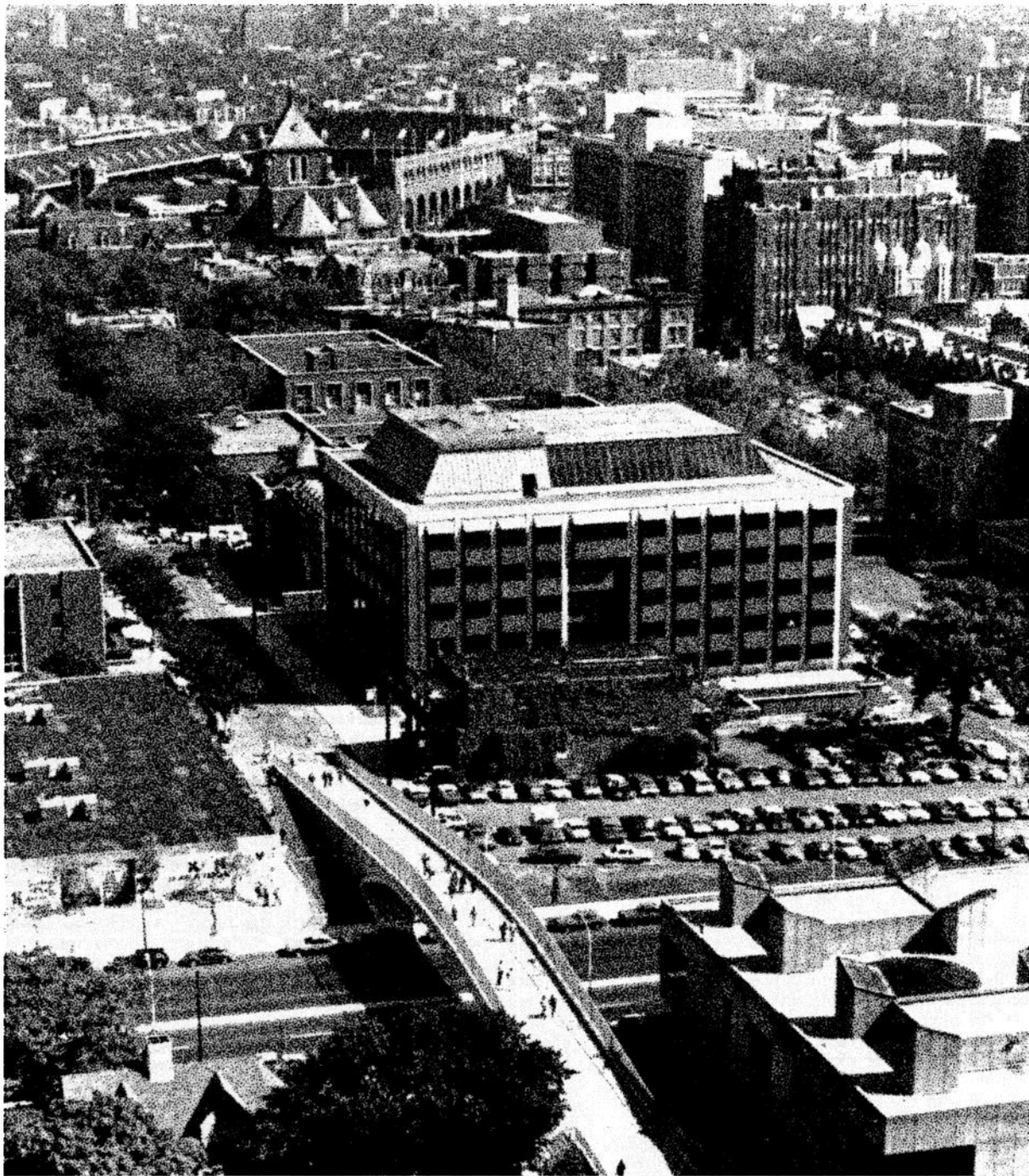


The State of the University



The State of the University, 1974

by Martin Meyerson

This January, the fourth since I took office, I bring to the Board and to the University community on the occasion of Founders' Day a message which highlights some of the events, achievements—and problems—of the year just past and looks to the period ahead.

This year my message must begin on a note of sadness. The death of our chairman, William L. Day, on the last day of 1973 was a profound loss to the University, to the City of Philadelphia, and to his friends and colleagues throughout the nation. Although it may not ease our sense of loss, we can take pride in the knowledge that the University of Pennsylvania was an institution meriting the greatest prominence in the catalog of affairs important to Bill Day. We can be grateful for his enormous contribution to the welfare of the University, and we can face with courage the tasks he has intended for us to carry on, buoyed by his confidence that the specific accomplishments still before us will be brought to pass.

THE REPORT OF THE DEVELOPMENT COMMISSION: A YEAR OF DELIBERATION, IMPLEMENTATION, AND PLANNING

A year ago, our meeting was highlighted by the release of the report of the University Development Commission which was co-chaired by Robert H. Dyson, Jr., professor of anthropology, and Eliot Stellar, who is now, of course, our provost. In its ninety-four recommendations and supporting text, the report stressed strengthening of ties among schools, departments and programs as essential to our goal of "one university", wise and selective use of resources in pursuit of academic excellence and distinction, and creation of a more stimulating climate for learning in and out of the classrooms. The year just passed has been one of implementation, and of further planning and deliberation prompted by the Development Commission's report.

