblock Prints from the Sino-Japanese War (1894-95); Second Floor Changing Gallery, Museum. *Through Aug. 31.*

Sculpture of Harry Gordon; Arboretum. *Through 1996.*

Time and Rulers at Tikal: Architectural Sculpture of the Maya; Museum. *Through Fall 1997.*

Ongoing

Ancient Greek World; Living in Balance: Universe of the Hopi, Zuni, Navajo and Apache; Ancient Mesopotamia: Royal Tombs of Ur; The Egyptian Mummy: Secrets and Science; Raven's Journey: World of Alaska's Native People; Buddhism: History and Diversity of a Great Tradition; Museum.

University Museum Tours

Meet at main entrance; 1:30 p.m.

3 *Africa's Diversity.*

4 *Greece: A Lasting Legacy.*

10 *Archaeology: Lost Worlds at a Glance.*

11 *Life Along the Nile.*

17 *Music, Ritual, Warfare: Traditional Life in Benin.*

18 *Highlights of the Museum Collection.*

24 *Death in Mesopotamia: The Royal Graves of Ur.*

25 *The Maya and Their Neighbors.*

FILMS

Travel Film Series

Screenings, 7:45 p.m.; Harrison Auditorium, Museum; $12; tickets/info: (610) 436-2155 (Geographic Soc. of Phila.).

7 *On the Trail to Trinidad and Tobago* (Warriner).

21 *Lindbergh's Historic Flight to Paris* (Williams).

MARGARET MEAD FILM FESTIVAL

Selections from the 19th Annual Festival at New York's American Museum of Natural History; Harrison Auditorium, Museum; daytime screenings: free with Museum admission, evenings: $5, $2.50/members, students with ID and seniors; info: 898-4015.

23 Religion Today: *Holy Madness* (Hamermesh, Israel, 1994), *Mundo Milagroso/Miraculous World* (Delgado and Van Wagenen, US, 1994), *The Trials of Telo Rinpoche* (Sonam and Sarin, US/India/Kalmyk Republic, 1994); 7:30 p.m.

24 Media Collectives: *The Box* and *Byker* (Amber Productions, UK, 1986 and 1983), *In Between* (Crusz, Sri Lanka/US, 1992), *Struggle on Coon Branch Mountains* (Pickering, US, 1972), *Long Journey Home* (Barret, 1992); 2 p.m.

Racism: *Harold* (Thomas, US, 1994), *Sugar Slaves* (Graham, US, 1995), *Something Strong Within Us* (Nakamura, US, 1994); 7:30 p.m.

25 Bridging Traditions: *Pepper's Pow-Wow* (Osawa, US, 1995), *The Vegetable Mob* (Drago, Australia, 1993), *Voices of Orchid Island* (Hu, S.E. Taiwan, 1994), *Gene Hunters* (Taylor, US, 1994); 2 p.m.

Women's Perspectives: *Bedhaya: The Sacred Dance* (Harmayn, 1994), *Gud Gav Hende en Mercedes-Benz/God gave her a Mercedes-Benz* (Petersen, Togo, 1992), *Their Own Vietnam* (Kates, 1995, US); 7:30 p.m.

Film/Video Project

Films, film series and programs at International House; film tickets (unless noted): $6, $5/members, students, seniors, $3/children under 12; foreign language films with English subtitles; info: 895-6542. *Repeat dates and times in italics.*

8 *The Gate of Heavenly Peace* (Hinton & Gordon, US, 1995); 7 p.m. *Feb. 10, 2 & 7 p.m.; Feb. 11, 6 p.m. With the directors on Feb. 10 and 11, call for details.*

9 *Mr. Holland's Opus* (Herek, US, 1996); screened with open captions and American Sign Language interpreters; Captioned Film Society presentation; 7:30 p.m. *Feb. 11, 3 p.m.*

15 *Postcards from America* (McLean, US, 1994); 7 and 9 p.m. *Feb. 16, 9:45 p.m.; Feb. 17, 9:15 p.m.; Feb. 18, 8 p.m.*

23 *Cold Fever/A Koldum Klaka* (Fridriksson, Iceland/US, 1995); 7 and 9 p.m. *Feb. 24, 6, 8 and 10:15 p.m.; Feb. 25, 6 and 8 p.m.; Feb. 26-29, 7 and 9 p.m.; March 2, 10 p.m.; March 3, 4 p.m.; March 4-7, 9 p.m.*

From Caesar to Super Fly

1 *The Mack* (Campus, 1973); 7 p.m.
Sweet Sweetback's Baadasssss Song (Van Peebles, 1971); 9:15 p.m. *Feb. 6, 9 p.m.*

2 *Black Caesar* (Cohen, 1973); 6 p.m.
Cleopatra Jones (Starett, 1973); 8 p.m. *Feb. 6, 7 p.m.*
Superfly (Parks, 1972); 10 p.m. *Feb. 4, 8 p.m.*

5 *Sheba, Baby* (Girdler, 1975); 7 p.m.
Black Mama, White Mama (Romero, 1973); 9 p.m.

