



## Toasting A Chemist and A Gentleman

"A Penn Nobel Prize,"... "based on great applied and basic science," is how Roy Vagelos described the accomplishment of "one of our best teachers and researchers."

"It's an understatement that we've been waiting for this day," proclaimed Hai-Lung Dai who sensed that a Nobel would come to Dr. MacDiarmid.

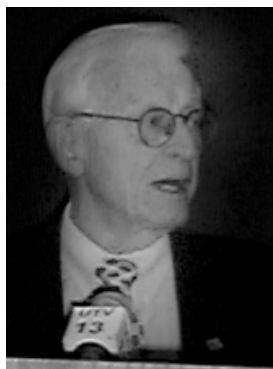
"A deliriously happy University" ... "a validation of the extraordinary faculty we have," said President Rodin, adding, "you represent the best among us."

SAS Dean Sam Preston toasted Dr. MacDiarmid's "enthusiasm, originality, and loyalty."

Dr. MacDiarmid said the award is "far-reaching worldwide recognition of interdisciplinary research in the new century."

A true scientist, he concluded, "research is fun."

## A Scientific Jackpot: The Nobel Prize for Penn Trio



Nobelist Alan MacDiarmid

Dr. Alan G. MacDiarmid, Blanchard Professor of Chemistry, is one of three recipients of the 2000 Nobel Prize in Chemistry. Sharing the honor are former Penn professor Dr. Alan J. Heeger, now at the University of California at Santa Barbara, and Dr. Hideki Shirakawa, of the University of Tsukuba in Japan.

The work underlying the award—which showed that plastics can be made to conduct electricity—was carried out at Penn in the late 1970s, when Drs. MacDiarmid and Heeger were both on the Penn faculty. Dr. Shirakawa came to Penn on a post-doc fellowship as a visiting research scholar to collaborate with them.

The holder of some 30 U.S. patents, Dr. MacDiarmid has been at Penn since 1955. Dr. Heeger was a physicist here from 1962 to 1982 and directed LRSM from 1974 to 1981.

"This is indeed a moment for great joy and celebration, as we join the Nobel committee in acknowledging the achievements of an outstanding researcher and faculty member," said President Judith Rodin. "This pathbreaking research into 'conducting polymers,' that is, plastics that can conduct electricity, introduced a new and completely unexpected phenomenon to the fields of chemistry and physics and has unleashed a flood of interdisciplinary studies which have continued unabated to this day.

"Alan MacDiarmid is a truly extraordinary scientist and we offer him and his colleagues our deepest and most heartfelt congratulations."

The Nobel Prize honors the trio's 1977 discovery that plastics, or polymers, can be made to conduct electricity much like metals. This finding turned on its head the conventional wisdom that polymers could not conduct electricity, and unleashed a flurry of new research among physicists, chemists and materials scientists worldwide.

Polymers are molecular chains with a regularly repeating

structure. For a polymer to conduct electric current, it must consist alternately of single and double bonds between the carbon atoms. It must also be "doped," which means that electrons are removed (through oxidation) or introduced (through reduction). These "holes," or extra electrons, can move along the molecule, making it electrically conductive.

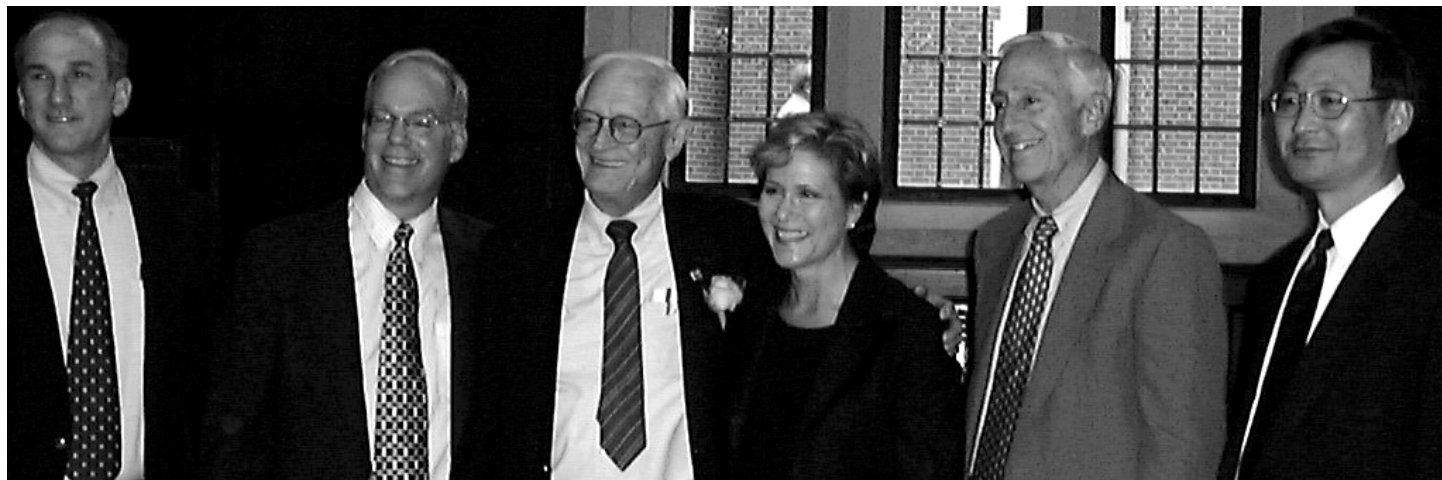
Drs. MacDiarmid, Heeger, and Shirakawa were responsible for the 1977 synthesis and the electrical and chemical doping of polyacetylene, the prototypical conducting polymer, and the rediscovery of polyaniline, now the foremost industrial conducting polymer. They have subsequently developed conductive polymers into a research field of great importance for chemists as well as physicists. The area has also yielded important practical applications. Conductive plastics are used in, or are being developed industrially for anti-static substances for photographic film, shields for computer screens against electromagnetic radiation and for "smart" windows that can exclude sunlight. In addition, semi-conductive polymers have recently been developed in light-emitting diodes (LEDs), solar cells and as displays in mobile telephones and mini-format television screens.

Research on conductive polymers has also fueled the rapid development of molecular electronics. In the future scientists may be able to produce transistors and other electronic components consisting of individual molecules, dramatically increasing the speed and reducing the size of computers: a computer corresponding to the laptops we now carry around would suddenly fit inside a wristwatch.

Born in Masterton, New Zealand, Dr. MacDiarmid is author or co-author of more than 600 research papers. He holds a B.Sc. and M.Sc. from the University of New Zealand and doctoral degrees from the University of Wisconsin and the University of Cambridge in England.

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Provost Robert Barchi, Dean Sam Preston, Nobelist Alan MacDiarmid, President Judith Rodin, Former Chairman of the University Trustees Roy Vagelos and Chemistry Chairman Hai-Lung Dai share Dr. MacDiarmid's pride and joy of winning the Nobel Prize in Chemistry.

