BUILDING ON STRENGTH: An Academic Strategy

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THE PROVOST

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To: Members of the Faculty of Arts and Sciences

From: Frank M. Turner, Provost F. M. T.

In 1988 the Yale Corporation requested that the Provost undertake the formulation of an Academic Strategy for the University. The Corporation was concerned that as Yale made a major commitment to the renewal of its physical facilities, the University also set forth a broad statement of academic needs and priorities that will simultaneously require funding from University resources. The Corporation and Officers regard this process of academic planning as one of the most important initiatives to have been undertaken in some time. They believe it will set the course and establish the academic priorities of the University during the next decade of building and will position Yale for its fourth century of scholarly distinction and excellence.

I enclose a copy of the portion of the University Academic Strategy that relates to the Faculty of Arts and Sciences. It is designated a Preliminary Draft. After further consultations with the faculty, this strategy will be integrated with similar documents from the professional schools to constitute an academic strategy for the entire University. These in turn will be combined with a capital plan to become part of an integrated financial plan requested by the Corporation.

The origins of the present document began with incremental programmatic requests solicited from departments at the time that Provost Nordhaus undertook the development of the capital plan in 1987 and with various requests made by departments to the Steering Committee of the Faculty of Arts and Sciences in recent years. In November of 1988 I requested the four Divisional Advisory Committees to advise me on the highest priorities of their respective divisions. In most cases those committees in turn solicited the department chairs of their respective divisions. The Deans of the College and the Graduate School also indicated what they regarded as their most pressing needs. Members of my office conducted conversations as well with various chairs and directors. Furthermore, recent reports of major faculty committees, such as the Kagan Report on the Residential Colleges, the Prown Report on Teaching in Yale College, and the Rodin Report on Minority Recruitment, were reviewed.

After that process was completed, early in the 1989-1990 academic year, a draft of the Faculty of Arts and Sciences academic strategy was drawn up. During the winter of last year that draft was discussed by each of the Divisional Advisory Committees, by the Expanded Executive Committee of the Faculty of Arts and Sciences, by the University Budget Committee, and by former Deans of the College and Graduate School and former Provosts. Also during the 1989-1990 academic year President Schmidt held a series of consultative dinners with various permanent officers of the Faculty of Arts and Sciences to

discuss their concerns about the future of the institution. The present draft of the Academic Strategy for the Faculty of Arts and Sciences reflects criticisms, thoughts, ideas, and suggestions gleaned from all of these sources.

During the upcoming weeks I shall be consulting with various groups in the faculty for their reactions and suggestions about the Academic Strategy. I would hope that each of the departments might hold a meeting during which they discuss this strategy in preparation for my consultation with their chairs and directors of graduate and undergraduate study. I expect to carry out these consultations in a series of meetings with several chairs and directors attending each. I shall also be meeting with the Divisional Advisory Committees, the University Budget Committee, the Course of Study Committee of Yale College, and the Executive Committee of the Graduate School. At certain of these meetings I will request that the committee membership be augmented by various directors of units that may have particular concerns. Furthermore, I welcome written comments from individual members of the faculty.

From these consultations I would expect to receive further suggestions that may be incorporated into the final draft of the academic strategy for the entire University which will be reviewed by the Corporation. The professional schools have been devising their own academic strategies which will be included in that final draft. The Corporation has already begun a process of careful review of these preliminary draft strategies as they relate to the overall needs of the institution.

I would emphasize that this Academic Strategy does not represent every goal or aspiration of Yale University. It seeks to set forth and explain those goals that must be achieved if during the next decade Yale is to sustain its position of leadership among distinguished, innovative research universities while at the same time undertaking a major restoration of its physical facilities. Obviously the extent to which all these goals may be attained will depend in large measure upon the financial resources available to the University.

Generally the goals in this strategy are stated in broad terms. The intention is to establish an institutional point of view and a statement of values against which existing programs and new initiatives may be measured. I view the establishing and circulation of this Academic Strategy as more the beginning of an ongoing collaborative process of planning and setting priorities than as the completion of a previous process. In that respect all of us are preparing this institution for its fourth century of service and scholarship.

Enclosure

BUILDING ON STRENGTH

AN ACADEMIC STRATEGY FOR YALE UNIVERSITY

THE FACULTY OF ARTS AND SCIENCES

PRELIMINARY DRAFT

NOVEMBER 1, 1990

THE FACULTY OF ARTS AND SCIENCES

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INTRODUCTION

The central mission of Yale University is to preserve, advance, and disseminate knowledge through teaching and research. Over three centuries the University has pursued these goals, generating fundamental changes in the structure of knowledge and responding to the shifting needs of American society. While much of the mission of the University remains constant, the ways in which it seeks to achieve its goals obviously undergo change over time. The University must always realize that its horizon of planning should be a long one and that it should avoid inappropriate responses to short term pressures. Never has the commitment to long term goals been more necessary than today, as Yale undertakes planning for its fourth century. Decisions made now will affect the students and faculty, as well as the alumni, for the next two generations.

The strongest feature of Yale education and research in this century has been a dedication to liberal education. The goals of undergraduate liberal education in the arts and sciences in this nation and culture stand boldly articulated in what some may regard as idealistic terms. Liberal education encourages -- indeed requires -- the undergraduate to study science, language, literature, politics, economics, history, and philosophy for their own sake. A liberal education does not set out to prepare a student for a particular occupation. Rather, it seeks through the teaching of skills and a wide ranging breadth of knowledge to enable the adult emerging within each undergraduate to become an individual of thoughtful values who is stimulated by an ongoing curiosity and possessed of the capacity to acquire further skills and knowledge and who has learned to articulate the values embedded in that knowledge.

The recognition of the value of education for life rather than for vocation represents one of the most important of Yale's inheritances from the past and one of the most significant of its imperatives for the future.

To build on the strength of that heritage, the University believes that in the future as in the past Yale College and the Faculty of Arts and Sciences must constitute the core of life at Yale. The University also believes that sustaining this core will redound to the health and strength of the professional schools. Professional education at Yale should take place in schools that have clear and close relationships to the disciplines of the Faculty of Arts and Sciences.

