

SECTION 2

ACADEMIC INITIATIVES AND PLANS

In this section, we focus on the programmatic elements of the Budget Plan by describing the principal planning issues in each of the major academic and academic support units.

SCHOOL OF EARTH SCIENCES

The School of Earth Sciences is completing several faculty searches, which will result in the addition of five new faculty for 1999/00. Of these, two new assistant professors will complete the School's Ocean Margins initiative, and combined with the senior appointment in the field made in 1997, will allow the School to expand its teaching and research efforts in the area of oceans and ocean/continent interactions. The other new hires will expand the School's expertise in soil science, geostatistics, and seismic interpretation.

Working closely with Hopkins Marine Station and Stanford's Learning Lab, the School is developing a new undergraduate course sequence focused on the oceans, which will likely become a track within the Earth Systems Program. The substantial investment in technology infrastructure and collaboration between the School and Hopkins is expected to result in an exciting educational initiative.

Teaching and curriculum development continue to be the focus of much faculty attention. Earth Sciences faculty are major contributors to the Science, Math, and Engineering core sequence, and a large number of faculty participate in the Sophomore College, teach sophomore seminars, and serve as undergraduate advisers. While Earth Systems is the primary source for undergraduate majors within the School, expansion of undergraduate course offerings in individual

departments will be a natural outcome of the expanded faculty capacity. Student recruitment has also become a priority, with outreach efforts at both the undergraduate and graduate level.

Twenty percent of the faculty population has turned over in the last several years. The School is now looking closely at retirement rates for the next five to ten years, and is developing a strategy to capitalize on these vacancies and build new strengths for the future. In addition, it is striving to increase collaboration among disciplines within the School and to foster additional links with entities across campus and outside the university.

Expenditures on new faculty, including housing assistance and lab set-up costs, will be high for the next several years, as commitments made during recruitment are realized. The School will be engaged in laboratory renovations over the next year, but is fortunate to be able to accommodate the increased need within existing facilities. Funding for these expenses will come from existing reserves, and should not impact the School's abilities to meet its base budget needs.

SCHOOL OF EDUCATION

The School of Education is in an intensive period of faculty recruitment that will lead to a replacement of over 50% of the faculty during the period 1995-2001. Current and recent searches are in the areas of mathematics education, higher education, organizational theory, education leadership, English education, economics of education, technology and education, and a "cluster" search in social diversity and common values which seeks a combination of

historians, philosophers, and sociologists. The School's recruitment plan addresses its academic needs and balances theory and practice as well as discipline-trained and professional school-trained scholarship.

The new initiative in Learning Design and Technology launched in 1997/98 will expand from a master's program to doctoral preparation over the next several years. This past year, the School invested in a new multi-media classroom and a video laboratory, and preliminary plans are underway to create a Learning Technology Center on the first floor of CERAS.

The School of Education is playing a leadership role in the Bay Area and is working closely with local educators on school restructuring and education reform. To this end, the School has committed to a multi-level approach.

- Establish four to five Professional Development Schools for the preparation of teachers in the Stanford Teacher Education Program. These schools will present an opportunity for local schools and School of Education faculty to work collaboratively on a school reform agenda.
- Establish a set of Study Groups at the School of Education, composed of local school teachers and administrators and School of Education faculty and graduate students to work on key issues confronting school reform and the State's education agenda.
- Expand the Summer Leadership Institute which brings together education administrators (locally and from across the nation) to address challenges confronted by changing demographics, technology, and school reform.
- Build up the School of Education's newly formed Superintendent's Forum that brings superintendents together to solve problems confronting their districts.

Under the direction of Professor Linda Darling-Hammond, the School is redesigning the

Stanford Teacher Education program. The redesign will include curricular and structural changes as well as reflect changes in California teacher certification requirements. Part of the redesign may include expanding into elementary education.

In 1998/99 the School embarked on a major initiative, "Communities and Children," to study teaching-learning environments that maximize educational benefits for culturally, ethnically, linguistically, and economically diverse students. Involving urban and rural communities across the country, the newly created Gardner Center offers programs in community leadership, supports community research partnerships and serves as a national resource in higher education for development of policy makers, researchers, and other practitioners who work with and on behalf of children and youth.