## SENATE From the Senate Office

*The following statement is published in accordance with the Senate Rules. Among other purposes, the publication of SEC actions is intended to stimulate discussion among the constituencies and their representatives. Please communicate your comments to Senate Chair Larry Gross or Executive Assistant Carolyn Burdon, Box 12 College Hall/6303, (215) 898-6943 or [burdon@pobox.upenn.edu](mailto:burdon@pobox.upenn.edu).*

### Actions Taken by the Senate Executive Committee

Wednesday, October 11, 2000

**1. Chair's Report.** Faculty Senate Chair Larry Gross drew attention to Alan MacDiarmid as a recipient of the Nobel Prize in Chemistry. He announced that the Committee on the Faculty is reviewing the proposed revision to the copyright policy. The committee recommendation will be forwarded to SEC for consideration. The Chair noted that administrative committees are at work on distributed learning and the Faculty Senate will be asked to review their reports when available.

**2. Past Chair's Report on Academic Planning and Budget Committee and on Capital Council.** Past Chair Phoebe Leboy reported that Academic Planning and Budget has met twice this semester. The first meeting included a discussion of the long-range Campus Development Planning Report and its potential implications. The second meeting continued the conversation and then discussed the University's new **P2B initiative** (*Almanac*, October 10, 2000), focusing on its possible roles in providing opportunities for developing University and West Philadelphia initiatives. Professor Leboy emphasized that these have been fruitful meetings with substantial faculty input and discussion.

Capital Council met once to discuss modest budgetary changes for several projects, which had received prior approval. The Senate Chair noted that in response to questions raised in University Council on how the capital planning process works an explanation of the process will be on the agenda of the November 15 Council meeting. Professor Leboy expressed the view that it was important to provide faculty input earlier in the process.

Regarding the Campus Development Plan, the Chair stated academic issues have a high priority and projects in the plan are largely trustee decisions. Deans decide which projects to recommend and the source from school funds. Funds for such projects do not come from faculty salaries.

**3. Nominations to Senate Nominating Committee.** The chair extended the deadline to October 16 for SEC members to submit the name of a nominee.

**4. School of Medicine Faculty 2000 Project Recommendations and Implementation.** James Saunders, SEC member and School of Medicine liaison for the project, reviewed the process and the resulting recommendations. He noted the report has not yet been released. A committee has been established to consider implementation of the recommendations.

**5. Other New Business.** Discussion centered on when TIAA-CREF contributions are credited. Presently, contributions are credited the first day of the month when the stock market is up so that participants are buying high. It was suggested that they be credited on the 15th of the month when stock prices are lower. The Chair agreed to refer the question to the University Council Committee on Personnel Benefits.

### Lynch Term Chair in Biology: Andrew Binns

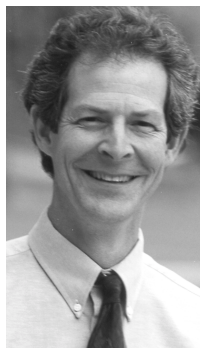
A new term chair in biology has been created and its first incumbent has been named. Dr. Andrew Binns received his B.A. in biology at Lawrence University in Appleton, Wisconsin and his M.A. and Ph.D. in developmental biology from Princeton. After postdoctoral study at Rockefeller University, he began his career at Penn in 1980. Today, he serves as chair of the department of biology.

Dr. Binns' research interests are focused in the area of microbial biology and the study of *Agrobacterium tumefaciens*, a bacterium that has the unique ability to transfer both DNA from tumor-inducing plasmid and proteins encoded by the plasmid into plant cells. The *Agrobacterium* then engineers the plant cell so that it reproduces indefinitely and supplies nutrients for the bacterium. This process has led to routine genetic engineering of plants.

Dr. Binns' lab has produced a steady stream of publications and he has participated in symposia and meetings around the world. An active University citizen, Dr. Binns, this year received the Dean's Award for Mentorship in Undergraduate Research.

Mrs. Carolyn Hoff Lynch, PT'69, established this term chair in the summer of 2000. In her role as a Penn volunteer, Mrs. Lynch chairs the Biology Advisory Board, is a member of the Trustees' Council of Penn Women, and is on the Board of Trustees. Her interests at Penn include a strong commitment to minority issues, the advancement of women in the sciences, and the biological sciences.

Mrs. Lynch is president of The Lynch Foundation, a public foundation that provides support in the domains of healthcare, religious work, education, and museums. She is a board member of The Boys & Girls Club of Boston, a director of The Campus School at Boston College, a trustee of Deerfield Academy, a trustee of The Peabody-Essex Museum, a trustee of Gregorian University, and an overseer at the New England Conservatory of Music. Her awards and citations include an honorary Doctorate of Humane Letters from Emmanuel College, honors from the Massachusetts Society for the Prevention of Cruelty to Children, the Alexis De Tocqueville Society Award for Leadership from the United Way, and the Papal Honor of Saint Gregory Award.



Andrew Binns

### AWFA Fall Reception

The Association of Women Faculty & Administrators of the University of Pennsylvania invites Penn women to join AWFA at their Fall Reception on Wednesday, October 18, from 4-6 p.m., at Café 58 at Irvine Auditorium, 3400 Spruce Street.

The featured speaker will be Paula England, Director of Women's Studies.

Penn women faculty and staff are urged to greet University friends and colleagues and learn more about AWFA plans and programs for the 2000-2001 academic year.

## DEATHS

### Dr. Chambers, Anatomy

Dr. William W. Chambers, emeritus professor of anatomy in the School of Medicine, died on September 19, at the age of 85 after a long battle with Parkinson's Disease.

In 1947, Dr. Chambers joined the Penn faculty and became a noted teacher and researcher of the central nervous system. He was instrumental in the reorganization of the course in



William Chambers

neuroanatomy for first-year medical students combining structure and function. He also was one of the founders (with Professor Louis B. Flexner) of the Institute of Neurological Sciences in 1953, one of the first such groups in the U.S. organized to stimulate multidisciplinary research. He remained at Penn until he took early retirement in 1979.

Dr. Chambers received his bachelor's degree and Ph.D. at Vanderbilt, after which he spent a postdoctoral year in the Neurological Institute of Northwestern University Medical. At Penn he worked with Dr. Chan-Nao Liu, also in anatomy, to publish Dr. Chambers' best known research which provided clear evidence that spinal injury stimulated significant growth in neurons in areas adjacent to the injured site.

Dr. Chambers is survived by his wife, Alma; a daughter, Anne; and a son, William.

### John Flowers, Wharton

John E. Flowers, former director of admissions at the Wharton School, died on October 2 at the age of 53.

Mr. Flowers joined Penn in 1971 as a teaching fellow. He became the assistant director of undergraduate admissions at Wharton in 1973, associate director in 1974 and became director of Wharton admissions in 1984. In 1988 he left Penn to work in the private sector.

He is survived by his wife, Deette Chirgwin Flowers; a daughter, Katherine; his mother, Margaret F. Flowers; and two sisters.

### Esther Stassen, President's Wife

Esther Glewwe Stassen, wife of a former president of Penn, died on October 7, at the age of 94. Her husband, Harold served as president of the University from 1948-1953.

While at Penn, Mrs. Stassen was a member of the Faculty Tea Club. She was listed in the *Philadelphia Social Register* and was in *Who's Who Among American Women, 4th Edition*. The Stassen's were married for 70 years.

Mrs. Stassen is survived by her husband Harold; a daughter, Kathleen Esther; and a son, Glen Harold.