To strengthen traditional areas and to permit the University to move into new areas of liberal study, the core of the Faculty of Arts and Sciences must remain strong. Retention and recruitment of the individual members of that faculty will therefore stand among the highest priorities of the University. Appointments to the faculty must be made with an appreciation of the long-range needs of teaching and research and not under the pressure of the moment. The University must be content with nothing less than excellence in every appointment. It must be convinced of the lasting significance of every field of endeavor to which it appoints faculty and establishes programs. The University must be certain that the core fields of traditional study, which constitute the intellectual capital of learning and the foundation for future fields of learning, are maintained and strengthened. The longevity of such fields must not lead us to take them for granted. They must not be permitted to languish. Decisions to launch new programs of study will be guided in no small measure by the conviction that the traditionally strong fields of endeavor should not be weakened. At the same time, mere longevity is not enough. The various faculty committees will need to remain alert to fields of research that seem no longer to generate important scholarly work as well as to new fields that are attracting significant new work with a potentially lasting value. Commitment to the traditional liberal arts is not a blind commitment to the past but rather a commitment to move deliberately and with skepticism about too rapid change. Yale and other universities exist both to preserve and to advance knowledge. Those different missions must be carefully balanced against one another other for their mutual strength.

The most critical goal of the University is to maintain the traditional values of this liberal education in <u>both</u> Yale College and the graduate and

professional schools. At the heart of the academic strategy for the University is, therefore, the preservation and strengthening of liberal learning in all of our schools. The decision to shape the future of the University according to the values of a liberal education centered on an arts and sciences core represents a determination to maintain and sustain a genuinely cohesive institution. The various faculties, schools, and academic units of the University must contribute to and strengthen each other. The manner in which various existing and proposed programs contribute to the cohesiveness of the University will constitute one of the touchstones justifying the allocation of central University support.

Many research universities have recently begun grappling with vexing problems that result when inequalities of resources and emphases separate the arts and sciences from the professional schools, or worse, set them into a relationship of competition. Such imbalances have led to the most serious of academic and financial crises, exacerbated where the arts and sciences are overwhelmed by the accelerated resource development achievable in certain of those institutions' professional schools, an imbalance which in turn may result in an institution becoming overly dependent on the funding or the policies of the federal government. Any weakening of the synergy that should exist between the arts and sciences and the professional schools is dangerous. The result would be a dramatic reduction of the contributions of all faculties to the overall mission of the University.

In fulfilling its mission to preserve, the richness of Yale gives the University both special opportunities and special burdens. In its various libraries and museums Yale is one of the major national trustees of vast collections of books, works of art, natural history, and cultural artifacts. These present Yale students and faculty with major teaching and research opportunities, while they enrich the University and New Haven communities. Nonetheless, preserving these collections and making them available to the local and regional communities involve very real financial burdens. Funds that support these collections cannot also support other activities or University priorities. As we look toward the future, it will be important to draw these collections and the programs surrounding them

even more closely into the essential academic mission of the University. They must be a part of a university of liberal learning and not merely located at that university.

The basis of the present academic strategy is the belief that by building on a foundation of strength and a heritage of excellence, Yale University can insure continued strength and excellence for future generations of students, scholars, and leaders of society. By setting priorities and pursuing our objectives with clarity and vigor, we can continue to maintain our place in the world of higher education. Change is inevitable; it must also be thoughtful. We must examine our core departments and programs to be certain that we continue to sustain the traditional liberal arts disciplines. We must maintain the strength of those that have achieved excellence and provide additional support to those that have the potential to reach that level of distinction. Yale can maintain its leadership position only by an ongoing process of renewal that results from setting clear priorities and then implementing them through the departments and programs that constitute the core of the University.

Three broad assumptions inform this strategy. First, it assumes that the sizes of Yale College and the Graduate School will remain where they stand at the present time. A combined student body of this size has proved to be particularly well matched to Yale's facilities and faculties. The target size of the College is 5100 and that of the entering Graduate School classes ranges from 540 to 570. The projected size of the Faculty of Arts and Science will reach and remain at approximately 600-625 full-time equivalent faculty members.

Second, this academic strategy does not presuppose a given level of resources. It represents basic institutional priorities -- and those priorities would be expected to prevail over the next decade and beyond, whether the University finds it possible to add modest incremental resources to the operating budget or necessary to slow the growth in that budget in order to respond to shortfalls in income. In fact, it seems clear that the University is entering a period when, relative to the last decade, the rate of growth of its major income streams will be significantly smaller, just as the demand

made upon its resources by the needs of the physical plant will be greater. This slowing of income growth directly contributes to the expectation that overall faculty size should remain at its present level and that most changes in the programs of the University will occur through reallocation and substitution rather than growth that would add to the size of the institution. This assumption means that it will be essential to set priorities and make choices carefully. It means that Yale must choose not to attempt to do all things, but rather to streamline or abandon some existing programs so that others can grow and some new ones can come into existence.

Third, this strategy assumes that during the next decade the single greatest and most expensive challenge confronting the University is the restoration and renovation of its physical facilities. This issue has been extensively addressed in various University and Corporation reports. It is the largest and most important task that lies before the University. During the foreseeable future the University must direct most incremental resources toward the renovation and renewal of facilities. Of course, capital renovation touches the academic strategy directly. Most of that renewal, especially in the sciences and the library, is essential to the accomplishment of the most fundamental academic goals of the University. We must recreate and preserve spaces worthy of those who learn as well as those who teach and undertake research. These spaces must also be such as to attract excellent students and distinguished faculty. The facility needs and the academic needs in this regard are closely integrated.

Academic planning and strategy relate to the capital needs of the University in another way that addresses the future direction of the institution. Various studies and discussions within the Corporation and faculties have led to the conclusion that for the past several decades there has been an imbalance of expenditure and planning between Yale's capital needs and academic aspirations. The size and extent of the academic programs would appear to have grown larger than the University can sustain in a stable fiscal manner if the physical facilities are to receive proper investment for both renovation and maintenance. The University has for at least two decades supported its academic programs at the expense of adequate investment in the physical facilities within which those

programs take place. As the University looks toward and plans for the future, there seems little doubt that it must redress this balance if Yale is to face its fourth century in a state of financial stability and academic excellence. It is the purpose of this academic planning strategy to establish a context of values, goals, and an institutional point of view within which the required choices may be made. The overall goal is to ensure that Yale may remain Yale -- a place of training for leadership and the pursuit of excellence in teaching and research. If choices are not made, this goal cannot be achieved.

The enhancement of Yale's reputation of excellence both in the arts and sciences and in its professional schools will require improvement in the way the University procures and allocates resources. No institution can do everything. Programs that have served their useful lives must give way to newer and better ways to achieve Yale's goals. A high standard of administrative efficiency must be applied throughout the University, so that resources that can be saved in one area can be made available elsewhere. The key will be the stewardship of existing resources, bolstered by the raising of increased external funds and managed within realistic expectations about the limits that rising costs place on growth. Neither side of the equation of resources and expenses can be neglected. New funds will not in themselves insure financial stability. Effective institutional management and setting priorities among competing goals are essential.