Life Lessons: African Myths, Legends and Rituals

4 *Rocking Popenguine* (Absa, Senegal, 1993); 6 p.m. *Feb. 14, 9 p.m.*

7 Three Tales from Senegal: *The Franc/Le Franc* (Mambety, 1994), *Little Bird/Picc Mi* (Wade, 1992), *Fary, The Donkey/Fary L'Anesse* (Wade, 1989); 7 p.m. *Feb. 14, 7 p.m.*
Keita: The Heritage of the Griot (Kouyate, Burkina Faso, 1995); 9 p.m. *Feb. 18, 4 p.m.; Feb. 21, 7 p.m.*

18 Women: Work and Ritual: *These Hands* (M'mbugu-Schelling, Tanzania, 1992), *Monday's Girls* (Onwurah, UK/Nigeria, 1993); 6 p.m. *Feb. 22, 9:15 p.m.*

21 *Guelwaar* (Sembene, 1994); 9 p.m. *Feb. 22, 7 p.m.; Feb. 25, 3:30 p.m.*

Signal to Noise: Life with Television

Parts One and *Two* or *Part Three* and *Spin* for one admission price; February 16 guest speaker: director Cara Mertes.

16 *Part One: Watching Television Watching Us* (Mertes, 1995); 7 p.m.
Part Two: TV Reality? (Mertes, 1995); 8:15 p.m.

17 *Part Three: Remote Control* (Mertes, 1995); 6:30 p.m.
Spin (Springer, US, 1995); 7:45 p.m.

One of the drawings from the February exhibition at the Faculty Club.

photo credit: University of Pennsylvania Archives

ENIAC, the "Electronic Numerical Integrator and Computer," as it stood in its infancy, half a century ago, along with its principal inventors J. Presper Eckert and John W. Mauchly in the foreground. The ENIAC 50th Celebration: The Birth of the Information Age *officially starts on February 14 and continue for 18 months with events on campus and throughout the city.*

At 10 a.m. on February 14, the John Mauchly Papers Exhibition *and program will open in Van Pelt-Dietrich Library; also beginning at 10 a.m. and continuing throughout the day at Bodek Lounge in Houston Hall, a* Technology in Education Fair: *an opportunity for hands-on interactive student- and faculty-led demonstrations of new educational technologies being developed at Penn. That evening at 6:30 p.m., the* ENIAC 50th Celebration Dinner, *hosted by President Judith Rodin with keynote address by Vice President Al Gore. For reservations/tickets call: 575-2200 or the ENIAC Hotline, 898-8724.*

See Exhibits *for the premiere of a special installation,* Withershins, *at the ICA by video artist Gary Hill celebrating the impact of computers and information technology on art and culture.*

Log onto the ENIAC homepage (http://www.seas.upenn.edu) for a listing of all of the events, including those of the first society in computing, ACM, which is also celebrating its 50th Anniversary with symposia and historical retrospective sessions in Philadelphia the week of February 14-20.

Independent Film/Video Ass'n

Registration/information: 895-6594.

3 *Guerilla Marketing for Film and Video;* 12-4 p.m.; $45, $35/members, $25/students with current ID or entrants in the 1996 Festival of Independents.

17 *Approaches to Documentary;* 12-3 p.m.; $45, $35/members, $25/students with current ID.

27 *Deep Winter Open Screen and Potluck;* 7 p.m.; register by Feb. 26.

MEETINGS

15 *Lesbian, Gay, and Bisexual Staff and Faculty Meeting;* noon; room info: 898-5044 or *bobs@pobox.upenn.edu.*

21 *University Council Meeting;* 4-6 p.m.; McClelland Hall, The Quad.

29 *SAC Meeting;* all representatives expected to attend; 6 p.m.; Room B-6, Stiteler (Student Activities Council).

MUSIC

2 *Spirituals and Art Songs;* Arts House presents music by African-American composers performed by Michel Guillot, Rickie Cameron, and John Adractas; 8 p.m.; Harold Prince Theatre, Annenberg Center; $6, $4/students; tickets: 898-6791; information: 417-7723.