## A New Partnership to Develop Moderate-Cost Rental Housing in University City

An innovative new partnership to preserve and develop moderate-cost rental housing opportunities for the entire University City community has been announced by Penn and the University of the Sciences of Philadelphia, who joined Fannie Mae (FNM/NYSE), the nation's largest source of financing for home mortgages, and the Trammell Crow Company. "The Partnership for Quality Housing Choices in University City" will focus on improving management and maintenance of rental units. It builds upon the success of Penn's "Community Housing Program," which works to increase homeownership opportunities in University City. First Union National Bank will provide up to \$30 million in financing for the partnership.

The Partnership will provide a national model for stabilizing communities around large institutions, especially those communities where rental housing dominates the market. Penn and Fannie Mae launched the effort through an investment of \$5 million each, for an initiative with a 7- to 10-year horizon. Fannie Mae funded its investment through its American Communities Fund (ACF), an equity and debt fund that is committed to investing in high-impact redevelopment initiatives that will serve as a catalyst for neighborhood housing and community revitalization. ACF was created in 1996 to provide capital to facilitate hard-to-finance housing and community development efforts. Additional investments in the partnership include \$1.5 million from other partners and up to \$30 million in mortgage financing from First Union National Bank. Funds from the partners will be used for investments in qualified rental properties. Existing multifamily buildings will be purchased, rehabilitated, and made available for rent. By providing better managed and maintained rental units, new and rehabbed rental housing will be attractive to young families, singles, faculty, and students—anyone attracted to the vitality of an urban, university community.

"The University of Pennsylvania has been a significant force in shaping demand for rental housing in its neighborhoods," said President Judith Rodin. "Now, in partnership with nationally prominent housing finance and service providers, Fannie Mae and the Trammell Crow Company, Penn, along with University of the Sciences, is positioned to strategically manage this demand for the benefit of the broader community."

"The preservation and development of moderate-cost rental housing opportunities throughout our neighborhoods will perpetuate opportunity for the entire community—students, seniors, young families, and the many employees of our local institutions—to enjoy the increasing quality of life in our University City neighborhoods, assuring its economic

diversity for decades to come," said Dr. Rodin.

"We at Fannie Mae recognize that not everyone is ready for homeownership, and we want to make sure that those who are not ready have good, decent, and affordable housing options," said Jamie Gorelick, vice chair of Fannie Mae. "The goal of this unique partnership is to stabilize and develop the neighborhoods in University City and to meet the housing needs of all residents in the neighborhood."

The partnership is an integral component of Penn's broad-based effort to work with neighborhood groups, community organizations, and area institutions to stimulate neighborhood revitalization through public education initiatives, commercial and economic development investments, neighborhood-based services, and community housing programs.

"This is our opportunity to participate with the University of Pennsylvania, the Trammell Crow Company, Fannie Mae, and First Union National Bank in a joint partnership that will improve the quality of housing in the University City area," said Philip P. Gerbino, president of the University of the Sciences. "This is something that has been needed for a long time. We are happy that these institutions and organizations have come together to take the lead in this important effort."

A critical component of the rental partnership's success is high quality management services, which will be provided by the Trammell Crow Company, one of the nation's largest rental property managers, said Tom Lussenhop, managing director, Penn's Division of Real Estate.

"Trammell Crow Company takes great pride in playing an integral role in this strategic alliance with the University of Pennsylvania, Fannie Mae, University of the Sciences, and First Union National Bank," said J. McDonald Williams, chairman of the Trammell Crow Company. "This is an exciting opportunity for our organization to further expand our reach and commitment into the University City community in an effort to improve the quality of life and standard of living for the many people who call University City home."

First Union has made a commitment to provide the partnership with up to \$30 million in mortgage financing, which is available to qualified investors.

"This mortgage financing epitomizes the type of community impact that First Union's Community Development Lending Group can make," said Jane Henderson, senior vice president and director of First Union's Community Development Group. "This partnership for quality housing is a prototype for future urban revitalization efforts throughout the First Union franchise."

## Penn InTouch 2000: A New Resource for Academic Advising

Provost Robert L. Barchi announced that undergraduates will have a new resource for exploring academic options when Penn InTouch 2000 has its initial launch today. The new degree planning and audit system is another step in Penn's continuing effort to improve students' electronic access to course and transcript information and grew out of conversations Provost Barchi had with the Council of Undergraduate Deans (CUD) in the Spring of 1999. Penn InTouch 2000 will give faculty and staff advisors access to students' academic plans in order to aid in academic advising and help track graduation requirements.

"Our students need to have the best resources available to them when considering their academic choices," said Provost Barchi. "Penn InTouch 2000 will make their choices more clear, and will facilitate a better use of their time with their advisors."

When fully operational the new system will:

- Provide undergraduate students with a tool for tracking progress towards completion of degree requirements.
- Serve as a tool in the exploration of academic options by allowing the creation of "what if" scenarios in degree planning—students will be able to create and save unofficial electronic worksheets as they explore alternative academic plans and advisors can create an official worksheet once an unofficial course of study has been approved.
- Permit students and their advisors to concentrate on creating a challenging academic experience rather than focusing on the mechanical aspects of selecting courses and meeting requirements.

Undergraduate academic advisors have had web-based access to the registration information and transcripts of their advisees since the Spring semester. Implementation of the electronic worksheet in the student participation phase will further aid advisors and students in planning and reviewing programs of study by providing a common, easily accessible tracking tool.

The system will be launched in a test phase to students today. At that time:

- Students in the College and College of General Studies will be able to use the system to review their academic plans and progress for require-

ments outside of their major. In addition, students planning or actively pursuing majors in Classical Studies, History, Mathematics, or Sociology can initiate plans and review progress toward their major. The other 44 College majors will be phased-in during the year.

- Undergraduate students in the School of Engineering and Applied Science will have access to curriculum worksheets for all degree programs with requirements that are in effect as of Fall, 2000. For students who are following degree requirements prior to Fall, 2000, additional worksheets may be developed at a later date, after the preliminary launch. Also, worksheets for joint and dual degree programs will be implemented at a later date.
- Undergraduate students in School of Nursing will have access to their complete curriculum. Students pursuing a joint degree with Wharton or Engineering will have access to their worksheets by the completion of the Spring 2001 semester.
- Students in the Wharton Undergraduate Division will be able to use the system to review their completed coursework and to plan areas of study. For the initial roll-out, students in the Wharton single degree programs will have access to the curriculum worksheets for the Accounting, Finance, Management, Marketing, and Undeclared concentrations as of Fall, 2000. The Undeclared concentration worksheet can be used to plan any of the 17 areas of concentration within Wharton. Worksheets for the other 13 concentrations will be completed by the Spring, 2001 semester. The joint degree program worksheets will be developed in the future.

Undergraduate students who are considering applying to dual-degree programs as well as those who are already enrolled will be able to use the worksheets of both schools to plan their programs. Worksheets for students in joint degree programs will be developed to reflect their integrated programs.

There are on-line help pages within the system to assist students and advisors.

Penn InTouch 2000 is a joint initiative of the four undergraduate schools and the Office of the Provost, working with the Council of Undergraduate Deans, Information Systems and Computing, and the Registrar's Office. Several graduate schools will join the initiative in the future.



At the University Council meeting on October 4, the President and Provost presented their annual State of the University reports. Below is the report given by Provost Robert Barchi. President Judith Rodin's report was published in the *October 10 issue of Almanac*. —Ed.