We must join forces to concentrate our resources into areas where genuine academic distinction is either present or may be achieved. The goals and objectives of this academic strategy are stated in clear but general terms. The specific activities, programs, and appointments that will embody them must be the products of the deliberative bodies -- from departmental, divisional, faculty, and University committees, through committees of the Yale Corporation, where appropriate.

What we wish to address in this academic strategy is the union of Yale's long-standing commitment to academic excellence with a more aggressive intent to claim leadership, particularly in those areas where we

have reason to believe such leadership can be sustained or achieved. We plan to achieve this by building on existing strength. What is already very strong must be maintained; what is striving toward that excellence must be strengthened. At the same time we must face the realization that priorities imply choice: we cannot try to be all things to all people.

Planning is a continuous process. We must ask questions about our own quality, and we must also measure ourselves against our competitors. We must analyze our prospective students and their needs. And we must measure our results. We intend, therefore, to examine carefully the success of our programs: the activities of our graduates within their various fields of study as well as the productivity of our costs and instruction. To this end we have designed new program review procedures. Before we undertake anything new, it is imperative that we have a very clear grasp on the quality of what we are already doing. This plan focuses on the fundamental decision to maintain Yale College and the Faculty of Arts and Sciences as the heart of the University. In this sense the University's past is the key to its future. In declaring this emphasis, we make a commitment not only to undergraduate teaching but to the accompanying visions of graduate and professional education in a university of liberal learning.

GOAL I: SUSTAIN THE HIGHEST QUALITY ARTS AND SCIENCES FACULTY

The core of Yale University has always been the Faculty of Arts and Sciences teaching in the College and Graduate School. This faculty has been the traditional center of the University and for most of its history has set the standards of academic quality and insured the future of the disciplines that constitute a liberal education. It is the intention of this plan that the centrality of this faculty be maintained. One of the greatest strengths of Yale University has been the extraordinary loyalty of its graduates, and most especially those of Yale College. For decades they have given of their wealth, energy, and good will to strengthen the University. There is no reason to believe that this situation will change. This past and future group of benefactors have been and will be taught primarily by the Faculty of Arts and Sciences. To urge the prominence of that core faculty, therefore, is to recognize the manner in which the University has developed and been sustained throughout its history. Thus the central and opening axiom of Yale's academic strategy is to assert forcefully the need to maintain the foundation which only a faculty of the highest quality throughout the broad range of arts and sciences departments can insure.

Yet this faculty exists in the context of ten others. Yale students and faculty alike have therefore benefited from the synergy that exists between the faculty of its professional schools and the Faculty of Arts and Sciences. Yale's academic programs are derived from the many creative exchanges that take place in teaching and research in a wide variety of disciplines as they are expressed in both the arts and sciences and in the professional schools. The dedication of Yale's professional schools to liberal rather than mere vocational learning has set them apart from most of their peers. This has in turn provided an example for Yale undergraduates, who are encouraged not to be overly eager to begin professional paths.

A: Assert the high quality of the faculty as Yale's first priority

Yale University -- its Corporation, officers, faculty, staff, students, and alumni -- is known and measured by a variety of means, but none is more important than the quality of the appointments it makes to its faculty. The quality of a university's faculty is its primary asset and strongest identity. Thus it is not surprising that the search process is one toward which the faculty itself devotes enormous amounts of time and energy. It is in the strength of the Faculty of Arts and Sciences that Yale can claim the future with the greatest certainty. Any past or present Yale College student can describe the excitement and the intellectual growth that has come from the opportunity to learn from the best minds in the nation.

In recent years the competition for the top faculty in the arts and sciences has intensified. Given the relatively small number of graduate students completing their doctoral degrees in the 1970's, and given the larger number of institutions now determined to achieve excellence, continuation of our competitive faculty recruiting effort represents a major institutional challenge for the next decade.

B. Strengthen core arts and sciences departments and programs

A number of Yale departments in the arts and sciences are internationally recognized as ranking at the very top of their respective fields. We are committed to allocating resources in such a way as to preserve this hard-earned stature. Where we have achieved distinction, we intend to keep it. Where the top is within our grasp, we should aim to reach it. We cannot commit ourselves to every discipline and subdiscipline. Choices must be made, and the allocation of resources must be governed by our determination to sustain excellence in the traditional core disciplines of a liberal arts curriculum and in those areas where our prominence cannot be questioned.

As we seek to sustain those academic areas where we have clear preeminence, we should also make every effort to assist and support plans designed to elevate areas where distinction is close at hand and to maintain or rebuild appropriate strength in the traditional core disciplines. With planning support from the Office of the Provost and the divisional advisory committees, we believe that many departments can make significant gains. In general, the improvement will result from careful planning and close coordination across many University offices, including changes in program, aggressive searches for new faculty, and in some instances the renovation of facilities. One of the goals of the departmental review process discussed under Goal X is to identify departments which may be able to achieve genuine distinction through infusions of modest resources attained primarily through divisional reallocation.

In many instances we can build on strengths with only modest incremental faculty appointments. At the same time, however, it should be noted that we must keep a very close eye on pending retirements and the impact they will have on various disciplines. Although some departments anticipate few or no retirements in the next five to ten years, many at Yale face an increase in retirement in the near future, making the next few years an opportune time for long-range planning. Yale's relatively large number of retirements will come about in an environment where many of Yale's natural competitors for the best and brightest face similar situations. To maintain strength it will be necessary to think through staffing arrangements far into the future.

In addition to building on areas of strength, we propose to undertake selective new initiatives in the arts and sciences where we think we have a very strong foundation and a high likelihood for success. With a few exceptions, such as the current plans for expanding the programs in engineering, such new initiatives will be funded primarily through the reallocation of existing resources. It is clear that most of the external resources that will be secured through the planned campaign will be needed to rebuild Yale's facilities and meet such broad objectives as strengthening faculty research support and developing greater depth in graduate student support. Some initiatives will be planned in interdisciplinary areas, such

as those described in Goals VII and VIII, but more often it is within departments and existing programs, where administrative structures are already in place, that we will discover major opportunities to break new ground.

In the humanities and social sciences, often in combination, Yale is particularly well positioned to undertake new initiatives. For example, new programs may be launched in the broad area of religion, combining the resources of the Department of Religious Studies and the Yale Divinity School. Such is also the case for Military History, where with the recent creation of a new chair and the appointment of a world renowned military historian, Yale has carved out a major new initiative and established broad student interest. Yale is presently in the early stages of developing new courses in Ethnic Studies within the American Studies program. Students in this program can take special courses in Puerto Rican, Chicano, and Asian-American culture. Elsewhere faculty from a broad array of departments and professional schools have been brought together to develop a research and teaching agenda around the topics of agrarian culture and environment.