SCHOOL OF ENGINEERING

1997/98 saw significant progress on many of the goals set in the three-year plan submitted to the Provost two years ago. The biggest factor in the School's progress has been its success in faculty recruiting. Sixteen of the School's seventeen faculty offers this past year were accepted. 1997/98 was, by far, the largest and most successful faculty recruitment year of the past decade. This group includes five women and two minority faculty members who will contribute to the diversity of the faculty.

Engineering plans to capitalize on several initiatives and make significant progress on others that have begun recently. Over the next several years, the School intends to 1) build a world-class bioengineering program, 2) enhance its leadership in information technology (particularly in networking and information infrastructure), 3) develop strategic plans for smaller departments that will enable them to enhance their reputation and achieve national leadership, and 4) maintain strong research leadership in key areas that face turnover from retirements. These initiatives are discussed briefly below.

Creation of a strong bioengineering program requires attention to facilities requirements, organizational challenges, recruiting strategies, and development opportunities. The School of Engineering is actively engaged in each of these areas, with particular attention to building critical faculty strength in the most promising bioengineering fields. Progress has been made, especially in biomechanical engineering and biotechnology. Additional appointments in Electrical Engineering, Computer Science, and Mechanical Engineering will be crucial.

The School's strength in information technology has been enhanced by the addition of four new faculty. The School's networking and telecommunications initiative has received strong interest and industrial support. Major challenges remain in senior recruiting and in meeting the space needs of this growing area.

In its 1997 three-year academic plan, the School of Engineering articulated a strategy to enhance the strength of its four smallest departments through the addition of faculty. These plans are nearly complete in Chemical Engineering, Engineering-Economic Systems & Operations Research, and Industrial Engineering & Engineering Management, while several active searches remain in Materials Science.

The School continues to encounter major challenges in faculty recruitment and retention, including 1) local housing costs, 2) funds for renovating laboratory facilities, and 3) competitive salaries at the upper decile for associate and full professors. The School, in partnership with the Provost's office, is addressing these issues, although the financial consequences are significant.

As the Electrical Engineering building nears completion and the new Mechanical Engineering Laboratory approaches the construction phase, the School is creating a comprehensive plan for the use of existing and planned facilities. Several departments spread across multiple facilities will have more rational and contiguous space while others are improving existing space

to meet current and future needs. These and other major facilities improvements, representing a decade of careful planning and financial investment, will allow the School to continue its academic leadership well into the future.

SCHOOL OF HUMANITIES AND SCIENCES

In the Humanities, the incremental Presidential Professorships created in 1997 have encouraged departments to think ambitiously. Two appointments have been made, and plans are proceeding to fill the remaining two professorships. H&S is examining the structure of the small Humanities graduate programs as well as the allocation of resources to identify ways to enhance the vitality of these programs. The Irvine Foundation has provided seed money to establish the Institute for Diversity in California Art, a collaboration between the Departments of Art, Drama and Music. Preparations are under way for next year's external review of the six departments within the Division of Languages, Cultures and Literatures.

In the Natural Sciences, access to appropriate amounts and types of research and laboratory space is a major challenge. Current needs include space for synthesis research for Chemistry, modern space for Biological Sciences to replace the Herrin Building, and additional space for Chemistry and Biological Sciences to accommodate the current number of faculty. A major task will be to coordinate the academic and space planning of H&S natural science departments with the interdisciplinary Bio-X initiative that is drawing faculty from Medicine, Engineering and H&S. With support from the President's Fund and with the Dean of Research, the School will do a systematic study of overall research infrastructure support needs.

In the Social Sciences, many of the departments will soon undergo major transitions because of the anticipated retirements of some of the most eminent faculty. Recruiting and retaining faculty has become especially challenging given the salaries and resources that some major

competitors are offering and the high cost of housing at Stanford.

The evolution of the newly established Anthropological Sciences and Cultural and Social Anthropology Departments continues with the recruitment of faculty and definition of curricula at the undergraduate and graduate levels. A new program in Archaeology that will build bridges between the humanities and social sciences is being established with seed money from the President's Fund.