3 *Echoes of Africa;* celebration of the African-folk origins of American popular music and dance with LaVaughn Robinson, John Cephas and Phil Wiggins, Frankie and Doug Quimby, and Djimo Kouyate; 8 p.m.; Int'l House; $15, $13/students and seniors, $10/members; tickets: 893-1145 (Folklife Ctr.).

4 *Early Music at Penn;* performance of Veracini's *Recorder Sonatas* featuring soloist Gwyn Roberts; 8 p.m.; Bodek Lounge, Houston Hall.

6 *Tribute to Richard Wernick;* honoring the Pulitzer Prize winner's retirement from teaching: program with *Oracle II, Oracle of Shimon bar Yochai (Oracle I)* and *String Quartet No. 3* performed by the Mendelssohn String Quartet and Susan Narucki (soprano) with Martin Goldray (piano), Peggy Pearson (oboe) and Marcy Rosen (cello); 8 p.m.; Annenberg School Theatre.

18 *Penn Composers Guild;* graduate students' new works performed by Curtis Institute students; 8 p.m.; Curtis Institute, 1726 Locust St.

22 *Killing Time;* Bruce Montgomery directs his 40th and the Glee Club's 134th production—a murder mystery set in coastal Maine; 8 p.m.; Zellerbach Theatre, Annenberg Center; $8; tickets: 898-6791. *Repeated Feb. 23 and 24.*

ON STAGE

1 *Hit-or-Mrs.;* Mask and Wig calls its 108th production "what you get when you cross *La Cage Aux Folles* with *The Natural*"; Dinner Shows: cocktails, 6 p.m., dinner, 7:30 p.m., curtain, 8:30 p.m., $50/person; Theater Shows: bar opens, 7 p.m., curtain, 8 p.m, $20/person; Mask and Wig Clubhouse, 310 S. Quince St.; tickets/info: 923-4229. *Most Thursdays-Saturdays through March 29.*

Annenberg Center

Tickets/information: 898-6791. *Repeat dates and times in italics.*

1 *Cheap Sentiment;* world premiere of Philadelphia Festival Theatre for New Plays playwright Bruce Graham's witty look at Hollywood's cynical film industry; *(see Talks, Feb. 7);* 8 p.m.; Zellerbach Theatre; $23, $26/Fridays and Saturdays, $12/students. *Feb. 2, 3, 6, 7 & 9, 8 p.m.; Feb. 4, 2 & 7 p.m.; Feb. 8, 11 a.m. and 8 p.m.; Feb. 10, 2 p.m. & 8 p.m.; Feb. 11, 2 & 7 p.m.*

5 *Previewers;* reading of Lane Nishikawa and Victor Talmadge's *The Gate of Heaven;* 7 p.m.; Harold Prince Theatre; $5, free/students and subscribers.

12 *Dancemakers;* Canadian troupe performs works by American and European choreographers; 8 p.m.; Zellerbach Theatre; $24, $12/students.

15 *The Daring Project;* Valentina Kozlova and choreographer Margo Sappington lead ABT, NYC and Joffrey Ballets and National Ballet of Canada dancers; 7 p.m.; Zellerbach Theatre; $26, $12/students. *Feb. 16, 8 p.m.; Feb. 17, 2 & 8 p.m.*

SPECIAL EVENTS

Guided Walking Tours; Sat. and Sun.; 2 p.m.; hours: Mon.-Fri., 10 a.m.-4 p.m.; Sat. and Sun., 10 a.m.-5 p.m.; Morris Arboretum; admission: *Exhibits.*

14 *ENIAC's 50th: The Birth of the Information Age;* details above.

17 *Celebration of African Cultures;* music, dance, arts and crafts, food, and children's activities; co-sponsor: WRTI Jazz FM; 10:30 a.m.-4 p.m.; Museum; free with admission donation *(Exhibits).*

22 *Equal Justice Foundation Auction;* 5-9 p.m.; law school (Law School).

SPORTS

Tickets for winter sports, except basketball, are free. Basketball: 898-6151.

Home locations: Basketball, Wrestling: Palestra; Women's Gymnastics: Hutchinson Gym; Squash: Ringe Courts; Swimming: Gimbel Gym-Scheerr Pool.

2 *Swimming v. Johns Hopkins,* 6 p.m.; *M. Basketball v. Cornell,* 7 p.m.

3 *M. Tennis Penn Conference Classic v. BU, GWU, Rutgers & Temple,* 9 a.m.; *through Feb. 4; M. Basketball v. Columbia;* 7 p.m.

6 *M. Basketball v. Lehigh;* 7 p.m.

7 *Squash v. Princeton, M.,* 4 p.m., *W.,* 7 p.m.

9 *W. Basketball v. Dartmouth;* 7 p.m.