In the sciences, where Yale has several outstanding departments, many clusters of absolutely first-rate faculty, and a well deserved reputation for interdisciplinary cooperation in both teaching and research, there are numerous opportunities for initiatives, in addition to the expansion of engineering, both within and among departments.

C. Maximize faculty resources

If we are to achieve our goals with any degree of success, it is clear that we must begin to husband existing resources carefully to provide flexibility and to prevent any long-range erosion of quality. We need to preserve resources. Yale must be in a position to promote or recruit outstanding faculty when the opportunities appear. We need to achieve a better age distribution of our faculty, particularly in light of the

forthcoming changes in the retirement laws which will enable faculty to teach well beyond the age of 70.

In March of 1990 the Provost's Committee on Retirement Issues, chaired by Professor of Chemistry Donald Crothers, submitted an "Interim Report" addressing the broad issues of retirement and particularly the status of Yale's retirement plan for faculty in light of the anticipated end of mandatory retirement as of July 1, 1993. The report's underlying theme is the view that the decision to retire should be based on personal and professional factors, influenced as little as possible by the financial disincentives created by the structure of the current or any revised retirement plan. Much of the interim report deals with specific suggestions for a revised retirement plan, including options for phased, partial, and early retirement. The committee recognized that many other aspects of the institution will be affected by the end of mandatory retirement, and that further changes will be necessary in order to make retirement more attractive and to enable departments, schools, and the central administration to ensure the planned development and renewal of faculty after individual retirements cannot be anticipated at specific times.

Traditionally, when a senior scholar vacates a position in a Faculty of Arts and Sciences department, the department has expected the University to fill the position with another senior scholar. One impact of this kind of rotation of positions among the senior faculty has been to limit the ability of the divisional advisory committees and the central administration to allocate new positions to areas where they are clearly justified either to build on established strengths, to meet shifting instructional demands, or to develop new programs. There is no doubt that in some selected instances a vacated senior position should immediately be filled with a senior scholar or perhaps with two junior ones. However, in most cases nontenured faculty members are fully qualified to carry the teaching of specific fields.

As a general rule of practice then, when a tenured position becomes vacant through retirement or resignation, the Steering Committee of the Faculty of Arts and Sciences will authorize an appointment at the

nontenured level, releasing in each case a "nontenured equivalent" slot that will be held in a pool in the appropriate division to be available at another time to convert a nontenured position into a tenured one or to appoint an essential new nontenured faculty member. The positions that are placed in these pools will be identified as to the departments from which they came, though resources in the pools will be available upon the recommendations of the appropriate divisional committee to meet pressing needs throughout the division. If this strategy is pursued vigorously, it should develop divisional pools totalling at least twenty-five nontenured positions over the next 5 to 10 years. These positions will be ready for use in the Faculty of Arts and Sciences to meet the University's stated academic objectives.

Aside from the goal of flexibility, this strategy will help Yale maintain a regular flow of new faculty entering its arts and sciences departments and programs. This can only be achieved if there are openings held in reserve for opportunities that arise in the absence of a retirement. A university needs the steady infusion of new colleagues, and they in turn must have opportunities for advancement in their own careers both here and elsewhere. Meeting this objective will assist the profession at large while giving the Faculty of Arts and Sciences Steering Committee and the divisional advisory committees the increased resources and flexibility they will need to respond to enrollment growth or flagship programs. The need for this capacity is particularly pressing as we near the expected end of mandatory retirement in 1993. The establishment of a pool of faculty slots will help us avoid what might otherwise be the disenfranchisement of a generation of younger scholars whose chances for promotion to tenure at institutions like Yale will be dramatically reduced if there are not such resources from which to draw.

D. Maintain competitiveness of faculty compensation

Over the next several years, Yale will undertake a complete review of faculty compensation structures. Although we have made considerable gains in faculty salary levels during the last ten years, we must continue this trend if we are to safeguard the University against increasing outside

pressure to recruit our faculty. We are currently in a period where the production of new Ph.D.'s in many fields is not keeping up with new demands. In recent years state universities have made great strides in fund-raising and in accelerating their research activities. Their ambitions and their rapidly growing resources will continue to place increased pressure on private institutions like Yale. This situation has become particularly acute as some public institutions have sought to establish or recruit only a small number of excellent departments or small cadres of highly compensated professors, while Yale attempts to have excellence across a very broad span. It is also increasingly clear that business and industry will continue to compete directly with universities to hire the best and the brightest of each year's Ph.D. graduates. At the present time, for example, it is difficult for Yale to hire its own Ph.D. graduates in Economics, as investment firms increasingly elect to add economists -- at very high salaries -- to their finance and marketing groups.

Yale has always attempted to maintain relative equity in faculty compensation, eschewing the practice of some institutions to reward a few faculty at much higher levels than the average. In seeking to assure a well-compensated faculty the University will attempt to compensate the entire faculty at a competitive level, giving due regard to contributions toward scholarship, teaching and citizenship. The University naturally must recognize competitive realities, but it will seek to minimize undue discrepancies among individual faculty salaries. The broad institutional goal is to recruit the best faculty in the world and to compensate it accordingly. But compensation must reflect individual faculty contribution to teaching and University service as well as the demand of the academic marketplace.

There should be no mistake made in assessing the degree of our vulnerability. We are already involved in fierce competition with universities trying to improve their profiles over a short period of time. These universities are clearly anxious to make up for the relative newness of some of their departments to the national scene. It is imperative that we give the strengthening of faculty salaries our highest institutional priority. The reputation of Yale remains a powerful allure, but we must be realistic

about New Haven's relatively small population base and geographical disadvantage, acute problems when recruiting faculty, particularly those with spouses who must also find challenging positions. Given these competitive disadvantages, our best protection will be in an exceptionally attractive salary policy. In addition, we must continue to pay attention to other issues relating to the recruitment of top faculty, and particularly to considerations of adequate and appropriate space for those we seek to attract and to the provision of the increasingly necessary technological support of research and teaching activities.

The University recognizes that faculty members, like most other professional people in American society, are often married to persons of independent professional standing. Addressing the professional concerns and the employment of spouses now represents a major issue in both the recruitment and the retention of faculty. Although in most cases, the University cannot -- nor should it be expected to -- provide employment for faculty spouses, it will undertake steps to facilitate the task of seeking to place spouses within the University, the city and the region. The Provost has already assigned this issue to an Associate Provost.