## The State of the University, 2000-2001 by Robert Barchi

I would like to pick up where President Rodin left off. The President gave you a broad overview of the State of the University during the past year. I'd like to look down a little deeper in a few selected areas. There is so much going on that in the limited amount of time I have available we can't possibly touch on each and every project. If there are areas that you want to explore further we can do that in the questions afterwards.

### Admissions

Let me return first to the issue of our undergraduate admissions. Very briefly, what you saw in the President's table is that over the course of the last few years the number of applications to Penn has taken off dramatically. With a constant class size of about 2,400 students, the number of students that we actually accept in order to matriculate this class size has declined and the ratio of this to the total has clearly gone up. This leads to a progressive improvement in our indicators. There are two statistics that we look at most; they are the yield rate and the admit rate. This indicates that the University of Pennsylvania is becoming progressively more selective, reaching into the very top ranks of American universities in terms of selectivity. At the same time students prefer us to other choices in the market place. When we offer the opportunity to matriculate at Penn; more and more of the students offered that opportunity taking it.

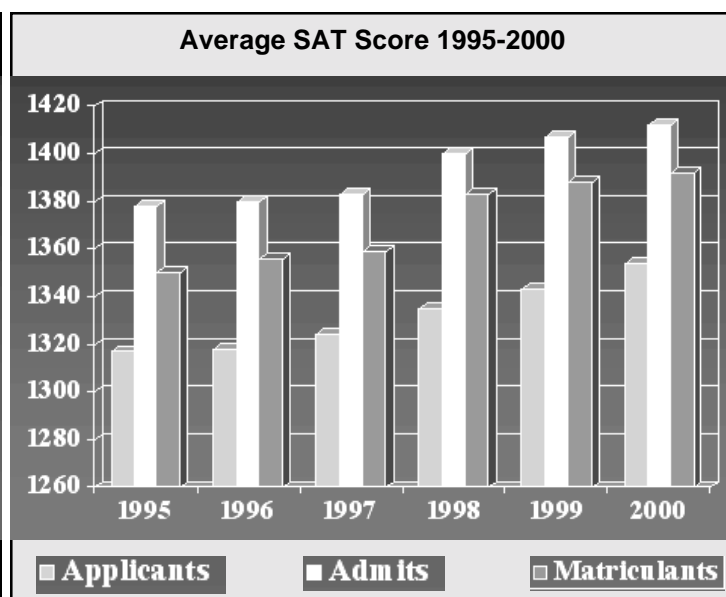
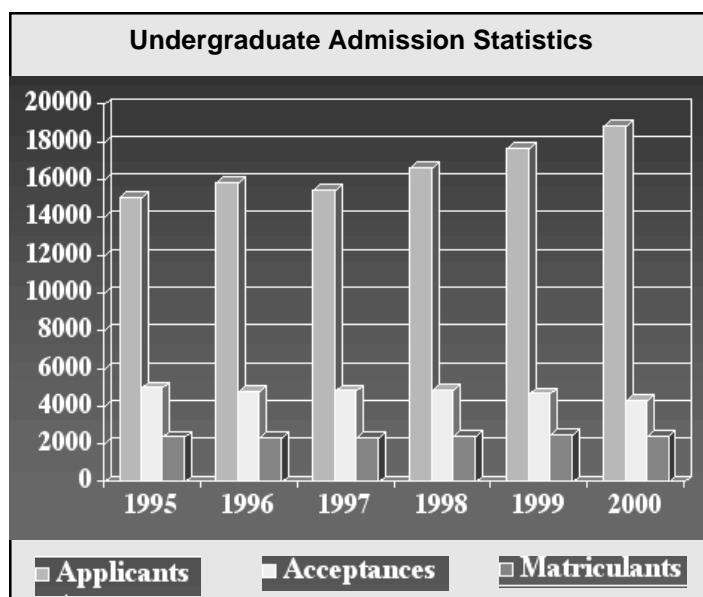
At the same time the quality of our students continues to rise. Average SAT scores are only one of the many measures that we use. The students that applied to Penn in FY 2000 had an average SAT score of about 1350. The ones who we accepted had scores of over 1400 and our matriculating class averaged 1392, making this along with all the other parameters that we look at clearly the most selective class that we have admitted to Penn. Our classes each like to brag about the fact that they have become the most selective class to get to Penn. And those of you graduating this year can be proud that you are part of the most selective class to graduate from Penn. For at least a year.

Let me mention one other fact—the number of early decision applications to Penn. You can see that there is a progressive rise in early decision applicants. We received 2,570 applications for early decision to Penn and I think this reflects a trend for other very highly selective schools in the nation. The acceptance rate for the early applicant pool is about 39%. These are very highly qualified individuals who are already precommitted to Penn, and their matriculation rate will be well up in the high 90s. The acceptance rate for standard applications reviewed in the spring is about 19%. We expect that this trend will continue in the future and that individuals will be more inclined to identify with and commit to Penn in the early acceptance pool.

### Research

Let me move on now to a brief discussion of research. As the president indicated, research is essential for the generation of new knowledge for intellectual activity on campus. It is hard to quantitate that, but one way is simply keep in mind the percentage of our academic budget that is comprised of income from research activity, both direct support and indirect cost recovery. About 33% of cash flows through the academic budget of the University. And the slide on the next page (Total Awards Received) puts in perspective the trends that we have seen here for total research awards over the past ten years. I want to call your attention to the last five or six years, when the rate of growth of research activity at Penn has really been quite phenomenal. Last year it reached a total of \$546 million—over a half billion dollars worth of sponsored research at Penn. That certainly is partially due to the fact that the School of Medicine has for every year in the past decade been number one in the nation in the rate of growth in the NIH sponsored research. The rest of the University is also growing at a very respectable rate.

So we look at our academics, our teaching and our research as being a hallmark of our academics. We are literally winning a larger share of the national pie in the research market and this reflects extremely well on the University. At the same time, as the president indicated, it also causes strains on our resources because of



the challenges that we face in research.

First, there is the actual cost of research itself. While we continue to bring research dollars into the University, it costs us dollars to perform that research, both in the maintenance of buildings and the support of the personnel. On the other hand, the amount of indirect cost recovery provided to us from the government is declining and one of our very biggest challenges is to figure out how to cover the cost of research even as our research base grows.

During the past year we have asked Arthur Anderson, an academic consulting firm, to look at this problem and they are reporting out to us now. I also have a task force working for the provost's office to look carefully at the cost of research and see how we can get that issue under control.

The second critical issue is the research infrastructure. The manpower required to handle this huge volume of grants is considerable and we have to work very hard to use technology to provide the kind of services that our scientists and humanities investigators expect.

Finally, of course regulations governing research of all kinds, are expanding exponentially, and the burden of regulatory work required on the part of the investigator and the University is increasing dramatically.

As you know, we have had some major issues in human research. At the president's request, I have put together a committee on research using humans that has been working since last spring and has already issued an interim report. The committee has completed a review of our entire IRB system and many recommended changes have already been put in place. It has carried out a users' survey of the researchers who function in this area. We have contracted with an external monitoring agency to review our current clinical trials and help us with the monitoring of high-risk trials in the future, developing standard operating procedures for research and for IRB panels. We have just sent to the Senate modifications that we recommend in our conflict of interest policy related to human research. We

believe that we will be at the cutting edge in terms of research universities doing human research. Far from being in the position of shutting down our human research enterprise, I want to make it very clear that we will continue to be one of the premier institutions in the world in terms of the quality of research we do using humans.