10 *Swimming v. Army, M.,* noon, *W.,* 3 p.m.; *Gymnastics v. Brown,* 1 p.m.; *Wrestling v. Lehigh,* 3 p.m.; *W. Basketball v. Harvard,* 7 p.m.

15 *W. Tennis v. Villanova;* 3 p.m.

16 *M. Squash v. Trinity,* 4 p.m.; *W. Basketball v. Yale,* 7 p.m.

17 *M. Squash v. Amherst,* 4 p.m.; *W. Basketball v. Brown,* 7 p.m.

18 *W. Tennis v. Rutgers;* time TBA.

20 *M. Basketball v. Temple;* 7 p.m.

22 *Gymnastics v. Temple;* 6 p.m.

23 *M. Basketball v. Harvard;* 7 p.m.

24 *M. Basketball v. Dartmouth;* 7 p.m.

28 *Gymnastics v. West Chester;* 6 p.m.

29 *Wrestling v. Drexel;* 7:30 p.m.

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Unless otherwise noted all events are open to the general public as well as to members of the University. For building locations, call 898-5000 between 9 a.m. and 5 p.m. Listing of a phone number normally means tickets, reservations or registration required.

This February calendar is a pullout for posting. *Almanac* carries an *Update* with additions, changes and cancellations if received by Monday noon prior to the week of publication. Members of the University may send notices for the *Update* or *March at Penn* calendar.

TALKS

Steinberg Symposium

Tom Stoppard, playwright; in conjunction with Freshman Reading Project, *Arcadia;* all talks, 4-5:30 p.m.; info: 898-5262, *mastroie@ben.dev.upenn.edu* or *http://www.sas.upenn.edu/sasalum/steinberg/welcome.html*.

6 *Stage Directions;* Harrison Auditorium, Museum.

7 *The Landscape of Late Modernism;* with Stoppard and Wendy Steiner, English; Annenberg School Auditorium.

8 *The Theater of Ideas;* moderated by Cary Mazer, theatre arts/English; Harrison Auditorium, Museum.

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1 *The Rho Family of Small GTPases: Regulators of Actin Polymerization and Gene Transcription;* Alan Hall, University College, London; Pepe Lecture; 4 p.m.; Auditorium, Clinical Research Bldg. (Cell & Developmental Biology).

Empowerment-Based Practice: A Paradigm for Social Work Practice; Stephen Rose, University of New England; 7-8:30 p.m.; Alumni Hall, Faculty Club (Social Work).

2 *Gender and Justice: The Australian Experience;* Marcia Neave, Australian National Univ.; noon; Rm. D27-28, Caster Bldg. (Ass'n of Women Faculty and Administrators; Women's Studies).

Policy, Science, and Political Mythology: Legislatures and Juries in Environmental Decision-making; Geoffrey Hazard, law; 12:15-1:45 p.m.; Rm. 213, Steinberg Hall-Dietrich Hall (Institute for Environmental Studies).

5 *Is Protein Kinase C the only Cellular Receptor for the Phorbol Ester Tumor Promoters?;* Marcelo Kazanietz, pharmacology and Ctr. for Experimental Therapeutics; noon; Rm. M100-101, John Morgan Bldg. (Pharmacology).

Outcome of Brief Psychoeducation Training of Families of Adults with Severe Mental Disorders; Phyllis Solomon, social work; 12-1:30 p.m.; Leonard Davis Institute Boardroom. (LDI).

Impact of Transport Phenomena on Cardiovascular Health and Disease; Scott Diamond, SUNY-Buffalo; 3:30 p.m.; Rm. 337, Towne Bldg. (Chemical Engineering).

Playing It Safe: Medicine, Law and Politics at the FDA, 1938-1950; Harry Marks, Johns Hopkins; 4 p.m.; Room 502, 3440 Market (History and Sociology of Science).

6 *To the Ends of the Earth for Science;* Robert McCracken Peck, Academy of Natural Sciences; 6 p.m.; Rainey Auditorium, University Museum; Armchair Adventure Series: $6, $4/members, seniors, students (Museum).

The African Presence in Ancient America: They Came Before Columbus; Ivan Van Sertima, Rutgers; 7:30 p.m.; Room B-1, Meyerson Hall (Greenfield Intercultural Center).

7 *A Ghazal Before Me: The Space in Which Poetry Happens;* Frances Prit-chett, Columbia; 11 a.m.-12:30 p.m.; Classroom 2, Museum (South Asia Regional Studies).

Clinging to Tradition or Breaking Away from It: The Case of R. Hayyim Vital and R. Yissrael Saruq'; Ronit Meroz, Hebrew Univ.; noon; Ctr. for Judaic Studies, 420 Walnut; registration: 238-1540 (Ctr. for Judaic Studies).