E. Increase direct support for faculty research

All of the Faculty of Arts and Sciences divisional committee reports prepared for the development of this strategy cited the need to increase support for faculty research. Much of this support should and will continue to come from outside Yale through application to agencies that support research, but some has traditionally been provided from inside the institution, particularly when new faculty arrive at Yale and before they have the opportunity to generate that outside support. While the needs vary greatly between the humanities and the social sciences on the one hand, and the applied sciences on the other, the rationale is the same. If our academic plan centers on having the finest faculty in the world, we need to provide the faculty with proper research support. Indeed this has become a new and expanding area for competition among institutions for the most productive faculty.

Funds for research assistants, books and travel. There is a general paucity of funds for faculty research and development throughout the arts and sciences. It is well known both inside and outside that Yale does not now compete well with other universities in this area. When humanities departments like English try to hire new assistant professors, they often compete with universities offering personal computers, the services of research assistants, book and travel allowances, and summer stipends. In several social sciences departments the cost of research has increased as computers achieve ever more sophisticated ways of assembling, sharing and manipulating data. Given the high value that we place on research, it is frustrating not to be able to offer members of the Faculty of Arts and Sciences at all levels more support for the basic research activities in which they are continuously engaged. Monies are needed for faculty to hire research assistants, to undertake summer research projects, to visit foreign archives, to travel to professional meetings, and to sustain much more regular interaction with faculty in other institutions. Faculty should be provided funds with which to purchase books in support of their research, and central library acquisition funds must also be strengthened. Support of this nature is of critical importance to recruiting and retaining the most productive scholars as faculty.

Laboratory set-up and research funds. The most expensive yet fundamental research support for faculty involves "set-up" funds for specialized equipment in the sciences. In order to plan for the future more carefully in this area, Yale has invited 15 other universities to participate in a study of set-up costs in recent years. Preliminary data show that when a new assistant professor is hired in such fields as biology and chemistry, set-up costs for that individual's laboratory have averaged approximately $150,000 and are growing rapidly. Our own experience shows that similar costs for a new tenured faculty member in these fields are rising rapidly from a recent base of about $300,000. As it is now, we are barely competitive, so in any event significant new funds will need to be secured. In the engineering and applied sciences areas, set-up costs have been accelerating dramatically. They now represent a major variable in Yale's ability to attract and retain scholars in a variety of disciplines.

Accordingly, we hope to establish an endowed fund for the development of science and engineering. We envision a fund, the income from which will go to support set-up costs, assist in "matching" federal grant funds awarded for this purpose, and in some instances make outright purchases of instrumentation. This fund would allow us to make the renovations needed to attract and keep the ablest scholars, to bridge gaps in funding of established investigators, and to permit quick responses to outside funding agency requests for deadlined proposals in specific research areas.

Computer support. As Yale faculty work to discover new connections among fields, research becomes not only more complex, but more dependent on the use of computers and on the storage and retrieval of vast amounts of information. The collection and interpretation of data is a dramatically growing part of the research and research analysis process. That means that new intercampus computer linkages must be developed so that rapidly increasing data in many disciplines can be profitably shared across disciplines. Efforts to develop a new computer infrastructure on a University-wide basis are well under way under the guidance of the Director for Computer Services. This dimension of academic life at Yale is discussed more fully in Goal V. Because faculty research will benefit increasingly from computer support, equipment, and training, funds for this purpose must be allocated. Yale is already far behind many other research universities in providing significant numbers of faculty with personal computers. By enabling faculty to utilize sophisticated software, additional clerical costs can be reduced, and in due time, supercomputers should make mass manipulations of data more efficient and less labor intensive.

Increased funding for nontenured faculty leaves. All faculty must periodically have time to read and write, unencumbered by the demands of teaching and departmental, college, and University committee work. Given the importance of research to the careers and purposes of nontenured faculty, it is particularly important that new support be given to fund leaves for this group. The number of full-year leaves available through the Morse Fund and social science fellowships should be increased, and the Mellon term fellowships supported by the Mellon Foundation during the 80's

should be replaced. All nontenured faculty should have at least one semester of leave no later than the second semester of the fourth year of their time at Yale. Our ability to recruit the best young faculty and to provide them with the opportunity to grow at Yale is directly tied to providing them with leaves. While we may not be able to create as many tenured positions here as we would like, our national leadership role demands that we support our nontenured faculty with released time during their early years in the profession. Nontenured faculty morale and productivity rises greatly with increased support of this kind, and by providing this support we will underscore the high value that Yale places on both teaching and research.

F. Intensify efforts to recruit and retain minority faculty

While strengthening the salary structure is one important way to maintain an excellent faculty, diversifying that faculty provides a second means of preparing for the future. With other research universities, Yale regrets the present lack of minority faculty pursuing college teaching and research careers. We have recently implemented a new program with initial support awarded by The Andrew W. Mellon Foundation designed to encourage minority undergraduates to consider attending graduate school and entering into college and university teaching careers. In preparing for this program we reviewed the many factors behind the low numbers of minority faculty at Yale and elsewhere. The problems are complex and can only be successfully addressed over a long period of time. Despite the problems and the potential costs, we are committed to increasing the number of minority faculty throughout the arts and sciences departments and the professional schools.

Some progress has been made, but much remains to be done. A University-wide committee appointed by President Schmidt and chaired by Professor Judith Rodin of the Psychology Department worked for over a year assessing the problems and examining possible solutions. The committee made its report to the President and to the Yale Corporation, and its recommendations are now being implemented throughout the University.

The committee report underscores the situation in which, given the racial and ethnic diversity which will characterize both the greater American society and Yale's student populations, we must seek more aggressively to bring talented minorities to the Yale faculty in greater numbers. Yale is committed to making significant progress in this area.

The Rodin Committee examined a considerable amount of data assembled from national sources and prepared by Yale's Office of Institutional Research. From this data emerges an alarming picture of the poor position of all American universities regarding minority faculty, as well as a sense that Yale may not be doing as well as some of our peer institutions. The national statistics are alarming. Over 90% of all faculty members across the nation are white, a percentage that over the ten-year period ending in 1985-86 declined only from 92.4 to 90.1 percent. When the progress over that same period of different minority groups is studied, one discovers, for example, that the percentage of faculty members who are African American has stayed the same relative to all faculty and decreased relative to members of other minority groups. In the Faculty of Arts and Sciences there has been some growth of minority group faculty in the tenured ranks, but at the term level, minority group members have declined in numbers and proportion.