### Academic Initiatives

Let me move on to a brief overview of academic initiatives that we have put in place during the past year. I will start with some *Agenda for Excellence* programs and highlight just three.

The first is the Institute for Urban Innovations, which will be a premier location for thinking and research about cities and their future, and a unique campus hub linking faculty, undergraduates, doctoral and professional students, post-docs, and senior research scientists in a community of learning focused on research on urban issues. This will be housed in the Fels Center.

The second is the Center for Children's Policy Practice and Research. This particular center, which we just celebrated the official opening of a few weeks ago, is a collaboration between the Law School, the School of Social Work and the School of Medicine. It seeks innovative solutions to the legal, societal health-crisis facing America's children. The Center will concentrate on interdisciplinary policy on research, practice, and study among faculty and students in a number of schools and departments, centers and institutes throughout the University. It will bring together unusually talented and experienced experts from across our campus, and additional staff from around the country. This is really an innovative program that I think will set up a benchmark for how things are done in this particular field.

Finally, you will see in a few weeks an announcement about a genomics initiative on campus representing a coalition of efforts from various schools including Medicine, SAS, and SEAS in a number of programs. One of these will emanate from the provost's office, another from the Cancer Center, and others from other areas in the University. This will be the next

revolution in the life sciences. If you think back to the 1970s, to the advent of the enzyme technology that allowed us to manipulate RNA and DNA, and the introduction of molecular biology to the life sciences and what a transition that made, I would say that transition is minor compared to the tidal wave that you will see with genomics.

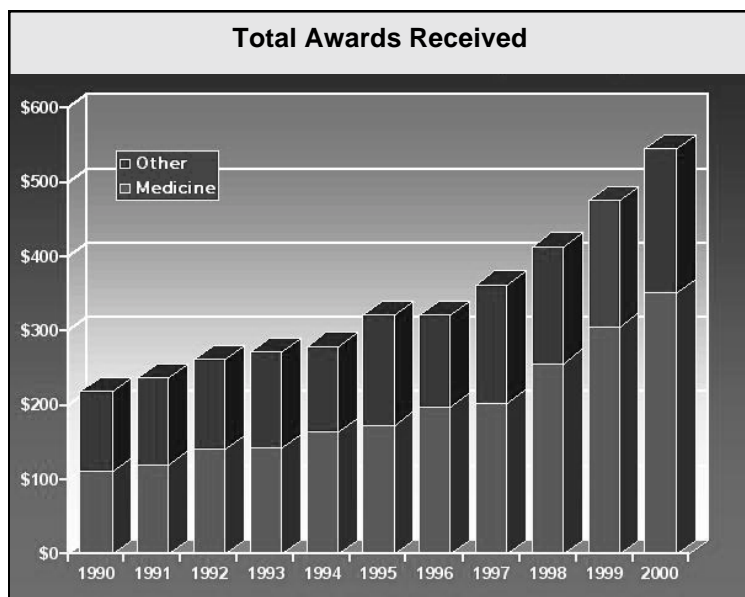
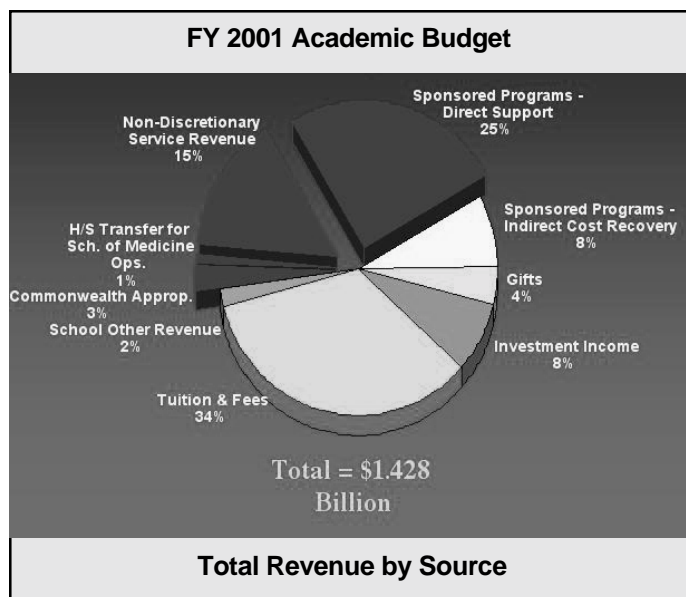
With the completion of the human genome project and the availability of complete sequences for an increasing number of other organisms, the approach in the biological sciences will shift from a focus on individual molecules to a focus on whole genome expressions, whole protean constitution of cells and organisms and will require huge capabilities in data analysis. The interface between bioinformatics, information sciences, computer technology, SEAS, the biological sciences, SAS and life sciences and medicine represent enormous opportunities for Penn. We will be at the cutting edge of that field.

Moving on to other areas, you probably are aware of the new student orientation that was put in place this year. I commend our deputy provost Peter Conn, and his staff, and Val Cade and her staff for the tremendous work they did, to extend the new student orientations from 4 to 7 days, giving us a greater academic and cultural focus for our incoming students, widening our advising opportunities for those students, and expanding exposure to the city and the community. As an example, we hosted five different tours for our freshmen in various areas of Center City and West Philadelphia. They were staffed and led by a huge cadre of our graduate students trained in these areas; it was a remarkable exercise, which has proven to be very popular.

### Academic Facilities

The President mentioned the campus development plan. We are very pleased with the progress that's been made; most of you have heard presentations there, and I've heard some of the recommendations on that plan. Let me highlight for you three academic projects that are coming up on the facility side, just to point out how we can work

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together between academic program and the campus development plan.

The President indicated that the Graduate School of Education was an adaptive reuse of an existing building, one of the main foci of the campus development plan begun in September. It will take us about 18 months to complete the project, and will refocus the life of this building to a very dynamic and exciting project along Walnut Street. It will bring a lot of life to that side of the street. At the same time, it will increase the effective usable area in the building so that many more Graduate School's academic programs can be housed in this pre-existing but newly renovated building.

A second example, at the recommendations of the committee, is to focus on academics in the core of campus to remove surface parking lots from the core and to utilize that space. An example here is engineering, with the removal of surface lots and taking advantage of a prime little piece of real estate, that allows us to expand the program in computer and information sciences, build this within a building, and house our new faculty in that area. It is our hope that we can do the same thing on the other side of the engineering complex. In the second area in which we think there are tremendous opportunities for engineering, namely in bioengineering. This is an area where we can link the engineering complex here with the school of medicine, a proximity that's rare for engineering schools in the country. There are very few places in the country that have an undergraduate and graduate engineering school, literally across the street from a world-class medical school and healthcare delivery system.

Finally, another recommendation of the task force was to think of ways to redefine and strengthen ties between our schools and our disciplines. This has really been the thought behind the life sciences building. This will allow us to bring psychology and biology together in an area around the biology pond that can link the School of Veterinary Medicine and the research facilities of the School of Medicine into an integrated life sciences research campus.

We believe that this building, which will also house our genomics capabilities, will be a model for how we can integrate academic disciplines across schools and across disciplines, rather than having them all vertically distributed within individual departments. The programming is complete, the design phase is under way now, and we hope that we will move into the construction phase within the next year.