Rational Reliance and Religious Belief; James Ross, philosophy; 3-5 p.m.; Room 117, Duhring Wing (Religious Studies).

DNA Viruses as Vectors; Jim Wilson, Institute for Human Gene Therapy; 4 p.m.; Grossman Auditorium, Wistar (Wistar).

What Has Been Learned from State Reforms?; Joy Wilson, National Council of State Legislators; 4:30-6 p.m.; CPC Auditorium (LDI-Ctr. for Health Policy).

The Impact of McCarthyism and Censorship on Stage and Screen: From Angels in America *to* Cheap Sentiment*;* Tom Sugrue, history; following 8 p.m. perfomance of *Cheap Sentiment (On Stage);* Annenberg Center; information: 898-9080 (Annenberg Center).

8 *Watching Yeast Divide: Forces and Checkpoints Regulating Spindle Dynamics in Yeast;* Kerry Bloom, UNC; 12:15-1:30 p.m.; Wood Rm., John Morgan Bldg. (Cell & Molecular Bio. Grad Group).

Transcriptional Repression by Nuclear Hormone Receptors and Leukemogenesis; J. Don Chen, Salk Institute; 4 p.m.; Grossman Auditorium, Wistar Institute (Wistar).

Articulating a Pro-Life Stance in a Politically Correct Environment; Helen Alvare, Nat'l Conference of Catholic Bishops; 7:30 p.m.; Newman Ctr. (Newman).

9 *The Role of Solar Radiation in Ozone Production in the Troposphere;* Vitaly Sirota, Russian State Hydrometeorological Institute; 12:15-1:45 p.m.; Rm. 213, Steinberg Hall-Dietrich Hall (Institute for Environmental Studies).

TBA; Steve McKnight, Univ. of Texas; 12:15-1:30 p.m.; Austrian Auditorium, CRB. (Cell and Dev. Biology).

12 *Structure and Function of Adenosine Receptors: Use of Mutagenesis and Molecular Modeling;* Kenneth Jacobson, NIH; noon; Rm. M100-101, John Morgan Bldg. (Pharmacology).

Probing Interfacial Processes with Quartz Transducers: Principles and Applications; Michael Ward, University of Minnesota; 3:30 p.m.; Room 337, Towne Building (ChemE).

Poetics, Politics, and the Historiography of Science: A Reading of Harvey and the Revolution of the Blood; John Rogers, Yale; 4 p.m.; Room 502, 3440 Market (H&SS).

13 *Biochemical and Genetic Analysis of the Rapamycin-sensitive Signal Transduction Pathway;* Xiao-Feng Steven Zheng, Harvard; 2 p.m.; Grossman Auditorium, Wistar Institute (Wistar).

Pragmatic Attitudes in Islamic Medical Ethics; Vardit-Rispler Chaim, Lehigh and University of Haifa; 4:30 p.m.; Room 421, Williams Hall (Middle East Center; Religious Studies).

The Birth of Literature and the Death of Kings; Piotr Michalowski, Michigan; Kevorkian Lecture; 6 p.m.; Rainey Auditorium, Museum; registration: 898-4890 (Museum).

14 *Healing from the Boundaries: A Female Practitioner in South India;* Joyce Flueckiger, Emory; 11 a.m.-12:30 p.m.; Classroom 2, Museum (SARS).

The Re-education of the Conversos Transmitting Historical Consciousness Through Sermons; Marc Saperstein, Washington University; noon; Ctr. for Judaic Studies; registration: 238-1540 (Ctr. for Judaic Studies).

Feminist Epistemologies: Experience, Objectivity, Accountability; Mary Solberg, Haverford; 3-5 p.m.; Room 117, Duhring Wing (Religious Studies).

Gene Activation, Gene Repression; Mark Ptashne, Harvard; Art Stern Memorial Lecture; 4 p.m.; Grossman Auditorium, Wistar (Wistar).

Vanishing Points: Censorship and Sexuality in the Work of David Wojnarowicz; Richard Meyer, art historian; 6 p.m.; ICA (ICA).

15 *Hospital Strategic Response to Managed Care;* R. Lawrence Van Horn, health care systems; noon-1 p.m.; CPC Boardroom (LDI of Health Economics).

Signals Patterning the Vertebrate Limb; Cliff Tabin, Harvard; 12:15-1:30 p.m.; Class of '62 Lecture Hall, John Morgan Building (Cell and Developmental Biology).

Scientific Narratives and the Naturalization of Face and Class in the Latin Cholera Epidemic; Charles Briggs, UC-San Diego; 4 p.m.; Smith-Penniman Room, Houston Hall (H&SS; Latin American Cultures).