When Yale compared itself to nine similar institutions, Yale never exceeded mid-range for any minority group category, except for African American tenured professors, and assistant professors who are Hispanic. Statistics do not of course tell everything, and the numbers are too small to make truly significant comparisons among research universities in most of the relevant categories. Nevertheless, the comparative picture does not diminish the sense of urgency Yale faces if it is to maintain its claim to diversity. While there are various factors that explain the relative dearth of minority faculty nationally -- for example, the percentages of African American students in the high school and college populations have decreased, as has the number who go on to earn Ph.D.'s -- these factors do not prevent Yale from making some significant improvements. The Rodin report makes strong recommendations, which collectively call for a vigorous institutional response. The fullest development of our human

resources as well as equity and social justice demand that we address this issue now with new and concerted efforts to recruit and retain excellent faculty who are members of minority groups.

President Schmidt has responded publicly to the Rodin Committee's report, making it clear that "Yale must strive to make the faculties of our departments and schools stronger by reason of greater ethnic, racial, and gender diversity, better able to serve Yale's excellent and diverse student body, and better able to draw on the full range of America's heterogeneous society." Among the means by which President Schmidt indicated that the University would strive to meet these goals include being prepared to meet competitive pressures to recruit and retain outstanding faculty who are members of minority groups and to assist in the professional development of all of Yale's nontenured faculty. In addition to the current policy of temporarily lowering field and budgetary barriers that might prevent the appointment of outstanding women and members of minority groups, he committed the resources necessary over an initial five-year period to make fully incremental appointments when excellent minority candidates are identified and can be appointed to the Faculty of Arts and Sciences or any of the centrally supported schools. The committee recommended and the President endorsed a number of other actions designed to bring minority visitors to the campus and to increase the number of minority scholars in the "pipeline" from undergraduate study to university faculties, particularly by making special recruiting efforts at the graduate and professional school level. Finally, he appointed a University-wide committee to consider further and to monitor the implementation of the programs that will be put in place to enhance diversity at Yale.

G. Increase efforts to recruit and retain women faculty

In recent years Yale has made successful efforts to increase the number of women in arts and sciences departments. In fact, in 1989 the President was able to announce that the Faculty of Arts and Sciences had reached the goal set by an ad hoc faculty committee in 1983: to double the number of tenured women by 1990. These efforts must be continued and

extended -- not only to nontenured women in the Faculty of Arts and Sciences, but to tenured and nontenured women on all of the University's faculties, particularly in departments where women are underrepresented or not represented at all. As a result of the changes in federal law that at the end of 1993 will abolish mandatory retirement for faculty at age 70, Yale will undoubtedly have an older faculty. The present predominant position of males among the tenured faculty in the arts and sciences will therefore continue when mandatory retirement ceases. Given the importance of a diversified faculty, it is imperative that more women be attracted to the university teaching profession and, particularly, to those disciplines which have traditionally been dominated by male faculty. The newly instituted policy of replacing retiring faculty with nontenured faculty, typically by allocating one nontenured position to the department and another to the divisional pool, may help to increase the number of women on the faculty by providing resources for appointments in fields where women are likely to be found in greater numbers.

GOAL II: ENHANCE THE QUALITY AND INTEGRATION OF THE PROFESSIONAL SCHOOLS

A. Specify the missions of each of the professional schools

Yale's professional schools currently display leadership in a variety of national and international contexts. Each prepares a significant number of professionally trained individuals, and together they represent a tremendous force for the creation and transmission of knowledge across a broad range of areas. Many of the schools periodically complete self-studies as part of a reaccreditation process relating to the training of students for specific professions with nationally defined standards for degree programs. This reaccreditation process, however, by its formal nature often generates analyses that tend to be stereotypical and overly quantitative. Consequently, it cannot take the place of strategic long-range planning for institutional purposes. The self-studies carried out for purposes of reaccreditation should be seen as important parts of a larger set of school and institutional plans.

It is of utmost importance to the University as a whole that each of the professional schools be enabled to realize its potential for excellence and to contribute dynamically to the total University enterprise. As Yale moves into the future, increased attention will be given to the professional schools -- to how they interact with one another, and to how they can continue to discover the most powerful alliances with the core arts and sciences disciplines and interdisciplinary activities.

Given the critical importance of the schools to the University and to the professions for which they prepare students, the Office of the Provost has asked each school to develop a five- to ten-year plan. Some of the schools are already well along the way toward such plans, while others are just beginning the process. Still others are awaiting the arrival of a new dean whose leadership and vision will contribute greatly to the planning

process. The current plans for each school will be included in the the final draft of the University's Academic Strategy.

B. Strengthen the linkages among schools and between schools and the Faculty of Arts and Sciences

Neither the Faculty of Arts and Sciences nor any one professional school contains within its own faculty and facilities all of the resources in the University that can effectively be put at the service of a particular program or group of students and scholars. Thus, there are almost limitless opportunities to improve Yale's curricula by increased cooperation among the various faculties. The most extensive interaction is between the Medical School and the Faculty of Arts and Sciences, which actually share the Department of Molecular Biochemistry and Biophysics. In addition, a number of significant programs, such as the one recently developed in neurobiology, link several departments from these two schools. Some other examples are the interactions between the Department of Music and the School of Music, between the Schools of Music and Drama, and between the Department of Biology and the School of Forestry and Environmental Studies. The School of Art serves about 900 Yale College students and 40 majors and thus has a set of implications for the History of Art Department and for the undergraduate curriculum in general; Yale College students enroll heavily in courses taught by the Yale School of Forestry and Environmental Studies as part of the new program in Environmental Studies; planning in the Department of Religious Studies takes place in a context heavily influenced by appointments made and anticipated in various fields by the Yale Divinity School.

Many such interactions have been in place for a long time, and more are being planned -- through joint appointments, and through jointly sponsored programs of research and teaching. For example, the recommendations of a recent ad hoc review committee supported much closer ties between the Department of Epidemiology and Public Health in the School of Medicine and several of the social science departments in the Faculty of Arts and Sciences.

Again and again, the increasingly interdependent activities of the schools and the arts and sciences departments require more comprehensive review than can be undertaken by any one unit. In order to be certain that the potential synergy between Yale's professional schools and its arts and sciences departments can be advanced to maximum benefit, the Provost will create a special ad hoc committee to study, on an ongoing basis, not only the shared concerns and objectives of the professional schools but also the relationship between the arts and sciences and those schools. As several of Yale's professional schools grow stronger and more independent, the University must be careful not to lose the important connections that have held them close to the center of the University in their programs and policies. The University is only as strong as its schools, and in turn the strength of those schools depends upon the support of the University.