And finally as the President indicated, one of our main priorities for the coming year is to focus on the humanities. You may recall our presentations last year and remember that when talking about SAS we identified three areas: the life sciences was one, we have gotten to that this year; the humanities was another one. Our prime focus, certainly one of my primary interests for this year, is to come up with a revival plan for dealing with English and Music and History and the facilities that they need to support the outstanding work that they do for the University.

## Campus Life

Let me just touch briefly on campus life. Many of you heard this topic before, one that I come to many times, and that is the idea that we

are a community of scholars. What I really hope we are here, in essence, is a community, an in-depth community of students and staff and faculty that really underscores what this University is about. I have taken a number of initiatives to try to knit that community together; the Provost's Lecture Series kicked off this year with Jeremy Siegel to a sold-out crowd. We will also have this year Risa Lavizzo-Mourey and Larry Gross winding up the semester in the lecture series. The provost's spotlight series is another initiative that is underway. The first spotlight event was an evening of arts and culture during New Student Orientation week which was quite successful. We will also cosponsor an event during Academic Integrity Week; and we are co-sponsoring, along with the library, the 100th anniversary of the publication of *Sister Carrie*. We also sponsor interdisciplinary seminars for groups that are willing to bring together various disciplines and we provide resources for those. And working with Peter Conn we have the provost's council on arts and culture, again trying to bring together the community and take advantage of the various resources and treasures we have here on campus.

Another example of what we can do when University campus life was the program on Locust Walk where we had a unique opportunity with the availability of 3619 and the Veranda and the Christian Association to look at a whole region of our core campus in a manner that's consistent with the campus development plan. We took the opportunity to rethink how to revitalize that area to make it into a diverse mix of academic, cultural and residential activities. We were looking for ways to make this area active night and day and I think that we have come up with a very interesting and viable plan. We have a number of academic programs including the McNeil Center—the Humanities Forum, and Folklore in one part of our Locust Walk; our graduate students and their programs in an adjacent building; and we are holding a space open for a residential community of Greeks, potentially a sorority next to that. In a move that epitomizes our direction here in the old Christian Association we created the ARCH. The program includes the arts, research and culture in a single facility and is really designed to provide separate space for recognizing the uniqueness of each of these programs but also an environment that encourages interaction among them. That allows them to take advantage of what is so valuable about a university community.

## Future

Let me take just the last few minutes to let you know where we are going. During the next year, we have a busy year planned. Some of the programs that will emanate from the provost's office, between the faculty and the administration include the review of our copyright policy and the revision of copyright. This is now back in the hands of the Faculty Senate and hopefully we can move that to a conclusion this fall so that issues related to intellectual property can be solidified and we can really make some aggressive moves in technology transfer. You have heard about the Gender Equity Task Force; it will be followed by a task force dealing with minority recruitment and retention. Hopefully that committee will report out in the fall of 2001.

We have just named members to a Faculty Retirement Task Force, jointly with the Senate for a reporting date in the spring of 2001. There is a research misconduct policy group working, which will also report out in the spring of 2001. So we have a very busy academic year planned.

Let me highlight some of the key University-wide issues that we will be dealing with. One is this whole issue of Intellectual Property and tech transfer. Part of that is P2B, the broad issue of how we bring our intellectual property to the broader community.

The second, that I consider to be critically important will be how we position ourselves in the global environment. How do we want to be seen globally? What kind of positions do we want to take? What kind of relationships do we want to structure? We are actively pursuing a number of options there and we need a University-wide policy.

Graduate education is another priority. The critical nature of graduate education to the intellectual enterprise of our faculty is an area that has been under-emphasized here at Penn. Although we have outstanding graduate programs, I don't believe that they get the visibility that they should, certainly not with the trustees.

Faculty recruitment and retention always deserves the very highest level of attention because after all the faculty are our most precious resource. We can build all these buildings but if we lose our faculty there will be no one here to man them.

This year it is the time to once again revisit the Strategic Plan as part of a six-year cycle. We will begin the process of thinking about where we are going as a university starting with a Trustee Retreat in another month. Then we will move to a very broadly based process involving the rest of the faculty, staff and students during the course of the remainder of the year.

That concludes my report.

## Q&A

**Mr. Sherr:** Just a really small question. When you are talking about the Graduate School of Education building are you reopening the entrance towards Walnut Street or will it continue to turn towards the center plaza between Stiteler?

**Dr. Barchi:** As part of a general effort to make Walnut Street a much more dynamic and attractive part of the campus, not just a thoroughfare, you will notice a number of those buildings are turning themselves around so they are not putting their back towards Walnut Street. They have entrances on both sides. Part of the renovations with GSE will include a major entrance on Walnut Street—on the left hand side is a very attractive glass lobby.

### State of the University, On-line

Available on *Almanac's* web site ([www.upenn.edu/almanac/](http://www.upenn.edu/almanac/)) are both the President's and the Provost's State of the University Addresses—complete with statistical charts, tables and graphs, which *Almanac* was not able to reproduce here in print.

To see President Rodin's address along with statistical supplements, visit [www.upenn.edu/almanac/v47/n07/StateOfUniv2K.html](http://www.upenn.edu/almanac/v47/n07/StateOfUniv2K.html).

To see Provost Barchi's address along with statistical supplements, visit [www.upenn.edu/almanac/v47/n08/StateOfUniv2K.html](http://www.upenn.edu/almanac/v47/n08/StateOfUniv2K.html).



# Update

OCTOBER AT PENN

## FILMS

**19** *Rachel's Daughters: Searching for the Causes of Breast Cancer*; discussion by Barbara DeLuca, Linda Creed Breast Cancer Foundation; 7:30 p.m.; Greenfield Intercultural Center (Linda Creed Breast Cancer Found.; LGBTC; Health Education; Panhellenic Council; Women's Center; Medicine; Nursing; SOMA; Women's Health; Women's Studies).

### Modern Language Program

TV Lounge of 1925 Manor, Gregory College House.

**17** *Men*; German w/ English subtitles; 9 p.m.

**19** *Bab el-Oued City*; Arabic w/ English subtitles; 7:30 p.m.

**24** *Anna*; Russian w/ English subtitles; 5 p.m.

## ON STAGE

**19** *Old Times*; directed by Cary Mazer; 8 p.m.; Studio Theatre, Annenberg Center; \$5; Info: (215) 898-3900. Also *October 20-28* (Theatre Arts).

## TALKS

**19** *The SH3 Domain Hydrophobic Core: Amino Acid Conservation and Protein Folding*; Alan R. Davidson, University of Toronto; 4 p.m.; Reunion Hall, John Morgan Bldg. (Biochemistry & Biophysics).

*Educating the Disenfranchised and the Disinherited: Samuel Chapman Armstrong and Hampton Institute, 1839-1893*; Robert F. Engs, history; 4:30 p.m.; Center for the Study of Black Literature & Culture (Afro-American Studies; Center for the Study of Black Literature & Culture).

*Mechanical Transduction by Channels: A Story from Patch Clamp to Patients*; Eric Boder, chemical engineering; 4:30 p.m.; rm. 337, Towne Bldg. (Biochemistry & Biophysics; Bioengineering).

*Remembering to Forget: Holocaust Memory Through the Camera's Eye*; Barbie Zelizer,

Annenberg; 5 p.m.; Bookstore (Penn Bookstore).