19 *Enzymology and Regulation of Estrogen Sulfotransferase;* Wenchao Song, pharmacology and Center for Experimental Therapeutics; noon; Room M100-101, John Morgan Building (Pharmacology).

Molecular Simulation of Reactions in Supercritical Fluids; James O'Brien, Yale; 3:30 p.m.; Room 337, Towne Building (ChemE).

Erroneous Assumptions About the Power of Social Motivation; Dale Miller, Princeton; 4 p.m.; Rm. B-26, Stiteler Hall (Psychology).

The Dark Room Collective; "part reading series, part poetry slam" explores cultural frameworks in Black writing; book signing follows; Mosaic of Black Writing Program; 4 p.m.; Room 111, Annenberg School (Afro-American Studies).

20 *Temporal Pursuits and the Mystic Path: Naqshbandi Sufis in Timurid Society;* Jo-Ann Gross, Trenton State College and Princeton; 4:30 p.m.; Room 421, Williams Hall (Middle East Center; Religious Studies).

A Historical Perspective on Black-Jewish Relations; David Brion Davis, Yale; Kutchin Seminar in Jewish Studies/Afro-American Studies Seminar; 5 p.m.; Ben Franklin Room, Houston Hall (Jewish Studies; Afro-American Studies Programs).

21 *Landscape and Encampments in Islamic India;* Atillio Petruccioli, MIT; 11 a.m.-12:30 p.m.; Classroom 2, Museum (SARS).

The Printing Press and the Transformation of Rabbinic Culture in Eastern Europe in the 16th-17th Centuries; Elchanan Reiner, Tel Aviv University; noon; Center for Judaic Studies; registration: 238-1540 (Center for Judaic Studies).

Faith, Doubt, and Indifference: The Limits of Confessionalism in an Age of Confessionalism; Thomas Safley, history; 3-5 p.m.; Room 117, Duhring Wing (Religious Studies).

Managed Mental Health: Why a Carve Out?; Clarke Ross, American Managed Behavior Health Care Association; 4:30-6 p.m.; CPC Auditorium (LDI-Center for Health Policy).

22 *Making Waves—A Sea Change in Spectrum Policy;* Susan Ness, FCC; 4:30-6 p.m.; Room 215, Steinberg Hall-Dietrich Hall (Public Policy and Management; Gruss Public Management Fellowship Program).

23 *And Ne'er the Twain Shall Meet?: Public Health and Ecology in the Evolution of Environmental Programs;* K. W. James Rochow, law schooland Alliance to End Childhood Lead Poisoning; Paul Locke, Environmental Law Institute; 12:15-1:45 p.m.; Room 213, Steinberg Hall-Dietrich Hall (Institute for Environmental Studies).

26 *Rational Drug Design for Neurodegenerative Diseases;* Marie-Françoise Chesselet, pharmacology; noon; Room M100-101, John Morgan Building (Pharmacology).

Neuroengineering Studies of Visual Perception; Leif Finkel, bioengineering; 3:30 p.m.; Room 337, Towne Building (ChemE).

Cytokine-to-Brain Communication: The Cytokine Network and Implications for Understanding Stress; Steven Maier, University of Colorado; 4 p.m.; Room B-26, Stiteler Hall (Psychology).

Women's Secrets: Gender and Anatomy in Renaissance Europe; Katherine Park, Wellesley; 4 p.m.; Room 502, 3440 Market (H&SS).

27 *Reformulated Gasoline Makes Me Sick;* Peter Joseph, radiology physics; 1 p.m.; Faculty Club (Women's Club).

Hagia Sophia: A Possible Reconstruction of the First Dome; Ahmet Cakmak, Princeton; 4:30 p.m.; Room 421, Williams Hall (Middle East Center; History of Art; Turkish Student Ass'n).

28 *'Inside the House' and Across the Seas: Transnational Arranged Marriage Among British-Pakistani Families;* Elizabeth Crane, Berkeley; 11 a.m.-12:30 p.m.; Classroom 2, Museum (SARS).

Biography of an Agent of Culture: Eliezer Altschul of Prague and his Literary Activity; Elchanan Reiner, Tel Aviv Univ.; noon; Ctr. for Judaic Studies; registration: 238-1540 (Ctr. for Judaic Studies).

The Sun Was Not The Sun: Language, Testimony, and the Holocaust; Al Filreis, English; 3-5 p.m.; Room 117, Duhring Wing (Religious Studies).

Disruption of the Neuronal Cytoskeleton in Alzheimer's Disease; Virginia Lee, pathology and lab medicine; 4-5 p.m.; Rm. 202, BRB1 (Inst. on Aging).