The Faculty of Arts and Sciences. Perhaps no single recent act has greater significance than the establishment for the first time in our history of a unified Faculty of Arts and Sciences. Building upon the 1970 recommendation of the Task Force on Governance, and the subsequent studies of the Senate and Council, the Development Commission recognized the inexorable linkage between the quality and content of teaching and scholarship in the arts and sciences and the strength of education and research in virtually every part of the University. With the social science departments from the Wharton School joining the departments formerly under the College of Liberal Arts and the Graduate School of Arts and Sciences, the new Faculty of Arts and Sciences awaits its first dean. J. Robert Schrieffer, Mary Amanda Wood Professor of Physics and a 1972 Nobel Laureate, is chairman of a consultative committee created to advise Provost Stellar and me on the selection of the

dean, and we look forward to a Faculty of Arts and Sciences in full operation by the beginning of the 1974-75 academic year.

Planning and Change. The work of the Development Commission has helped to produce a climate of examination and invigoration in which detailed academic planning has flourished in the various colleges and schools. The College of Engineering and Applied Science, the Wharton School and the School of Dental Medicine, to name but three, have produced not only important programs for the future, but significant achievements within the past year.

The Wharton School, under the guidance of Dean Donald C. Carroll, has a new Board of Overseers. Headed by Trustee Donald T. Regan, it is designed to advise the School in the course of its future development. Wharton has established an Entrepreneurial Center under the direction of Edward B. Shils, chairman and professor of management. The center is a research, educational and clinical facility devoted to the discovery and application of knowledge needed by new business ventures to succeed and by large established companies to keep their entrepreneurial drive alive. Since September, the federal government and a dozen individuals and corporations have contributed over \$80,000 as seed money for the operation of the Center.

Under the direction of the new assistant dean for lifetime education, Jules J. Schwartz, Wharton has set up two prototypical programs for reaching the enormous pool of adults able and eager for further education—a marketing management program for American Telephone and Telegraph and a management information systems program for the United States General Accounting Office. Wharton also has installed a new instructional computer system, and in collaboration with the School of Medicine, it is taking part in a major research project involving a study of the managerial aspects of disaster. In cooperation with Tiffany and Company of New York, Wharton this fall inaugurated a series of lectures on Corporate Design Management, the first of its kind in any United States business school.

As proposed by Dean Arthur E. Humphrey, a major reorganization of the University's former engineering schools into eight academic units under the College of Engineering and Applied Science was completed in 1973. Another highlight in engineering has been the approval by the faculty of a plan for a new degree to accommodate students who do not wish to become professional engineers, but desire a strong technical base for other careers. The plan, which is awaiting University Council review, calls for the creation of the degree of bachelor of applied science which can be earned by students in the College and the College for Women as well as those in the College of Engineering and Applied Science. Still another new engineering venture reflecting the "one university" theme of the Development Commission is a joint program with dentistry and medicine applying the principles and funda-

mentals of materials science and applied mechanics to problems in dentistry and orthopedics.

The School of Dental Medicine, under the leadership of Dean D. Walter Cohen, this past year initiated the first retraining program to convert Ph.D.'s in the physical or bio-medical sciences to D.M.D.'s in a 24-month period. It also stressed continuing education programs for its own alumni, and in 1973 doubled the number of continuing education courses it offers to help practicing dentists assimilate changes in the profession. During the past twelve months, a significant number of dental school alumni and students have participated in Wharton's MBA program and the business school's program in health care administration.

Nowhere is planning more difficult nor more pressing than in the disciplines of the arts and sciences. As the Development Commission noted, the selective strengthening of scholarly disciplines must be based on a sensitive evaluation of their attributes. Last year, the Academic Planning Committee under the chairmanship of Lawrence R. Klein, Benjamin Franklin Professor of Economics, designed a questionnaire to measure academic quality, productivity, centrality and uniqueness. It was submitted last spring to the chairmen of departments and graduate groups in the arts and sciences and to the deans of all the schools. Results of the first round suggested needed revisions, but also that the instrument was potentially a valuable tool in the academic planning and decision process.

New Budget System. The Commission's recommendation for a system of decentralized budgetary accountability for income as well as expenditures—an outgrowth of earlier work by the Budget Committee—was adopted during the past year. The schools as the major responsibility centers are now credited with tuition income in accord with course units taught plus all revenues earmarked or restricted to that school from endowment, annual giving and research contracts. They also receive a subvention from general University income derived principally from unrestricted endowments, gifts and Commonwealth aid. Out of this income, the responsibility centers meet all of their direct costs, such as faculty salaries; and a portion of those indirect costs, such as libraries, student aid and general administrative expenses attributable to their operations. Underlying the system is an improving data base designed to better reveal the costs of alternative programs so critical to the allocation of scarce resources among competing uses.

The allocation of general University income will also take into account those "external" benefits which must be supported by the schools but which accrue to the entire University—for example, the unquestioned, but hard-to-quantify, benefits to virtually all schools from a strong core of arts and sciences. Flexibility with strong incentives for income generation and effective cost control is thus accorded each school, while the University retains the capacity centrally to determine overall academic priorities among the schools and to assure budgetary responsibility throughout all units.

Undergraduate Programs. Undergraduate education at the University of Pennsylvania has been strengthened in these last few years through such efforts as freshman seminars, thematic studies, dual degree and submatriculation programs, and the Benjamin Franklin Scholars with their ties to undergraduate honors programs. Building upon our strengths in undergraduate programs and these improvements, and in response to a proposal which I earlier described as the "continental option," the Development Commission recommended a University Scholars Program designed to allow mature and committed students to begin their graduate or advanced professional education at the same time as they pursue their baccalaureate degree and its pattern of more general education.

This program has been formally launched on a pilot basis and is now accepting candidates for next year. In collaboration with a faculty tutor, each young scholar will be able to shape his or her academic program. The integration of undergraduate with graduate and professional work will shorten, in many cases, the period of formal full-time education before a young person is considered sufficiently prepared to begin his or her professional career. In some cases, such a program might lower the total educational costs to students and parents. But cost reduction is a subsidiary aim.