*Latinos and the Elections*; panel of Philadelphia Latino leaders; 7 p.m.; Ben Franklin Rm., Houston Hall (La Unidad Latina; Lambda Upsilon Lambda Fraternity; Penn for Gore; Penn for Bush; Office of Student Life).

**20** *Landscape and Ideology*; Renata Holod, history of art; 3 p.m.; Rich Seminar Room (201), Jaffe Bldg. (History of Art).

*Gene and Immunotherapy for Cancer: Making the Tumor a Better Place to Die*; Richard G. Vile, Mayo Clinic; 4-5 p.m.; Austrian Auditorium, Clinical Research Building (Institute for Human Gene Therapy).

**23** *Visual Imagery: A History*; Laurent Gervereau, Musée d'Histoire; 4:30-6 p.m.; History Dept. Lounge, 3401 Walnut St. (French Institute for Culture & Technology).

**24** *Democracy and the Politics of Race*; Manning Marable, Columbia; 6 p.m.; rm. 200, College Hall (African American Resource Center; Afro-American Studies; Office of Student Life; GIC; UMC).

*Fighting Back: Inner-City Children in the Struggle for Their Lives*; Jonathan Kozol, author; 7:30 p.m.; room B1, Meyerson Hall (Civic House).

**Deadlines:** The deadline for the weekly update is each Monday for the following week's issue; for the November At Penn calendar it is *October 17*. See [www.upenn.edu/almanac/calendar/caldead.html](http://www.upenn.edu/almanac/calendar/caldead.html) for details on event submission.

## OPPORTUNITIES

All open positions at Penn are posted on the Human Resources web site at [www.hr.upenn.edu](http://www.hr.upenn.edu). *Today's Penn* Partnership provides services to Penn hiring officers for the hire of permanent and temporary office support staff. *Today's* is also managing the Penn Job Application Center, 3550 Market Street, Suite 110. Contact them at (215) 222-3400. The Center is open 8 a.m.-5 p.m. weekdays where computer stations are available for you to browse the openings and/or apply on-line.

## Master's Programs at Leiden

The International Office of Leiden University in the Netherlands has informed Penn that for one year only (2001-2002), tuition for Penn (BA/BSc) graduates enrolling in Leiden's master's programs will be charged at the home rate (which is considerably less than the tuition normally charged to students from other countries). Information about the programs can be found on the web: [www.leidenuniv.nl/international](http://www.leidenuniv.nl/international).

**Note:** These regular master's programs should not be confused with the advanced masters programs at Leiden University. The advanced programs are open only to students already enrolled in a graduate degree program at the home university in the United States.

## CLASSIFIEDS

### RESEARCH

**Participants** needed for hypertension pharmaceutical study. Must be diagnosed as hypertensive and able to keep early morning appointments. \$350. Contact Virginia Ford, MSN at HUP Hypertension Program. (215) 662-2410 or (215) 662-2638.

### HELP WANTED

**Part-Time Administrative Assistant** for nationally renowned law school department. Responsibilities include both clerical duties such as typing, filing, and xeroxing as well as administrative support in updating website, assisting with events planning, and learning database systems. BA preferred. Excellent interpersonal and organizational skills a must. 20-30/hours weekly. \$13.00/hour. Please fax resume to (215) 573-5806.

To place a classified ad, call (215) 898-5274.

## All Aboard Express Almanac

Want to be apprised of late-breaking news and time-sensitive information that is published only on *Almanac's* website? We will inform you as soon as we post such items if you are on board *Express Almanac*. A free electronic service, *Express Almanac* is sent whenever we add something significant to our website: *Between Issues* news, the latest issue or At Penn calendar.

To register, send an e-mail message with "subscribe" as the Subject to [almanac@pobox.upenn.edu](mailto:almanac@pobox.upenn.edu) and include your name, e-mail address, and mailing address. —Ed.



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The University of Pennsylvania's journal of record, opinion and news is published Tuesdays during the academic year, and as needed during summer and holiday breaks. Its electronic editions on the Internet (accessible through the PennWeb) include HTML and Acrobat versions of the print edition, and interim information may be posted in electronic-only form. Guidelines for readers and contributors are available on request.

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## The University of Pennsylvania Police Department Community Crime Report

**About the Crime Report:** Below are all Crimes Against Persons and Crimes Against Society from the campus report for **October 2 through October 8, 2000**. Also reported were **31 Crimes Against Property**: (including **23 thefts**, **1 retail theft**, **1 burglary**, **3 frauds**, **2 vandalisms**, and **1 trespass**). Full reports on the Web ([www.upenn.edu/almanac/v47/n08/crimes.html](http://www.upenn.edu/almanac/v47/n08/crimes.html)). Prior weeks' reports are also online.—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 **October 2 and October 8, 2000**. The University Police actively patrols 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 (215) 898-4482.

10/02/00	4:53 AM	3900 Chestnut St.	Unwanted phone calls received
10/02/00	9:30 PM	400 S 40th St.	Complainant reported being robbed
10/03/00	1:11 AM	Unit blk. 43rd St.	Complainant reported being robbed
10/03/00	5:23 AM	3400 Civic Ctr. Blvd.	Complainant assaulted/Arrest
10/03/00	7:00 PM	3718 Locust Wlk.	Unwanted phone calls received
10/05/00	5:00 PM	3926 Spruce St.	Unwanted phone calls received
10/07/00	1:25 PM	420 Guardian Dr.	Unknown e-mails received
10/08/00	12:29 AM	4000 blk Chancellor St.	Subject cited for city ordinance
10/08/00	12:32 AM	4000 blk Pine St.	Subject cited for city ordinance
10/08/00	1:42 AM	4000 blk Pine St.	Subject cited for city ordinance
10/08/00	1:56 AM	4000 blk Chancellor St.	Subject cited for city ordinance

### 18th District Report

14 incidents and 5 arrests (8 robberies, 4 aggravated assaults and 2 rapes) were reported between **October 2 and October 8, 2000** by the 18th District covering the Schuylkill River to 49th Street and Market Street to Woodland Avenue.

10/02/00	1:41 AM	4535 Osage Ave.	Aggravated Assault/Arrest
10/02/00	9:00 AM	4200 Locust St.	Robbery
10/02/00	8:45 PM	3900 Market St.	Robbery
10/02/00	9:30 PM	400 41st St.	Robbery
10/03/00	12:30 AM	9 43rd St.	Robbery
10/03/00	5:23 AM	3400 Civic Ctr.	Aggravated Assault/Arrest
10/03/00	4:00 PM	200 51st St.	Rape
10/03/00	12:59 PM	5101 Walnut St.	Aggravated Assault
10/04/00	9:20 AM	1200 Hanson St.	Robbery/Arrest
10/04/00	1:30 PM	4000 Pine St.	Rape
10/04/00	9:30 PM	4935 Hazel Ave.	Aggravated Assault/Arrest
10/05/00	9:07 PM	4300 Regent St.	Robbery/Arrest
10/07/00	6:00 AM	310 48th St.	Robbery/Arrest
10/07/00	9:30 AM	3230 Chestnut	Robbery

## The Long and Winding Road to the Nobel Prize for Alan MacDiarmid

Provost Robert Barchi, "on behalf of President Rodin and the entire community of scholars here at Penn" introduced Nobel laureate, Professor Alan MacDiarmid.