VICE PROVOST FOR UNDERGRADUATE EDUCATION (VPUE)

The budget plan for VPUE in 1999/00 sustains the fully established Stanford Introductory Studies (SIS) programs for freshmen and sophomores, supports the development of complementary new initiatives in advising and the residences, and strengthens the education of juniors and seniors. The plan also reflects the efficiencies gained by the new administrative reconfiguration for VPUE.

Faculty participation in Freshman Seminars, Sophomore Seminars and Dialogues, and Sophomore College has reached almost 300. For 1999/00, 115 Freshman Seminars will offer spaces for all 1600+ freshmen. Sophomore Seminars and Dialogues afford second-year students the opportunity to explore potential majors in small-class settings, and to develop close relationships with Stanford faculty. Space for more than 1200 sophomores will be available in 1999/00. Together with Sophomore College, which will serve over 450 students, all sophomores will have the opportunity to enroll in a specially designed sophomore program.

The Area One Program administers the Senate-mandated requirement, Introduction to the Humanities (IHUM), which will be fully implemented in 1999/00. All first-year students enroll in an interdisciplinary, team-taught fall quarter course followed by a winter-spring course sequence organized around a humanities theme. Faculty teaching IHUM courses come from a

wide range of the humanities fields, with scholars forging intellectual connections across departments. Post-doctoral scholars selected through a national search teach the sections, which have an average enrollment of 15 students.

New initiatives for 1999/00 include the following:

- The Freshman-Sophomore College is a new residence designed to serve students committed to active intellectual exploration in the liberal arts and sciences. It will serve approximately 90 first-year and 90 second-year students. Entering students will have the opportunity to live for two years in this residence. The College Dean is a member of the senior faculty who is responsible for charting the intellectual direction for the College and for involving faculty peers in its activities. He will conduct informal faculty and student gatherings and live in a separate family residence located near the College. The curricular component of the College is the Introductory Seminar.
- The Advising Seminars for Freshmen program builds on the success of the Sophomore Advising Seminars. Rather than being assigned an advisor through the residential system, freshmen may elect as their advisor the faculty member teaching their freshman seminar.

Stanford Introductory Studies prepares students so that they may, as upperclass students, undertake creative scholarship under faculty direction. The 1999/00 budget supports programs that encourage juniors and seniors to take full advantage of educational resources in their major and minor fields of concentration.

- The Incentives for Independent Study program, initiated in 1998/99 by the Vice Provost and Dean of Research, will be expanded to enable additional departments to provide research and mentoring for juniors and seniors in ways that complement

or enhance existing successful programs, such as Undergraduate Research Opportunities and Honors College. The program helps departments to engage faculty and students in common research projects, to identify local obstacles that prevent undergraduates from conducting independent study, and to assess and deploy resources to overcome these obstacles.

- The Stanford Honors Studies initiative will improve coordination of Honors Programs and reinforce linkages with SIS. Currently, students seeking to perform independent research and honors projects are referred to a number of offices, among them the Undergraduate Research Opportunities, which provides advising and funding for students doing independent research; the Honors College, a residential academic program for 17-18 departments; and the Summer Science Fellowship program. The Stanford Honors Studies initiative will establish a solid infrastructure for undergraduate research and honors work at Stanford

SCHOOL OF LAW

As of April 1999, with five months remaining in the Campaign for Stanford Law School, gifts and pledges of \$85 million have been secured, surpassing the revised Campaign goal of \$75 million. This success makes it possible for the School to consider reaching the original targeted needs of \$93 million during the final months of the Campaign.

The major objective of the Campaign has been to rebuild the faculty and to bring faculty salaries into line with those at peer law schools. With respect to academic year salaries, Stanford is now within range of all but two schools: Chicago and Yale. It is increasingly becoming the practice for peer schools to offer faculty summer support of between 1/9th and 2/9th of their academic year salaries. Stanford lags considerably in this respect, and will need resources beyond the current Campaign to close the gap.