The principal goal is to provide the kind of early commitment and academic focus needed by some students, and in so doing to strengthen their liberal education as well as their graduate or professional preparation. We believe that such a program makes educational sense anywhere—and makes special sense at the University of Pennsylvania with our range and strength of graduate and professional schools.

The college house model of educational living was also given enthusiastic endorsement by the Development Commission. Inaugurated by Van Pelt College House two and a half years ago, Pennsylvania's new residential program was designed to foster collegial relationships among students and faculty. Its aim is to help students extend their intellectual horizons through close association with resident and affiliated faculty, and through cultural and communal activities not otherwise available at the University.

This year Hill House has its first resident faculty house master, associate dean of the College of Arts and Sciences Peter J. Conn, and it continues to evolve into a two-year residential college. Our former Provost, David R. Goddard, University Professor of Biology, and his wife, Katharine, a child psychiatrist, are the masters of Community House, a coeducational freshman house made up of four Quadrangle residence units and designed to involve the students quickly and easily in the intellectual and social life of the University. Plans are underway to extend the college house concept to all low-rise housing as resources permit, and engineering and architectural design will begin immediately on a small portion of the Quadrangle to illustrate the physical character of a prototype college house in the historic Quad.

To fill the interstices among the established departmental offerings, Thematic Studies provide students an opportunity for concentrated analyses of single problem areas. The program last spring enrolled some 400 students in seminars arranged on the following topics: creativity, health and society, systems study, energy management and women's studies. This term additional themes include university studies, the experience of theater and two Wharton-Sloan seminars devoted to managerial issues and problems and management in the non-corporate world.

Our freshman seminar program last semester enrolled 1,620 students and covered 120 topics ranging from philosophical problems in modern biology to the art of the novel to law and the American judicial system. Nearly all freshmen had the opportunity to take a seminar and to experience the close association with a faculty member which in the past was often precluded by large lecture courses.

Our vice provost for undergraduate studies, Humphrey Tonkin, has worked on all these programs with the Council of Undergraduate Deans, and now, in accord with University Council recommendations, draws as well on the advice of a new Council on Undergraduate Education.

The Task Forces: Public Policy, Health Sciences, and the Academic Calendar. A study of the University's programs in public policy, recommended by the Development Commission, has been completed by Almarin Phillips, professor of economics and law. Dr. Phillips' report recommends the creation of a semi-autonomous School of Public Affairs as one of three academic arms of the Wharton School (in addition to the Wharton Graduate School and the undergraduate program). The proposal suggests a school composed of the Fels Center, the master of public administration program, and other public policy programs such as the Leonard E. Davis Institute of Health Economics already under the Wharton aegis, plus the city and regional planning department and some components of the undergraduate urban studies program.

Another task force recommended by the Development Commission has been studying nursing (including the baccalaureate School of Nursing and the Hospital of the University of Pennsylvania's Diploma School), the School of Allied Medical Professions, and related health science programs. The task force, chaired by Alfred P. Fishman, associate dean of the medical school and William Maul Measey Professor of Medicine, recommended closer collaboration among these schools and programs, exploration of new training and research in existing programs as well as in emerging health professional fields, a phasing out of the hospital diploma

program, and use of H.U.P.'s clinical facilities for the baccalaureate School of Nursing. The recommendation to phase out the diploma program has been approved by the Health Affairs Committee.

Still another task force generated by last year's report of the Development Commission examined the academic calendar. Chaired by R. Jean Brownlee, dean of the College for Women, the task force has studied the problems connected with the synchronization of calendars across schools and the better use of University facilities over the twelve months of the year. A preliminary report is being widely studied, and we expect to bring recommendations to the University Council this spring.

THE FACULTY

Beyond question, Pennsylvania's faculty is a distinguished one, and each year we are fortunate in being able to recognize scholars of exceptional achievement and promise through appointment to endowed professorships. Many of these chairs go to men and women already on campus, enabling us to retain faculty of national and international prominence. Others serve as a mechanism for attracting new faculty, and since last January we have brought or arranged to bring several notable scholars and scientists to Pennsylvania. A specialist in Victorian literature, David DeLaura, a professor of English at the University of Texas, will join our faculty next fall as Avalon Foundation Professor in the Humanities. He succeeds Robert M. Lumiansky who was named recently to the presidency of the American Council of Learned Societies. A former chairman of the English department, Dr. Lumiansky will maintain his contact with the University as a lecturer in English during the spring semester of each year.

A California surgeon who pioneered in techniques for correcting congenital heart defects in newborn infants, Henry L. Edmunds, Jr., came to Pennsylvania this year as the first William Maul Measey Professor of Cardiothoracic Surgery. George G. Stewart, an expert on endodontic techniques, returns to Pennsylvania as professor of oral medicine and director of postgraduate endodontics in the School of Dental Medicine. E. James Roberts joined our faculty as Jacques Jenny Professor of Orthopaedic Surgery in the School of Veterinary Medicine.

After a four-year absence during which he served in the International Trade Law Branch of the United Nations, the Law School welcomed back to campus John O. Honnold as William A. Schnader Professor of Commercial Law. The noted lawyer and legal educator Louis H. Pollak, former dean of the Yale Law School, will join the University faculty in July as the first Albert M. Greenfield Professor of Human Relations and Law.