Oral Tolerance: Immunologic Mechanisms and Treatment of Autoimmune Diseases; Howard Weiner, Harvard; 4 p.m.; Grossman Aud., Wistar (Wistar).

L'Atelier Noir; Eileen Neff on the *Silverthorne* exhibit; 6 p.m.; ICA (ICA)

29 *Tribes and the Print Trade: Notes from the Margins of Literate Culture in Jordan;* Andrew Shryock, Princeton and SUNY-Buffalo; 10:30 a.m.; Room 329, Museum (Anthropology).

Using Structural Biology to Add Value to Genome Analyses; Tom Blundell, University of London; Sterling Lecture; 4 p.m.; Dunlop Auditorium, Stemmler Hall (Pharmacology).

The Afterlife of Plays; Jonathan Miller, physician, art historian, author, and director of theater, opera, film and television productions; School of Arts and Sciences Dean's Forum; 8 p.m.; Harrison Auditorium, Museum (SAS).

CONFERENCES

3 *Wharton Physician Leadership Program;* info: 898-4748. *Continued on Feb. 17* (LDI; Aresty Institute).

7 *Graduate School: Getting in and Staying in;* Jackie Frizzano, geology; Sarah Greenwald, math; Sarah Miller, H&SS; 4-5:30 p.m.; Franklin Room, Houston Hall (Career Planning & Placement Service; College; Office of International Programs; Ben Franklin Scholars/General Honors Programs).

11 *Management Development for Physician Executives;* information: 898-4748 (LDI; Aresty Institute).

12 *The Expanded Job Market for Ph.D.'s: Careers Outside the Academy; How I Got My Job*; *Panel 1:* 4 p.m., *Panel 2:* Feb. 13, 5 p.m.; *What You Have to Offer: An Employer's Perspective on the Value of Doctoral Education*, Feb. 13, 4 p.m.; Ben Franklin Room, Houston Hall; registration: 898-7530 or *vick@a1.relay.upenn.edu* (CPPS).

15 *Why Get a Ph.D.? Ph.D.'s Discuss Their Professional Lives;* Alan Filreis, English; Walter Licht, history and Graduate Division/SAS; Janice Madden, regional science, sociology and Vice Provost for Graduate Education; Nelson Wicas, The Vanguard Group; 4-5:30 p.m.; Ben Franklin Room, Houston Hall (CPPS; College; OIP; BFS/GH).

FITNESS/LEARNING

English Language Programs Evening Course Registration; classes meet 6-8:30 p.m.; *Language of Meetings*, Thursdays, Feb. 1-29; $145 ($10 fee for late registrants); info: 898-8681.

FITNESS/LEARNING

Ice Skating; public skating: Mon. and Wed., 4-6 p.m.; Tues., 6-8 p.m.; Thurs., 5:30-7:30 p.m.; Fri., 8-10 p.m.; Sat., 12:30-2:30 p.m., 8-10 p.m.; midnight-2 a.m.; Sun., 12:30-2:30 p.m.; $5, $3.50/with PennCard, $1.50/skate rental; *figure skating: patch:* M-F, 12-12:45 p.m.; *freestyle:* M-F, 12:45-1:30 p.m.; $5/session, $8/both; *7-week group lessons* (starts Feb. 5): Tues., 6-8 p.m.; Wed. 4-6 p.m.; Thurs. 3:45-5:15 p.m. or Sun., 10:45 a.m.-12:15 p.m.; $70; 1923 Rink; 898-1923. *Open through April 7.*

Jazzercise; 5:30-6:30 p.m.; Mon., Tues. and Thurs.; Philadelphia Child Guidance Ctr.; first class free; $3.50/class, $2.50/students; Carolyn Hamilton, 662-3293 (days), 446-1983 (evenings).

Penn Council for Relationships Therapy Groups; info: 382-6680.

Quaker Worship Group; noon; Christian Ass'n Auditorium. *Meets Wednesdays.*

Recreation Class Registration; swimming, water safety instruction, aerobics (regular, step, and water) squash, tennis, dance (ballroom, jazz, modern, and Latin), yoga, scuba, self defense, karate, nutrition and fitness, First Aid and CPR; 5-week class: $35, $20/students; 10-week: $70, $40/students; Gimbel or Hutchinson Gym; PennCard or Recreation ID required; 898-6100. *Registration throughout year.*

Sahaja Yoga Meditation; 11 a.m.; Franklin Room, Houston Hall; info: 602-8680 or 259-8932. *Meets Sundays.*

Buddhist Meditation Practice; 1-2 p.m.; Christian Association Chapel. *Through May 8.*

Safer Sex Awareness Month; events, including FLASH workshops, panel presentations, videos, and condom giveaways; information for specific events: Office of Health Education, 573-3525, e-mail: *she@pobox.upenn.edu.* (Office of Health Education, FLASH)

6 *Conflict in the Workplace: Resolving Problems*; José Rendon; noon-1 p.m.; Room TBA, Houston Hall; registration: 898-7910. (Faculty/Staff Assistance Prog.)