Eight new faculty members joined the Law School in the past two years. For many of these recruitments, the School depended on an individual donor's gift of a \$1 million housing loan fund. Similar resources will be necessary to recruit faculty and staff in the future.

The Law School's curriculum in law and business and its program in negotiation and dispute resolution are unsurpassed. It has a small but strong program in environmental and natural resources law and policy, and a growing program in law, science, and technology, which should be a natural strength for the School. The Law School has interdisciplinary ties with every other part in the University, including the Hoover Institution and Institute for International Studies.

The success of the Campaign and the addition of new faculty make it realistic to undertake a broad exploration of the skills, knowledge, and values that Stanford Law School graduates will need in the coming century. This project, undertaken by a task force composed of faculty, students, and alumni, has led to the Initiative in Law, Business, and Public Policy. The School has received a \$1 million grant from the James Irvine Foundation to support the Initiative in its first three years, as well as other funding from alumni and friends.

VICE PROVOST AND DEAN OF RESEARCH AND GRADUATE POLICY

The Office of the Vice Provost and Dean of Research and Graduate Policy has several important functions: the development and oversight of research policy, management of the Office of Technology Licensing, oversight of eight Independent Laboratories, Centers, and Institutes, and policy development and oversight of Stanford's graduate education program.

The Stanford Graduate Fellowship Program has been a major focus of the Office over the past several years. In 1999/00 the third class of students will enroll at Stanford, bringing the

total to approximately 325 outstanding graduate students in science, engineering and the social sciences. In addition, the program increases the stipends of students who have three-year National Science Foundation or similar grants. Of the students chosen as Stanford Graduate Fellows, 61 also earned nationally competitive fellowships and are honored as joint fellows. The Office of Development is raising endowment funds in support of the program, with the hope that it will be fully funded by the end of December 2000.

The Dean's Office has also become involved in fostering opportunities for undergraduate involvement in research. In the Summer and Fall quarters of 1998, an experimental program enabled four departments to provide incentives for faculty and undergraduate students to work together. In 1998/99 and 1999/00, other departments will be invited to propose plans to involve undergraduates in research. The program will be evaluated toward the end of the second year, and if it has been successful, fund-raising efforts will seek to provide long-term permanent support for the program.

In 1998/99 the Center for Materials Research (CMR) will move back into the newly renovated McCullough Building. That building, along with the new Laboratory Annex, will house the faculty, staff, students, and facilities of the Laboratory for Advanced Materials. Faculty from two schools and seven departments will create a multidisciplinary center to make novel materials, characterize them, and study their properties or applications repeatedly until their scientific secrets are revealed or their utility successfully demonstrated. The current CMR program, a National Science Foundation Materials Research Science and Engineering Center, will be a part of the new center and will provide facilities support and research funding for the broader materials community.

The W. W. Hansen Experimental Physics Laboratory (HEPL) and the E. L. Ginzton Laboratory each have new directors who are

working with the faculty to ensure continued programmatic strength. One constraint is the aging facilities that house these laboratories, and planning has begun to renovate and/or replace them. HEPL continues its leadership in space-based science, experimental astrophysics, accelerator physics, and precision measurement science, and remains predominantly supported by NASA. The Ginzton Lab remains strong in quantum electronics, optoelectronics, micromachined sensors and instruments, superconductivity, theoretical matter physics, and acoustic and optical devices.

The humanities and social sciences centers and institutes continue to play a vital role, both internal and external to Stanford. The Stanford Humanities Center (SHC) recently received a challenge grant from the National Endowment for the Humanities, and the Office of Development is seeking the matching funds. The Mellon Foundation continues its strong support of the workshop program, and long-term funding for this popular program is being sought. Applications to SHC's external fellowship program have increased 70% for the third year in a row, a sure sign of the Center's excellent national reputation for scholarship and innovation. The Center hopes to introduce a modest post-doctoral fellowship program to enhance the fellowship mix at the Center with funds related to the National Endowment for the Humanities Challenge Grant.

In 1999/00, the Institute for International Studies plans to develop two new inter-School honors programs on international peace and security and on comparative political economy, as well as to begin a new program to provide funds to support undergraduate research assistantships.