The Reinvestment Fund, a resource created to permit the University to make "special opportunity" appointments free of regular school and departmental budgetary constraints, made it possible for us to bring three outstanding scholars to Pennsylvania this year. Judah Goldin, from Yale University, an international authority on midrashic literature, was appointed professor of post Biblical Hebrew literature. Two others, Thomas P. Hughes, professor of the history and sociology of science, and George Makdisi, professor of Arabic, who were appointed last year, began teaching at Pennsylvania this autumn.

The distinguished social theorist Talcott Parsons of Harvard University is on campus as a visiting professor of sociology, and Frank I. Goodman, former director of the Administrative Conference of the United States and George Schatzki, from the University of Texas, are here as visiting professors of law. From Japan, Kentaro Yoshimura came to Pennsylvania as a visiting professor of parasitology, and next autumn we will have the Nigerian scholar Ezekiel Mphahlele here as a visiting professor of English.

In last year's report I mentioned that the University had secured new chairs for non-tenured faculty, and I am particularly happy to note this January that two of these have been filled by outstanding younger members of our faculty. Adele C. Rickett, an assistant professor of Chinese, is the first incumbent of the M. Mark and Esther K. Watkins Chair in the Humanities. Mark B. Adams, an assistant professor of the history and sociology of science, is the second incumbent of the Janice and Julian Bers Professorship in Social Sciences, a chair financed by our Trustee.

Honors and prizes were awarded to a gratifying number of our faculty this year, and while any listing runs the almost certain risk of important omissions, I should like to mention just a few of the men and women who won national recognition during the past 12 months. Roland M. Frye, professor of English, is currently at Princeton under a one-year fellowship from the Institute for Advanced Studies. Arnold Thackray, former assistant to the president and professor of the history and sociology of science, has left recently for Palo Alto where he has a fellowship at the Center for Advanced Studies in the Behavioral Sciences.

Three other Pennsylvania faculty members, Derk Bodde, professor of Chinese, Richard S. Dunn, professor of history, and Charles H. Kahn, professor of philosophy, have been named senior fellows by the National Endowment for the Humanities. The award provides for a year's intensive research and writing which they will undertake in 1974-75.

We will miss these colleagues and look forward to their return, but happily not all our faculty who have earned major honors recently will be away from the campus for substantial periods.

Renée C. Fox, professor and chairman of sociology, was among the 10 American academicians named Phi Beta Kappa Visiting Scholars for 1973-74. Dr. Fox recently returned from Atlanta where she lectured and held informal discussions at two area colleges as part of the two-day series of visits she will be making to eight universities during the year.

Five Pennsylvania faculty members were elected to the National Academy of Sciences. Recognized for their distinguished and continuing achievements in original research were Robert E. Forster, professor and chairman of physiology in the School of Medicine; Zellig S. Harris, Benjamin Franklin Professor of Linguistics; Lawrence R. Klein, Benjamin Franklin Professor of Economics; Beatrice Mintz, professor of medical genetics, and Anthony F. C. Wallace, professor of anthropology and curator of American ethnology at the University Museum.

Elected this past year to the American Philosophical Society were three other Pennsylvania scholars: Ward H. Goodenough, professor of anthropology; Michael H. Jameson, professor of classical studies, and James B. Pritchard, professor of religious thought and associate director and curator of Biblical archaeology at the Museum.

Dean Humphrey was elected to the National Academy of Engineering in recognition of his contribution to the new field of biomedical engineering. Elected fellows in various professional societies were: Benjamin S. P. Shen, Reese Flower Professor of Astronomy and Astrophysics, to the New York Academy of Science; Ian L. McHarg, professor and chairman of landscape architecture and regional planning, to the American Society of Landscape Architects; Samuel G. Armistead, professor of romance languages, to the Medieval Academy of America, and Karl Shell, professor of economics, to the Econometric Society.

Guggenheim Fellowships were received by four University faculty members this year: George H. Crumb, professor of music; Dr. Frye; Rochel Gelman, associate professor of psychology, and Herbert S. Wilf, professor of mathematics. Three Pennsylvania scholars, Hennig Cohen, professor of English, John L. Shover, professor of history, and Anthony R. Tomazinis, associate professor of city planning and director of the Transportation Center, were awarded senior Fulbright-Hays lectureships. Morton Amsterdam, professor of periodontal prosthesis, was chosen as the first Annenberg Lecturer to Great Britain.

Among Pennsylvania faculty members winning professional prizes last year were: Charles C. Price, Benjamin Franklin Professor of Chemistry, who won the Charles Lathrop Parsons Award of the American Chemical Society; Max A. Listgarten, professor of periodontology, who received the research award of the International Association for Dental Research; Carl C. Chambers, University Professor and former Vice President for Engineering Affairs, who won the Philadelphia Section Award of the Institute of Electrical and Electronic Engineers; Louis I. Kahn, Cret Emeritus Professor of Architecture, who was awarded the Gold Medal for Architecture at the seventy-fifth anniversary meeting of the National Institute of Arts and Letters; Louis I. Grossman, emeritus professor of oral medicine, who was presented with a new award to be named after him by the American Association of Endodontics, and Frank Kral, emeritus professor of dermatology at the School of Veterinary

Medicine who received the first achievement award ever presented by the American Academy of Veterinary Dermatology.

Nominees for National Book Awards in 1973 included three Pennsylvania faculty members: historian Richard S. Dunn, nominated for *Sugar and Slaves*, and professor of English Daniel Hoffman, nominated for *Poe Poe Poe Poe Poe Poe Poe Poe Poe*, and Jerre Mangione, nominated for *The Dream and the Deal*.