9 *Dealing with Endometriosis and Pelvic Pain*; Richard Tureck, ob/gyn, HUP; Lunchtime Discussion Series on Women's Health; 12:30 p.m.; Smith-Penniman Room, Houston Hall.

16 *Pregnancy Loss: Answers for Couples who have had Miscarriages*; with specialists in the Pregnancy Loss Evaluation Program; Lunchtime Discussion Series on Women's Health; 12:30 p.m.; Smith-Penniman Room, Houston Hall.

20 *Lite for Life;* 14-week weight-loss program taught by HUP registered dieticians; 12-1 p.m.; $150; registration/orientation session information: 662-2733.

Penn Professional Staff Assembly Educational Fair; information about part-time educational opportunities through employee tuition benefit program; 12-2 p.m.; Bodek Lounge, Houston Hall (PPSA).

The Importance of Rituals; Heather Voelkel; Room TBA, Houston Hall (F/SAP)

22 *Morris Arboretum Spring Classes;* gardening, tour and landscaping courses begin this week; info: 247-5777 ext. 156.

College of General Studies

Special Programs; unless noted, classes meet weekly at 6:30-8:30 p.m.; registration/information: 898-6479.

13 *A Season of Opera in Philadelphia;* discussion of *Cosi Fan Tutte;* $45 ($25/session), ticket price not included. Discussion of *Aida* April 16.

19 *Irish Literature and the Cinema;* 6-9 p.m.; $100. *Through March 25.*

From the Mouths of the Ancestors: The Pre-Columbian Literature of Mesoamerica; $95, $90/Museum members. *Through March 25.*

The Business of Freelance Writing; $70. *Through March 4.*

Writing a Novel; $125. *Through March 25.*

20 *Sculptors and Scribes: Art and Literature of Ancient Egypt;* $90, $80/Museum members. *Through March 19.*

Creating a Homepage on the World Wide Web; $35. *Continues on Feb. 27.*

21 *Research in the Information Age;* Fundraising Certificate Program elective; 5:30-8:30 p.m.; $150. *Through March 20* .

Children's Book Production and Illustration I; 6:30-9 p.m.; $165. *Through April 17.*

22 *Fiction Writing Workshop;* 6-8:30 p.m.; $145. *Through March 21.*

Beginning Playwriting; 6:30-9 p.m.; $150 (includes text). *Every other week through May 9.*

24 *Time Management;* FRCP elective; 9:30 a.m.-3:30 p.m.; $75.

Look Good, Sound Great, Act Smart: A Practical "Acting Class" for Business Professionals; FRCP elective; 9:30 a.m.-4:30 p.m.; $110.

26 *In the Chef's Kitchen;* 9:30 a.m.-12:30 p.m.; $150, $50/session. *Continues March 25 and May 6.*

Improving Your Speech and Voice; FRCP elective; $130. *Continues Feb. 28, March 4 and 6.*

The Personal Essay; $95. *Through March 25.*

Newman Center

Weekly discussion groups; 3720 Chestnut Street.

5 *Theology 101;* Bible study; 7-8:15 p.m. *Through Feb. 26.*

6 *Coffee, Croissants,and Christianity;* on *Chap 11, The Confessions of St. Agustine* 7:45-9 a.m. *Through Feb. 27.*

7 *Lectio Divina;* on St. Augustine's *On the Trinity;* 9-9:30 p.m. *Through Feb. 28.*

Black History Month: Celebrating With Music and Dance

Left: The Folklife Center's line up for Echoes of Africa *includes theatrical tap dancer LaVaughan Robinson, a 1989 winner of the National Heritage Award (On Stage).*

Center: The Women's Sekere Ensemble sing and play the traditional Nigerian percussion instrument at the Museum's World Culture Day: Celebration of African Cultures *(Special Events).*

Top right: Arts House musicians, Michel Guillot (pianist), Rickie Cameron (tenor) and John Adractas (pianist) present a program featuring spiritual and art songs by African American composers (Music).

Bottom right: Echoes of Africa *host, Djimo Kouyate, a griot (oral historian and keeper of traditions), plays the kora during his narratives.*

See Children's Activities, Films, Exhibits, and Talks for information about other Black History Month events.

February

AT PENN