### Alan MacDiarmid

I would like to thank you for your very kind comments and to say that from my point of view (I have now started my 43rd year as a fulltime member of the faculty of the Chemistry Department at Penn) that I greatly appreciate the magnificent climate which Penn has provided us. My colleagues in all the departments at the University carry out research as well as the extremely important complimentary aspect of university life, namely teaching undergraduates and graduates in the classroom. However, one point that is frequently overlooked, is that research—undergraduate, graduate and postdoctoral students—is also teaching. Quite often, teaching is considered to take place only in the classroom, or in a laboratory associated with a lecture course. However, it also encompasses work in the research laboratory. This involves a one-to-one faculty to student ratio! It's been a great climate here at Penn for all of us and a wonderful academic home.

### Responding to Reporters

*Is there any "eureka" moment that spawned this research? How did this all come together?*

It really stems from the fact that I like color. I like pretty things. I had the good fortune to be a visiting professor at Kyoto University in 1975 where I was giving a lecture at Tokyo Institute of Technology. After the lecture, I was sitting down at a low table having a cup of green tea and there was this young junior faculty member sitting on my left—Dr. Hideki Shirakawa. I was showing him my golden-colored, electrically conducting, inorganic polymer, poly sulfurnitride. Then he said to me, "I have something like that, also." He showed me a silver colored polymer, polyacetylene. I said to him, "If I can get some money, could you come and join me for a year at Penn to study it?" He said "yes."

When I got back to Penn I called my contracting officer, Dr. Kenneth J. Wynne, of the Office of Naval Research. He became the first person in the world to put any money into financing research in this new area of science, which has now spread worldwide. I called him and said, "Can you possibly give me money for a post-doctoral appointment?" He said, "Why?" And I said, "I saw this beautiful silvery organic polymer; I've never seen a silvery polymer before." He said, "Write me a letter." I wrote him

a letter, and a couple weeks later he called and said, okay, we'll add another \$20,000-\$22,000 to my already existing grant. "I'm probably crazy to do this since you know nothing about polymers, but, I have a hunch." The worldwide field of synthetic metals, conductive polymers, electronic polymers, was dependent on this one person, Ken Wynne on getting it started. Funding agencies have such tremendous control on directions science will develop.

I contacted Shirakawa; he came and joined us, here in the Chemistry Department. He had previously found that this silvery polymer had shown some conductivity—not very high—but its elemental analysis showed there was impurity in it. So we said, if we make it more pure, we should get a higher conductivity. Hideki got it purer and purer by its elemental analysis but found that the purer it got, the more the conductivity decreased instead of increasing as we had expected! Then we thought, maybe the impurity acts as a dopant. We added some bromine, a very small amount, and later an iodine dopant, just the same iodine you have in your medicine closet in the bathroom, and suddenly the conductivity increased within a few minutes—about a million times higher!

Then—since I knew essentially nothing about physics, I contacted my colleague, Professor Alan Heeger in the Physics Department. Alan said, he was probably crazy to get involved with some yucky, horrible polymer stuff; but he was brave enough, or foolish enough, to do so and we then had a very fruitful and exciting collaboration for about ten years.

After Hideki Shirakawa went back to Japan, other people joined my group. We did the chemistry and electrochemistry and Alan Heeger and his group did the physics. During part of this time, he was director of our Laboratory for Research on the Structure of Matter. We would get together every Saturday morning. This was strictly *not* to discuss anything specific—purely to sit down and let our minds wander and consider crazy things, which we did. It was exciting and fun.

*Is this award something you were expecting this long after—more than 20 years after—you'd done some of this research?*

The first thing: we were fascinated by—we were excited about the science. In other words, we lived it, breathed it, slept it, dreamed it; complete immersion. And at first people didn't necessarily believe what we were saying, but that slowly changed.

If you go to Las Vegas or Atlantic City and put a quarter in the slot machine, a vague thought goes through your mind that maybe you might hit the jackpot. Similarly, if you go into a lab and play around with new things, the thought vaguely goes through your mind that maybe you might hit a scientific jackpot. But it's not something you really consider seriously.

*What do you plan to do with the money?*

Since I'm grateful to Penn and the climate and the administration and my colleagues and to the students—both undergraduate and graduate—the thought has gone through my mind that I would like to repay Penn and the students by helping in some aspect of the undergraduate and graduate education, or some aspect of research.

**One Plus One Can Make More Than Two**  
*Did this discovery and all these years of research change any of your ideas about the universe or did it do anything to you philosophically or religiously?*

It did change my thoughts about how one



Photos by Marguerite Miller

Dr. MacDiarmid in his laboratory.

does research and how research might develop in the future. Research used to be a primarily restricted to one's own discipline. If you were a chemist, you did chemistry research. If you were a physicist, you did physics research.

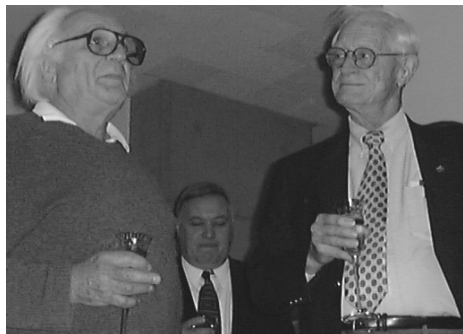
This award is a wonderful recognition of the importance of interdisciplinary research. Here we have chemists, physicists, electrochemists and now electronic engineers all working together on the same problem. If you have a physicist and a chemist having different concepts, different abilities, different techniques all working the same problems, we have "one plus one can often make more than two." The development of this whole synthetic metal field worldwide is probably one of the best examples in the last two or three decades of interdisciplinary research.

Science in the future is going to utilize the concept of interdisciplinary research much more, where people get together to solve a given scientific problem—people with completely different backgrounds. Alan Heeger and I found, however, you have to learn a different language—a different lingo—for a physicist to talk to a chemist and a chemist to talk to a physicist. It's not easy; it's much easier just to do research in your own discipline. It's tougher to do interdisciplinary research. But I have no doubt that we will see interdisciplinary research receiving more and more attention in the future.

In our own research we have had chemists, and physicists working closely together. This brings home the enormous importance of discussion in research. You can be the most brilliant scientist in all the world; put you on a desert island with the very best scientific equipment and the very best library and you'll do uninteresting research. You must have interaction. You must have discussion.

This award to Alan Heeger and to Hideki Shirakawa and me is recognition of the work that we have done—each of us individually and together. We have been fortunate to have first-class students—undergraduate, graduate and post-doctoral—in our groups. And I always say research coming from a given group can never be better than the people carrying it out. The prize is recognition of their work.

Let's say that I had some brilliant crazy idea to turn lead into gold and I asked a student who is not very good. He will say, "Well I tried to turn lead into gold and it didn't work. I tried it six times and it didn't work." Then I might turn to a very good student who might come back after a week and say, "Well, I've been able to turn a little bit of lead into gold." So what's the difference? If you have very good people working, not for you but *with* you, then the chances of finding very important, critical, unexpected things are pretty high.



Dr. David White, professor of chemistry and former chair of the department (1966-79) at left, proposed a toast to Dr. MacDiarmid, his long-time colleague, after the press conference. Well-wishers gathered in the Chemistry Building, including George Palladino, center.