The Stanford Institute for Economic Policy Research (SIEPR) received authorization to make senior fellow appointments. These Academic Council appointments will provide SIEPR with a larger group of senior scholars with diverse interests to be part of new centers within SIEPR or as part of the larger SIEPR

research program. In 1996/97, the new Center for Research on Economic Development and Policy Reform was created within SIEPR, and in 1997/98 the Center for Employment and Economic Growth was established. These centers will continue SIEPR's success in encouraging effective economic policy research by allowing for interaction between policy makers, researchers, and the public.

The Center for the Study of Language and Information is examining the integration of its traditional focus on cognitive science with new roles in media issues related to human-computer interaction. In the course of building up its Industrial Affiliates program, CSLI is investing in areas that are attractive to both the Stanford faculty and to industry. The Education Program for Gifted Youth and the English Resource Grammar Online program, part of the Cognitive Science Center, are very strong, and there are several new ventures underway.

GRADUATE SCHOOL OF BUSINESS

As the Graduate School of Business (GSB) welcomes a new dean, Robert Joss, it faces a number of key challenges:

- Competition for faculty among the top business schools continues. Thus far the GSB has been reasonably successful at retention but salary pressures show no sign of abating.
- The information technology infrastructure is stable and the significant investment in web-based support for student processes, teaching, application to graduate programs, and internal coordination of activities is changing the way faculty, students, and staff interact with each other and with the School. In late spring, support for alumni activities also will be available.
- The School has two new executive programs: Managing Technology and Strategic Innovation, and Market and Credit Risk.
- The Littlefield Management Center addition and site work to integrate the School's two buildings will be completed in April 2000.
- Renovation and refurbishing of the GSB building began with classroom improvements and renovation of the Sloan Program facilities last summer. The remainder of the project will improve the student computer space, remodel Arbuckle Lounge and the student area above it, renovate the central courtyard, and refurbish and rewire most other areas of the building. The project will effectively combine reinvestment in building systems and upgrades to code with changes that compare well with facilities investments being made by other business schools.
- The \$75 million fundraising campaign in honor of the School's 75th anniversary has met with great success and is nearing achievement of its goal.
- Investment in support for faculty research and course development includes hiring a research associate to manage the behavioral research laboratory used by an increasing number of faculty and a manager of casewriting services to support faculty in developing cases. Two CD-based, interactive "courseware" projects in negotiations and in systems are nearing completion.

The 1999/00 consolidated budget plan also assumes that several additional activities will be undertaken: aggressive efforts to recruit and retain the best faculty, a significant increase in support for doctoral students, implementation of "thin client" computers on desktops in Schwab Center rooms, continued investment in IT infrastructure and staffing, and a series of 75th anniversary activities and events to honor academic contributions and alumni.

Executive Education will continue to develop new public and custom programs to fill 50 rooms in Schwab Center during the academic year and 280 rooms during the summer. (Ten of the initial 60 rooms for executive programs

during the academic year were made available to graduate students this year to help alleviate the student housing crisis.) The number of faculty is expected to increase slowly to 100 and the doctoral program will increase by several students, as the number of students recovers to prior levels with the proposed increase in doctoral student support. The MBA and Sloan programs will stay at approximately the current levels (360 and 47 students per class, respectively), with the understanding that the scale of the School may be on the agenda of the new dean.

The successful fundraising effort to honor the School's 75th anniversary will provide a significant balance of funds for investments that might be undertaken by the new dean over the next few years. The operations of the School and the major construction projects will be funded by a combination of gifts and unrestricted fund balances that have accumulated over the last several years. The second installment of gift funding for the Littlefield extension is expected later this year or early in 1999/00, with the third installment expected a year later.

SCHOOL OF MEDICINE

The School of Medicine has made substantial progress on a number of major initiatives in recent years. The focus of these initiatives has been to translate the School's mission as a world class center for education, biomedical research and innovative clinical care into activities that support these missions. These investments should position the School to respond to the opportunities and challenges of the changing scientific and economic environment.