Leadership in professional organizations was assumed by Mark J. Dresden, professor of Iranian studies, who was elected president of the American Oriental Society; Dell H. Hymes, professor of anthropology, who became president of the American Folklore Society; Lester B. Lubrosky, professor of psychology in psychiatry, who was named president-elect of the Society of Psychotherapy Research; and Fay Ajzenberg-Selove, newly appointed professor of physics, who took office as the first woman chairman of the nuclear physics division of the American Physical Society. George Karreman, professor of physiology, was elected first president of the new Society for Mathematical Biology last March.

Fundamental to our goal of attracting the finest scholars and teachers to our faculty are our efforts to recruit vigorously among women and members of minority groups. A faculty advisory committee has been formed which will work on the recruitment of black faculty. Under the chairmanship of Robert F. Engs, assistant professor of history, it will assist the provost and all deans, department chairmen and personnel committees in identifying pools of

candidates, screening candidates and encouraging candidates selected by individual schools and departments to come to Pennsylvania.

At present, only 8.6 percent of our fully-affiliated faculty are women, with the majority appointed in recent years and occupying junior professorial positions. However, since 1971, in a period when the total faculty has increased by only about one percent per year, the number of women in the three professorial ranks has increased by 12 percent per year. In 1972-73, women made up 24 percent of all new faculty appointments, and 13 percent of the faculty promoted to tenure. More must be done to implement our affirmative action goals, but we believe a momentum is underway.

STUDENTS

An indispensable ingredient of a great university is a student body of quality and Pennsylvania's undergraduate, graduate and professional students are just that. Despite the upward spiral of tuition costs, which required the most rigorous countervailing efforts to make sure we were not an enclave of just the rich and the poor, we continue to attract students of diverse backgrounds.

A total of slightly over 9,000 new applications for admission was received by the Office of Undergraduate Admissions in 1972-73. Applications for the entering freshman class and for transfer students were both up over last year marking the end of a five year decline in the number of undergraduate students applying to Pennsylvania. The faculty played an important role in selecting the Class of 1977, as well as in contacting potential applicants in the course of their own professional travel and in encouraging students nominated as Benjamin Franklin Scholars to come to the University.

A national pattern of declining college board scores has been halted in a number of areas at the University, and in some schools and among some groups an increase is evident. Overall, the mean math score of our 1973 freshman class increased 10 points over the mean math score of our 1963 freshman class, from 620 to 630, and the mean verbal score of our 1973 freshman class remained at 590, the same as the mean verbal score of our freshman class of 1963. Nationally, between 1963 and 1973, the mean SAT math score declined 21 points from 502 to 481 and the mean verbal score declined 23 points from 478 to 445. Our black enrollment is up over last year, and the percentage of extraordinarily talented young people who accepted our offer to come to the University of Pennsylvania as Benjamin Franklin Scholars increased in 1972-73 by five percent.

At the graduate and advanced professional level, many University schools experienced strong increases in applicants and yields. Wharton Graduate applications, for example, increased 17 percent for this year's entering class, and are expected to increase another 10 to 20 percent in 1974. Applications to graduate programs in education, a field reportedly with excess supply in some areas, have remained impressive, with applications to the M.A. program holding steady and to the Ed.D. and Ph.D. increasing substantially. Engineering—another field which nationally has felt the impact of an adverse job market and declining undergraduate enrollments also held up well, with applications for this year's entering M.S. class down only slightly, but the yield on acceptances up from 31 percent to 43 percent resulting in a 34 percent increase—from 135 to 181—in fall term matriculants. Dental School applications, boosted by the first year of the American Association of Dental Schools Application Service, increased by 50 percent. Applications to the Graduate School of Social Work increased nine percent, to the highest level ever, with the enrollments also increasing slightly.

Several schools reported dramatic increases in the number of women applicants. The proportion of women in this year's entering classes reached 25 percent in the Law School, 16 percent in Wharton Graduate (the largest number in any entering M.B.A. program in the country), and 25 percent (of acceptances) in the School of Medicine.

The percentage of minority first-year enrollments reached seven percent in Wharton Graduate, 29 percent in the School of Social Work (35 percent of total School enrollment), and 15 percent in the Law School.



RESEARCH

The research university is America's proudest contribution to the world of scholarship, and the University of Pennsylvania clearly must be counted among the first-ranked institutions in this category. In the 1973 fiscal year, Pennsylvania received more than \$57 million in research grants and contracts. Two-thirds of this total, or some \$38 million, was awarded in the area of health science with 49 percent going to the School of Medicine. The dollar value of grants and contracts received this year was some \$8 million more than the total value of awards received in 1972.

At the same time, although we have been spared the worst consequences, federal funding of sponsored research has become increasingly uncertain. The recent report of the National Board on Graduate Education, for example, points out that the number of federal fellowships and traineeships has been reduced from 51,446 in 1967-68 to an estimated 6,600 for the current academic year. The annual report of the National Science Board indicates that total funds for basic and applied research per scientist and engineer in Ph.D.-granting institutions declined 15 percent between 1968 and 1972 as measured in constant dollars. Such data suggest short-run, stop-and-go policies toward university research which we must view with some alarm.

An excellent example of the large-scale collaborative sponsored research program is the Pennsylvania Muscle Institute, established in Philadelphia this year with a five-year \$4.3 million grant from the National Heart and Lung Institute. The office of the Vice President for Health Affairs is administratively responsible for the operations of the Institute which is directed by Andrew P. Somlyo, a professor of physiology and pathology in the School of Medicine. The Institute provides an opportunity for collaborative work among investigators from several institutions on research to advance man's knowledge of muscle structure and function.

Crowning development work going on since 1967, University radiologists last February announced a neutron generator designed specifically to treat cancer. The new machine will provide a practical neutron source for clinical use which will be relatively inexpensive and can be housed in a conventional supervoltage therapy room.