Included in the ad hoc committee's charge will be an analysis of both existing and proposed joint degree programs and undergraduate majors which require courses offered by faculty appointed by the professional schools. A number of new programs are in the planning stages, including a recently proposed joint program in environmental ethics taught by faculty from the Schools of Forestry and Environmental Studies and Divinity. As is so often the case, lectures and courses that cut across departmental and school lines stimulate faculty and students alike to think about enlarged kinds of cooperation. It is essential that these efforts be undertaken carefully so as not to spread resources too thinly, but instead to maximize the benefit of existing resources.

By aggressively pursuing the objectives outlined here, Yale will be able to use its resources with maximum efficiency. By shoring up the core and strengthening the relationships between the core and the professional schools, Yale will become a dynamic model of the academically integrated university of the future.

GOAL III: MAINTAIN THE QUALITY AND DIVERSITY OF THE STUDENT BODY

The quality of the student body, like the quality of the faculty, is a fundamental measure of a university's strength. Talented faculty and students continually challenge, extend, and reinforce one another. Traditionally, a high quality of faculty research has deeply penetrated the curriculum at Yale, where lectures and seminars provide faculty with opportunities to test their ideas while offering students opportunities to learn from faculty deeply engaged in original research. Furthermore, an exceptionally strong student body represents one of the University's best tools for recruiting both students and faculty. Over the years Yale has learned to appreciate a basic truth: good faculty like to teach good students and good students like to be taught by good faculty. Similarly, a faculty that has both depth and diversity is well matched by a student body of which the same can be said. Thus the two principal objectives relating to students are to take the steps necessary to insure both depth of quality and diversity of character.

A. Continue to admit Yale College students without regard to financial need

Just as it is a critically important objective to increase the number of minority faculty at Yale, so it is important to continue to ensure diversity in our students. A cornerstone of the academic plan is Yale's intention to recruit not only the ablest students but students from diverse ethnic and economic backgrounds, with particular attention to increasing the number of minority students. Yale remains committed to a need-blind admissions policy. We use a "full assessed need" formula in administering of financial aid. The decision to admit a student is independent from his or her financial need. The Financial Aid Office then works with the analysis provided by the College Scholarship Service to assess need and to establish

a package of financial support, expecting each student to contribute summer earnings, assume an appropriate amount of loan, work in a term-time job, and generally use all resources available, which Yale then supplements as necessary. Only in this way can we guarantee that talent and academic ability remain the grounds for admission and that Yale's educational resources remain open to the brightest and best students of all backgrounds.

The admissions statistics for students granted admission to Yale College for the fall of 1990 reflect the strongest profile yet of minority students, with 344 minority members accepted to the freshman class. Of that number, 179 are Asian-American; 3 are Native American; 23 are Puerto Rican; 30 are Mexican American and 179 are African Americans. Together these students represent over 25% of the Freshman Class. The reaffirmation of our need-blind admissions policy will make it possible for Yale to continue to attract and support students from a broad spectrum of backgrounds.

B. Increase and redesign graduate fellowship support

Just as the competition to recruit and retain top faculty has intensified, so has the competition for the most able graduate students. Indeed, these goals are intimately connected, for the opportunity to work with the best graduate students attracts many top faculty to Yale. We must invest the resources necessary to recruit and retain the country's very best graduate students. In some instances we are already vulnerable to the loss of temporary fellowship support funds we have been receiving. For example, Yale has been benefitting from special funds for biomedical graduate student support from The Howard Hughes Medical Institute. These funds will run out in four years, and replacement funds must be identified if we are to continue to be competitive in this area. A stipend for a laboratory science graduate student typically needs to be $12,000. We have great difficulty in competing with universities that have been ahead of us in the level of stipends for some years. While we are competitive in the stipends we offer to the very top students, we do not compete well with

many research universities in the offers we extend to many others whom we wish to admit. We must work to overcome this disadvantage.

Recognizing that at Yale, as at many research universities, the use of graduate students as undergraduate teachers has increased, and the time to complete a Ph.D. has been steadily lengthening, a University-wide committee was appointed by the Dean of Yale College and the Dean of the Graduate School to study the issues relating to the status of graduate teaching assistants at Yale. Chaired by Professor Jules Prown, the committee examined teaching assistants from a variety of perspectives and recommended new strategies not only to expand sources of financial support for graduate students but to make it possible, through both incentives and tighter policies, for Ph.D. degrees to be completed more rapidly. This is particularly important because of the predicted widespread shortage of faculty beginning in the mid-'90s.

The Prown Committee, which included representatives from administration, both tenured and nontenured faculty, graduate students and undergraduates, recommended that the amount of time graduate students teach should be concentrated in fewer semesters. Furthermore, to replace the graduate students' reliance on teaching as their principal source of support in later years of study, other means must be created to assist them financially in those years. Chief among such measures would be the creation of new endowed funds to support graduate students working on their dissertations. Through a combination of tuition fellowships, stipends, teaching fellowships, and dissertation stipends, Yale will attempt to improve the quality of life of graduate students while shortening the amount of time it takes them to complete their degrees.

The implementation of the Prown Committee's report has begun. A Director of Teaching Fellows has been appointed in the Graduate School, and all of the major components of the Teaching Fellow Program, from initial budgetary allocations to the training of teachers, have been consolidated in that office. Dissertation-year fellowships have been offered to more than 80 fifth- and sixth-year students, and departments have begun adjusting to the decreased availability of graduate students for

the undergraduate classroom. Yale has submitted a major proposal to the Andrew W. Mellon Foundation, which has offered to help us and other research universities address this problem, and we are continuing to plan for further limitations on graduate student teaching and for additional financial support for graduate students writing their dissertations.

Despite the changes to be brought about by the implementation of the Prown Committee's recommendations, an appropriate amount of Yale College teaching will still be carried out by graduate students, who for the most part are very successful and popular teachers. We expect that teaching will be even better as a result of training programs to be established at the departmental level. However, in the attempt to shorten the time required for students to complete doctoral studies, we must recognize that the regular faculty will have to reassume some increased responsibility for teaching undergraduates.