Recruiting and retaining high quality faculty continues to be a critical factor in the School's success. In 1998/99, the School completed the recruitment and appointment of chairs in the Departments of Surgery and Pathology. Investments in those departments will continue for several years as the new chairs recruit additional faculty and build programs. Investments are

continuing in Medicine, Molecular Pharmacology, Neurology and Neurological Sciences, and Ophthalmology, as recently appointed chairs realize their recruitment and program plans. Within the next year, the School will appoint new leadership in the Department of Anesthesia.

A major challenge in each of these leadership changes has been local housing costs. These have been met thus far by a new faculty relocation loan program to defray some of the costs of entering this market. The high cost of housing is also a retention issue for some younger faculty with growing families who are being recruited by other leading institutions in areas where the cost of living is lower. The School's ability to offer competitive salaries is the key to retention of some outstanding faculty who recently have been offered substantially higher compensation than indicated in the national salary survey. This challenge will continue as the School develops outstanding young faculty in a climate of compensation resources limited by government-imposed salary caps and tightening clinical services reimbursement.

The School's performance in research was strong in 1997/98 with 14% growth in direct research expenditures for the second consecutive year. Growth in the current year is substantial, with projected direct research expenditures 13% higher than those in 1997/98. The School anticipates that research expenditures will remain strong for 1999/00. Space to accommodate growing research activities continues to be a major focus of planning in the School. The Center for Clinical Sciences Research (CCSR) is under construction and will be occupied in 1999/00. This will provide almost 134,000 net assignable square feet of state-of-the-art research facilities, but it will not provide enough incremental space to allow the School to vacate expensive off-campus leased space nor to house new faculty and programs.

The opening of CCSR will free up space within the E.D. Stone buildings that is in serious need of revitalization. This 40-year old complex was designed to serve as the core facility for teach-

ing, research, and clinical care in the School. Buildings have been added to provide patient care spaces and research facilities, yet less than half of the Stone Buildings has been brought up to the modern standards required for a world class teaching and research institution. The School's master plan maps a path through the revitalization of most of the aging Stone Buildings, including the seismic stabilization of the Edwards building. Given sufficient resources, plant revitalization completed within the next four years will provide central, convenient space for cutting edge educational facilities as well as research and faculty offices. The revitalization of teaching and library space is a critical element of this plan in light of the concerns noted by the Liaison Committee on Medical Education in the accreditation review last year.

The School also needs to provide incremental research space over the next three to five years if it is to recruit faculty and develop programs that build on Stanford's strengths. Interdisciplinary teams of faculty are working to identify opportunities to advance science across multiple disciplines in the areas of Cardiovascular Biology, Cancer, Neurosciences, Biomedical Engineering, Children's Health and Genetics, Functional Genomics, and Biocomputation. Their ideas will provide the focus for construction to house such programs as the proposed BioX initiative. The School is investing in the preliminary stages of a five- to seven-year development campaign to raise funds for these programs.

At a recent School retreat, approximately 100 faculty members examined the future of the education of students in the biomedical sciences. They identified several potential curricular changes that would prepare the School's students to be future leaders in academic medicine. Several faculty task forces will look specifically at redefining the curriculum for medical students and for graduate students, at facilities needs associated with a redefined curriculum, and at opportunities for educational outreach and distance learning. The

School expects to implement significant curricular changes by fall of 2001.

The School is at a critical juncture in the development of the merged clinical enterprise, UCSF Stanford Health Care. The integration of various sites has proved more costly and more difficult than anticipated and, despite significant growth in clinical activity, the promise of growth in clinical revenue that was realized in 1997/98 has not continued into 1998/99. The implementation of a new approach to the flow of clinical funds to the School, coupled with a lack of clinical financial and productivity information, has made it difficult for the School's clinical departments to manage their professional service programs. There has been substantial uncertainty around how and whether strategic support funding provided to the School in the past will continue to be available. This uncertainty has a destabilizing effect within the clinical departments and will likely affect not only clinical practice but also the School's ability to provide a quality clinical experience for its students. Until the financial issues of UCSF Stanford Health Care are resolved, the School and its faculty leaders must remain vigilant in ensuring that the goals and mission of the School in clinical activities are preserved. While each entity – Stanford and UCSF – has an obligation for fiscal responsibility, decisions regarding the flow of funds and financial incentives cannot be made unilaterally or without a clear plan as to the potential impact on each institution.