The study of world trade problems through the application of mathematical statistics to economic data gathered from governments and various business organizations is the principle activity of Project LINK developed by Lawrence R. Klein, Benjamin Franklin Professor of Economics, and an international group of experts. As a part of the project, which receives a broad base of international support, Dr. Klein and his Wharton School colleagues are preparing a massive worldwide economic forecast for 1974 which will show the impact of the Arab oil cutbacks on international economic activity.

A comprehensive study of the role of the individual investor in the stock market is the ongoing project of three members of Wharton's finance department, Marshall E. Blume, Jean Crockett and Irwin Friend. Preliminary results of their research, currently supported by the National Science Foundation, indicates that contrary to popular belief, the small investors' share of individually held stock is fully as great today as it was a decade ago.

NSF also is funding an evaluation of research and theory in criminology and criminal justice being undertaken by Pennsylvania's Center for Studies in Criminology and Criminal Law. Coordinated by Marvin E. Wolfgang, professor of sociology and the Center's director, the project is designed to assess all studies conducted over the past 20 years in the United States and some studies from Europe dealing with crime and offenders up to the point at which the criminal justice system intervenes.

The Law School's Center for the Study of Financial Institutions, under the direction of Robert H. Mundheim, professor of law, has been conducting research for several years on the problems posed by the rapid growth of institutions such as banks, insurance firms, mutual funds and stock brokerage firms. Problems of access to health care, the quality of care, and patients' rights in hospitals and nursing homes are the principle areas of investigation undertaken by the Health Law Project. Directed by Edward V. Sparer, professor of law, the project this year successfully challenged the administration of several statutes in the field of medical assistance.

It is currently studying public accountability problems involving Philadelphia General Hospital.

The University's National Center for Energy Management and Power has a number of major projects underway or in preparation, including an interdisciplinary research team under the direction of Iraj Zandi, professor of urban and environmental engineering, which is investigating the consequences of various policies and events upon the supply and demand for electric power.

Although large team projects such as these highlight dramatically the research capabilities of major universities, most research and scholarship at Pennsylvania as elsewhere is undertaken by the individual investigator. Space does not begin to allow a full accounting of our faculty's recent research contributions, but by way of example (and acknowledging the inevitable omission of some of the most exciting and fruitful) let me cite the currently scholarly activities of some of our faculty.

At the Moore School, Ruzena Bajcsy, an assistant professor of electrical engineering, is teaching computers to examine satellite photographs and pinpoint features such as lakes and objects such as bridges with extraordinary accuracy. Remote sensing research of this type may aid in the design and development of automated trains, automobiles, ships and aircraft.

William Labov, professor of linguistics and an associate in psychology, is pursuing a quantitative study of linguistic variation and change which involves a block by block analysis of speech in Philadelphia. It represents part of his continuing investigation of language in its social context.

Carrying on a search for better superconductors, Alan J. Heeger, professor of physics, and Anthony F. Garito, assistant professor of physics, have discovered metallic properties in an organic charge-transfer salt known as (TIF) (TCNQ).

Peggy R. Sanday, an associate professor of anthropology, has completed studies and presented new evidence supporting an environmental theory rather than a genetic explanation for higher scores of U.S. whites over non-whites on I.Q. tests. She found that school segregation had a negative effect on I.Q. scores of blacks and that changes in scores seemed to reflect school environment rather than pre-determined racial aptitude.

A study of the art of the illuminated manuscript was completed and published this year by David M. Robb, professor of the history of art.

Otto Springer, University Professor of German, and Adolph D. Klarmann, professor of German, are engaged in the long-range project of writing an Old High German Etymological Dictionary.

A new theory of emotions has been developed by Richard L. Solomon, professor of psychology, and he is collaborating with several investigators in Philadelphia in testing this theory in a wide range of phenomena.

These various projects are but a few examples of the dividends gained or promised by faculty research—dividends which accrue to students, to other faculty, to the University and to the world.

ADMINISTRATION

Any recounting of the affairs of the administration in 1973 must begin with sadness. The sudden death this autumn of Robert D. Dripps, our vice president for health affairs, was a loss to us all which I cannot begin to calculate even now. I count it among our many blessings in this new year, however, that Thomas W. Langfitt, Charles Harrison Frazier Professor of Neurosurgery, agreed to serve as acting vice president for health affairs.

We are fortunate, moreover, to have Edward J. Stemmler, professor of medicine, as acting dean of the School of Medicine. Alfred A. Gellhorn, who served five years as dean and director of the University's Medical Center, has left Pennsylvania to become the first director of the City College of New York Center for Biomedical Education. Search committees are at work to advise on candidates to serve permanently in both Pennsylvania health positions.

In the School of Veterinary Medicine, Robert R. Marshak, a member of the University faculty for 17 years, has succeeded Mark W. Allam as dean. Dr. Allam, who served as dean for 20 fruitful years, is now assistant vice president for health affairs. In other administrative changes, Graduate School of Education Dean Neal

Gross has returned to full-time scholarly pursuits as a professor in the sociology department and in the Graduate School of Education. We are fortunate to have William B. Castetter, professor of education, to serve as acting dean.

An effective administration requires the widest range of talents to perform the vital services—personnel, comptrollership, business administration, alumni and public relations, among others that keep a university functioning with efficiency, vigor and sensitivity. Increasingly, we have sought ways to better evaluate, train, challenge and reward those who have chosen careers in university administration. A new annual performance appraisal system has been adopted to identify men and women with the interest and potential for positions of greater responsibility, and training programs have been devised to further opportunities for both vertical and horizontal mobility within the University. In the past year we have systematized promotion, transfer, and termination policies; installed an administrative hiring procedure to assure equal treatment of women and minority group candidates; enlarged our central personnel recruiting and screening services; and instituted a grievance procedure to deal with problems of alleged unfairness, misunderstanding, or discriminatory treatment. Many of these new policies and procedures were included within the revised affirmative action plan which was put together by a team under the guidance of D. Bruce Johnstone, executive assistant to the president, and submitted last fall to the U.S. Department of Health, Education and Welfare. Most of them, however, can be viewed simply as devices to assure a more effective and sensitive treatment of people—and as fundamentally good administrative sense.

THE CAMPUS

The search for an improved campus environment continued at Pennsylvania this past year as a Council committee under the chairmanship of Morris Mendelson, professor of finance, reported its findings on ways to minimize the risks that campus life will be compartmentalized into academic and nonacademic components. The committee proposed the development of a pattern of educational life to help create a strengthened community of interest and contribute to the educational aims of the University.

It is clear that we have come far toward the creation of a residential campus. Five years ago, we could house 45 percent of our full-time undergraduate students and a mere eight percent of our graduate and professional. As a result of the vigorous building program begun during the 1960's, we can now house 71 percent of our undergraduates and 35 percent of our graduate and professional students. Between 1968-69 and 1973-74, the University total housing capacity more than doubled from 3,762 to 7,735 possible accommodations.

Though the expansion of our physical facilities has slowed greatly because many of our immediate needs for living and working space have been met, the University, since last January, has completed three major buildings which greatly improve the campus. They are the new chemistry building, the Wharton School's Vance Hall and the Williams Humanities and Language Hall. In addition, three other facilities have been completed within the past year: the C. Mahlon Kline Center at New Bolton Center, Colonial Penn Center of the Leonard E. Davis Institute of Health Economics, the Levy Tennis Pavilion, and the Jones Gallery in the Gimbel Gymnasium. Schematic drawings are in hand for the renovation of Houston Hall over a period of years, and construction already has begun for the creation of a Rathskeller there which should be completed in the spring.

This past year also saw the closing and landscaping of 39th Street. We now own 37th Street between Walnut and Spruce Streets, and plan eventually to landscape both 36th and 37th Streets to resemble Locust Walk.

Crime made it necessary for us to improve security operations on campus during 1973. One hundred new security lights were installed, additional bus service was provided locally for members of the University community, 40 additional emergency telephones were installed, and we expanded escort service to the campus edge and nearby transportation stops.

In an effort to make the best possible use of resources appropriate to the creation of cultural opportunities on campus, the

University established this autumn a Council on the Performing Arts chaired by Vice Provost Humphrey Tonkin which will coordinate policy related to the performing arts. We have been fortunate indeed these past several months in the outstanding program offered by the Annenberg Center. The New Phoenix Repertory Company returned to the campus in October with two productions and November brought the first of four plays to be presented at the Center this season by Joseph Papp's New York Shakespeare Festival. Other highlights included Dame Judith Anderson in an evening of dramatic readings, the Viola Farber Dance Company and Jessica Tandy and Hume Cronyn in two plays by Samuel Beckett. This coming semester we can look forward to several film festivals, musical, dance and theater events.

"Six Visions," a show featuring the work of young sculptors and painters never before exhibited, opened the season at the Institute of Contemporary Art.

As in the past, the University Museum this year has enriched the lives of both the campus and a larger Philadelphia community with a number of notable exhibits including its current display of "African Ritual Dolls" which is the first exhibition of its kind ever held in an American museum. Last fall the Museum inaugurated a three-year project entitled "War or Peace 1776" with a symposium on world peace and world resources. It is designed to culminate with the nation's Bicentennial celebration.

The University of Pennsylvania is committed to participation in the Bicentennial, and this past year a coordinating committee, under the chairmanship of Paul O. Gaddis, vice president for management, solicited and evaluated project proposals from throughout the University as well as initiating some projects of its own. Among the two dozen projects which the University plans to undertake as part of its institutional contribution to the Bicentennial are:

- a Bicentennial College which will concentrate our intellectual resources on a reexamination of this country's colonial and revolutionary period;

- a project on multi-cultural societies and world order which will examine major pluralistic societies using the American experience as a model;

- a project devoted to the 18th century scientific revolution;

- a study of ethnic contributions to the City of Philadelphia; and

- a summer lyceum which will consist of some 360 public lectures to be offered at Pennsylvania and throughout the city during the summer of 1976 by authorities in the arts, humanities, sciences and social sciences.

The University also is planning a major exhibit which will bring together Pennsylvania's various material resources relating to the colonial and revolutionary period, including Benjamin Franklin's papers, portraits, rare books, documents and artifacts. The Annenberg Center is developing a cultural program in commemoration of the nation's founding, and various athletic events are being scheduled as part of the University's Bicentennial observance.

Vartan Gregorian, Tarzian Professor of Armenian History and Culture, who is vice chairman of the coordinating committee, has emphasized that most Bicentennial projects are being submitted to the National Endowment for the Humanities and other federal agencies for funding.

FINANCE: THE UNCERTAIN FUTURE

Pervading the achievements, deliberations and planning of the past year has been the challenge of maintaining a balance between our revenues—with all of the uncertainties attendant in the Commonwealth appropriation, support from the federal government, and the performance of invested funds—and our costs, pressured by an increasingly inflationary economy. In the fiscal year ending last June 30, we achieved our first balanced budget since 1969, and our budget for the current year we hope is balanced. The elimination of a net operating deficit in fiscal 1973 was achieved with a combination of rigorous, often painful, economies and the continuing generosity of alumni, friends, corporations, and foundations. During 1972-73 we received a record \$24.5 million in gifts, subscriptions and bequests. It was the eighth year con-

tributions surpassed \$20 million and the third year in a row we have exceeded this mark in the absence of a capital drive. Included within the \$24.5 million was a new high of \$3 million in operating funds and another new high of \$7.4 million added to some 40 endowment funds and "funds functioning as endowment."