Because the risk for losses related to professional services has effectively been shifted to the School by the new funds flow approach, contingency reserves must be established at the department and School levels. These reserves will be necessary to cover the losses almost certain to occur in some departments that have previously been unable to meet their needs without subsidies, but are critical to the medical school mission. Given the financial status of UCSF Stanford Health Care, it is uncertain whether that entity will be able to continue to help meet some of these academically important needs.

HOOVER INSTITUTION

The Hoover Libraries and Archives expenditures during 1999/00 will focus on acquisition in three key areas: transition to democracy and economic freedom, history of communism in the Soviet Union from the Bolshevik revolution to the collapse of the USSR, and Islamic movement and its conflict with the West. These subjects present extraordinary collecting opportunities for the Hoover Institution.

The campaign will also produce new funding for the preservation program. The preservation challenge for the Hoover Library and Archives is especially acute. Approximately 50% of the books, 60% of the pamphlets and other ephemera, and more than two million archival documents are considered brittle and vulnerable to damage from further use. To insure their preservation, the Institution must double the resources currently devoted to preservation over the next four to five years.

In 1998/99 the Institution appointed a new senior fellow whose specialty is American politics. During the next three years, the Institution plans to hire five more resident fellows in domestic and international fields. Several affiliated fellows, with part-year appointments, will also be recruited.

In addition to the traditional research projects undertaken by Hoover fellows in the areas of American Institutions and Economic Performance, Global Cooperation and International Rivalries, and Democracy and Free Markets, fellows are actively involved in institutional projects, including conferences and symposia that typically lead to paperback book publications. These projects have the full financial and institutional support of Hoover. There are currently more than 25 Hoover-supported institutional book projects in varying degrees of completion. All address important public policy issues.

In 1998/99, the Institution launched an ambitious K-12 Education Initiative. With the commitment of significant multi-year funding

from a number of donors, the initiative will bring talent from within Hoover and Stanford together with policy experts from around the country to collect facts, analyze the current education environment, and address possibilities for meaningful reform. The results will be symposia, conferences, and publications.

A capital project is underway to retune and recast the 35 bells of the carillon in the Hoover Tower and to repair the automatic drum-player mechanism that was damaged in the 1989 Loma Prieta earthquake. Restricted funds have been raised for this project, which will be completed in FY00.

STANFORD UNIVERSITY LIBRARIES AND ACADEMIC INFORMATION RESOURCES (SUL/AIR)

The reoccupation of Green Library West will be completed during Fall, 1999. Opening ceremonies are planned for October, 1999, coincidentally, the 10th anniversary of the Loma Prieta Earthquake, which closed the Green Library for repairs costing an estimated \$55 million.

The Green Library West will feature subject-area based research services with supporting collections shelved nearby. New entrances to the building will give patrons more convenient access to collections and services. The University has provided a permanent addition to the base budget to provide additional collection security required by the remodeled facility.

SUL/AIR will also open a new Information Center on the first floor of the Green Library East with funds provided by the Fletcher Jones Foundation, and a line of credit provided by the University for construction as necessary. The Information Center will bring together reference, current periodicals and information access services in new and exciting ways, with special attention paid to the needs of undergraduates.

In FY00, the University will break ground on a major addition to the Stanford Auxiliary Library (SAL) storage facility. When completed, this

addition will permit the University to consolidate in one location library materials that are now scattered among several storage sites, and alleviate overcrowding now experienced in a number of branch libraries.

In the fall of 1999, and in partnership with the American Association for the Advancement of Science, SUL/AIR will launch the first online 'knowledge environment' in the life sciences. A 'knowledge environment' is a set of web sites that provide an in-depth information resource for students and researchers in a specific discipline or field. The development of a knowledge environment in the field of cellular signal transduction has been generously supported by a grant from the Pew Charitable Trusts.

Also in the fall of 1999, SUL/AIR will complete the digitization of the entire backset of monographs produced by the Stanford University Press in the field of Latin American Studies. This project, supported by the Mellon Foundation, will demonstrate various techniques for digitizing, organizing and providing online access to a large group of monographs and other materials from the Library collections.

In the spring of 2000, and in accordance with a recently signed agreement with Oxford University Press, SUL/AIR will launch an online version of the Oxford English Dictionary (OED). The OED Online will be available around the world through the World Wide Web, and could lead to other exciting reference work projects.

STANFORD LINEAR ACCELERATOR CENTER

SLAC conducts experimental and theoretical research in elementary particle physics using electron beams. SLAC also performs a broad program of research in atomic and solid state physics, chemistry, biology, and medicine using synchrotron radiation. SLAC has active programs in the development of accelerators and detectors for high-energy physics research

and instrumentation for synchrotron radiation research.

The high energy physics program at SLAC will soon begin a detailed study of CP violation in B-meson decays with the newly completed PEP-II B Factory, which produces elusive particles of matter and anti-matter called B-mesons. The upgrade of the PEP electron-positron collider to a high-luminosity asymmetric B Factory was successfully completed in July 1998 and has made rapid progress in its commissioning runs. The associated B-meson particle detector (BaBar detector), which was built by a collaborative effort of 70 institutions in nine countries, was moved onto the PEP-II beamline. The 1,200-ton BaBar detector analyzes the way mesons decay within a thousand billionths of a second, and their differing decay modes could explain why there has been far more matter than anti-matter in the Universe ever since the Big Bang.

Another important element in the high energy physics program is an extensive research and development (R&D) effort aimed at the eventual construction of a large electron-positron linear collider (NLC) which will make possible unique experimental investigations at the TeV energy scale. The NLC R&D program is being carried out in collaboration with SLAC's sister lab KEK (Japan's National Laboratory for High Energy Physics). The U.S. collaboration now includes Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, and Fermi National Laboratory. It is expected that given Department of Energy (DOE) approval after a review in May 1999, the activities will move into the conceptual design phase. However, the progress of the NLC program will be constrained given the FY2000 President's Budget.

A relatively new direction for SLAC's high energy physics program is a move into space research, in conjunction with the Physics Department and HEPL, and in cooperation with NASA and several foreign institutions. Funding from DOE for fabrication of the Gamma-ray

Large Area Space Telescope (GLAST) is expected to begin in 1999/00. Current efforts are focused on developing technologies for the instrument.

The FY2000 President's Budget includes \$2.0 million for a new Research Office Building. It will provide additional conference space and offices for the influx of BaBar users. It will also allow for the demolition of some sub-standard temporary buildings on site.

The synchrotron radiation program under the Stanford Synchrotron Radiation Lab (SSRL) plans to operate SPEAR (SLAC Positron-Electron Asynchronous Ring) for users for about nine months, similar to its length of operation in 1998/99. Various new experimental stations at SPEAR are being built. A new beam line, the molecular environmental science beam line, is scheduled to be commissioned in 1999 with a new side station (funded by Stanford and Scripps) for protein crystallography. An existing experimental station is being modified for deep etch lithography for micromechanical systems.

The funding for these modifications is being provided by Jet Propulsion Laboratory (JPL) and Sandia.

A major upgrade of the SPEAR facility called "SPEAR3" will be initiated in 1998/99 with \$14 million from the National Institutes of Health (NIH). Additional funding will be provided by NIH and DOE in the next three years to complete the upgrade. The SPEAR3 upgrade will increase the brightness of the synchrotron radiation beam for the experimenters at SSRL.

The second major initiative of SSRL is the R&D program for an x-ray free-electron laser called the LINAC Coherent Light Source (LCLS) which utilizes a part of the linear accelerator. DOE has agreed to fund a three-year R&D program beginning in 1998/99 to support the U.S. collaborating institutions which include SLAC, Argonne, Lawrence Livermore National Labs, Los Alamos National Labs, and the University of California at Los Angeles.