The budgets which were balanced last year and which remain in a precarious balance this year were also achieved through further reductions in the operating deficits of auxiliary operations such as the dining services, the continuation of extraordinary economies in buildings and grounds and other supportive operations, the maintenance of a virtual freeze in the net size of our teaching faculty, and increases in tuition matched by only modest increases in student aid. The true "costs" of austerity may be the hardest to measure: the overcrowding of classrooms and laboratories, the scarcity of funds for support of departmental research, increasing pressures placed upon junior and senior faculty alike in decisions for promotion to tenure, and the erosion of the major portion of what has been planned each year as a centrally-administered fund for academic development.

Halfway through the current budget year and well into the formulation of the 1974-75 budget, Vice President for Management Paul Gaddis, Vice President for Business and Finance Harold Manley and the rest of us are watching with concern the increasing economic uncertainties which threaten—adversely—both our costs and our revenues. Utility costs, non-deferrable maintenance, and wage and salary settlements, for example, remain highly uncertain with substantial increases likely in each area. On the income side, gifts and bequests, the Commonwealth appropriation, federal support, tuition, and endowment earnings remain equally uncertain in a year of possible recession with virtually all risk on the "downside." We believe we can maintain a balanced budget this year, and our intention is to bring to the spring meeting of the Board of Trustees a proposed budget for 1974-75 which remains in balance and which contains sufficient flexibility to accommodate, if need be, most of these contingencies. However, if the economy in 1974 should enter into a period of recession with damage to the return on our endowment as well as to gifts and bequests—at the same time as inflation continues to drive up costs—future budgets (without substantial new revenues) will unquestionably be in jeopardy.

From Edwin E. Slossom's survey of American universities early in this century, it appears that the University of Pennsylvania achieved much with few dollars. That perception of a university able to manage well on modest resources is, I believe, as applicable today. In the last fiscal year, the University of Pennsylvania maintained, and it now has, a precariously balanced budget. At the same time, we have kept our faculty salaries competitive with the leading research universities and our student aid comparable to most major private institutions. Though I like to think we have not suffered in educational quality, we have had to bear certain costs of budgetary equilibrium in terms of deferring renovation of plant, of asking a devoted faculty to add programs such as freshman seminars to their other heavy duties, and of overworking a set of able administrators and supporting staff.

Whatever happens, we cannot continue financially as we have. I shall not describe the cost squeeze all universities experience. I shall note that though we may keep faculty salaries competitive, an erosion in the salary gains of professors in relation to other professionals, which were won over half a century, is evident. Meanwhile, most families, with present levels of financial aid, and even with new loan programs which clearly are necessary, will find them-

selves unable or unwilling to bear the rising level of student charges, particularly when they contrast them with costs at more heavily subsidized public institutions.

As a result, I have pointed out before, we have three paths before us. First, we can become a proprietary institution concentrating only on those activities that are "profitable," i.e. that have low unit costs and high demand. To some extent, our responsibility center budgeting builds in the incentives of the marketplace to our resource allocation pattern, and that is all to the good. But our aim is to have such incentives complement the benefits of educational and scholarly quality. To do otherwise would be a travesty of a great university—it would become an emporium, in which the classics, for example, if they were in low demand, would be removed from the inventory.

Second, we can become an essentially State university as have Temple and Pittsburgh. I have pointed out before that it is unclear whether or not the Commonwealth would add us to its State-related universities. Let us also remember that the days in which a California, a Wisconsin, a Michigan were prepared to match qualitatively the major independent universities of the East are gone for now. Our aim instead, I think, should be to recognize that we are a hybrid, and perhaps a hybrid that will influence others, drawing very significant support from the Commonwealth of Pennsylvania and having many responsibilities to the Commonwealth, but also remaining substantially a private institution. Our efforts to extend State support should intensify—as, for example, our tentative agreement to supplement Pennsylvania funds for Veterinary Medicine with ones from New Jersey. But given the cost pressures upon us, coupled with the increasing claims from so many directions upon the Commonwealth budget, State funding (unless we should become a State-related university), will almost certainly be inadequate to our needs.

Therefore, mindful of the necessity but insufficiency of State support, we must consider a third path. It is essential, I believe, to raise markedly the private funds available to our University. Our record in recent years has been good. Yet we begin with a base of endowment per full-time equivalent student which is lower than that for any comparable independent university. Using fiscal year 1972, the last year for which comparable figures are available, the \$12,000 endowment per student at Pennsylvania compares with twice that amount at Columbia, six and a half times that at Harvard, about five times that at M.I.T., two and a half times that at Stanford, and four times that at Chicago. If our State funds were capitalized our endowment per student would be doubled, but it would still be small both in absolute terms and relative to the per student endowments of other independent institutions (many of which receive some forms of state aid, as well).

Our aim must be to improve our endowment base both for covering certain present costs and for meeting new requirements, to increase our funding for operations, and—though our emphasis ought to be on programs rather than structure—to rehabilitate and add needed space. Such an effort will be most difficult, yet I have no question that we merit such financing. If we fail to achieve it, only the purely proprietary and State options are before us. High quality research universities such as ours—and they are very few—have perhaps until the next decade to remake their support base. If they flounder (and four or five with especially substantial endowments clearly will not), a resource of unmatched value will be lost to the nation and the world. In a way that is truly unique, these universities stand as pharoses of reason and intellectual imagination, and we must keep bright their light.