At the same time that we set out to deepen our support for graduate students, we need to monitor the size of our graduate student population with a vigilant eye on demographic trends. While we may be best advised to maintain current enrollment levels in some disciplines, we should realize that in the late 1990's there will be an increasing college-age population and faculty in certain areas will again be in great demand. It is important that Yale contribute a large proportion of the scholars who will teach not only the larger numbers of students but indeed take the places of the many faculty vacancies created by retirements in the 1990's. We believe that our present graduate enrollment of 2,330 full-time degree candidates (master's and Ph.D.) -- which has increased about 40% since 1980 and is now about 10% over its level in the mid 60's -- is appropriate for this goal.

C. Improve support for professional school students

We must give specific attention to financial aid as part of the general planning for each professional school, particularly with respect to the amount and form of this kind of support. Some schools, such as Music, have found that competitive pressures make increased gift aid a

necessity. Others, such as Law and Organization and Management, have extended student loans accompanied by loan repayment deferral and forgiveness under certain conditions. Still others, such as Drama, recognizing the special situation of their graduates, have managed to use work-study funds to enable their students to take smaller loans and to supplement their fellowship aid with apprentice-like work inside the program.

Although it is not envisaged that the financial aid programs in any of the professional schools will be exactly like that of the Graduate School of the Arts and Sciences, it is clear that no issue is more important in the planning by the professional schools than adequate support for students. In order to sustain an applicant pool of the highest quality and to enable professional students to concentrate on their work during the time it takes to complete their programs, financial support in the form of gift, loan, and work-study must continue to be made available.

GOAL IV: STRENGTHEN UNIVERSITY LIBRARY RESOURCES AND SUPPORT MAJOR COLLECTIONS

The Yale Library is one of the great research libraries of the world. In order to maintain this distinction into the 21st century, certain criteria must be met. The Library must continue to provide an infrastructure of collections and services which match the excellence of Yale's scholarship. Its resources must be shaped according to the changing needs of disciplines and clusters of disciplines, and ultimately these services must be designed to address comprehensively the needs of students and scholars. The Library must ensure support for new areas of inquiry, as well as continue responsible stewardship of the rich cultural resources it already holds. Its resources, then, must be consistently maintained and updated in order to foster a dynamic intellectual environment and to allow the University to meet its preeminent challenge of maintaining and nurturing the country's most talented faculty and students.

The Library faces many challenges. New fields of inquiry and new interdisciplinary connections continually emerge at Yale, and these often depend upon the ready availability of new and varied sources of information. The very definition of research materials is expanding to include media such as television, photographs, and computerized data, and the demand for assistance in locating and obtaining access to such material is growing. Breakthroughs in information systems technology demand attention; new information is increasingly being made available exclusively in electronic form. Published knowledge is rapidly expanding. Due to this influx of new information, library staff must be specially trained to continue to provide the collections and services needed by Yale's active and productive scholars and students.

Moreover, as Library systems, programs and collections expand in response to these needs, physical space must also be changed and expanded, and special requirements such as climate control and unusual

shelving space must be met. Many of these long-range needs for the modification of facilities have been addressed in the capital facilities planning document and need not be restated here. However, as the repository of the materials that make research possible and enhance our ability to recruit the most outstanding faculty, the Library remains an area where facilities needs and academic planning stand integrally related.

A. Preserve the Library's existing collections

The Yale Library collections support study in many fields of human inquiry, and range from historical documents to medical journals to literary criticism. The scope of the collections is immense, and this magnitude is, ironically, the Library's greatest adversary: one of the most serious problems facing research libraries today is the preservation of the materials that comprise their collections -- materials that are deteriorating because of their composition, their construction, and the effects of uncontrolled environmental conditions. Deterioration is a particularly critical problem in large libraries such as Yale's where the age, the size, and the uniqueness of the collections make evaluation and corrective action difficult.

While all paper, and thus every book, deteriorates over time, this deterioration presents a special threat to books printed after 1850. The paper most often used for books manufactured since the mid-nineteenth century tends to be acidic, and for that reason less stable and durable than earlier, alkaline paper. Books printed on acidic paper begin to deteriorate rapidly fifty years or so after publication. Of the materials in the major humanities collection housed in Sterling Memorial Library, for example, over 44% is already too brittle to withstand normal use. Altogether, over 87% of the main research collection is doomed because it is printed on acidic paper.

The Library presently has a nationally recognized preservation program which has enjoyed considerable success in securing external support, including large grants from the Andrew W. Mellon Foundation and the National Endowment for the Humanities. Unfortunately these grants

allow us to address only a small portion of the problem. Meanwhile, the backlog continues to outgrow the preservation program's present capacity.

Using the strength of this program as a base, a three-pronged strategy for preservation of the Yale collections has been developed: retard further deterioration by controlling the climate in which books are housed; use University funds and gifts to preserve particular volumes needed by Yale readers; and seek gift and grant funds to preserve specific subject-related subsets of the collection. Toward these ends, a schedule and funding plan are being developed for the installation of a climate control system in Sterling Library. Backlogged items in need of preservation treatment will be processed, so that additional materials may be treated as they are identified by readers. In the meantime, grant-funded preservation activities, including cooperative projects, will continue.

B. Sustain level of library acquisitions in needed areas

In addition to preserving its present collections, the Yale Library must keep up with current publications in order to maintain its leadership as a research library. The knowledge base which the Library's resources must cover is rapidly expanding. Yale faculty and students continue to broaden the range of their research and study, and interdisciplinary work has intensified demands for new research materials. At the same time, however, the decline of the dollar has contributed dramatically to rising costs for books and journals. Retrospective materials, especially microform sets and reprints, are also indispensable -- yet costly.

In order to respond to the need for new materials, an annual acquisition goal of 7% of the world's publications has been set. This rate of acquisition would require $1 million plus annual inflationary increases added to the base budget over the next three years. With an eye toward the future, annual base increases will thereafter be provided to account for the growth of world publication. A contingency funding plan will also be developed in order to cushion the acquisition rate against macroeconomic changes.

Within the context of this strategy, expanded access will be provided to the growing universe of information in electronic form. Serial collections will be maintained at present strength, and provision will be made for growth in acquisitions in leading-edge disciplines that are critically dependent on serial literature. The present rate of growth for monographic collections will also be maintained, and strength in special collections will be maintained or intensified.

To maintain its world-renowned depth and breadth, the Library must continue to develop distinctive collections and new programs that build on existing strengths and support current and future scholarship. Therefore, in response to changes in current research, a funding mechanism will be developed for start-up library costs associated with new programs and newly-appointed faculty members with interests not covered by the Yale collections. Also, as Yale research programs grow and new programs develop, specialist librarians may be added.

Innovative mechanisms for communication and collaboration between librarians and faculty will maximize the value of this store of expertise. Further to enhance library research, written profiles of library collections and sub-collections are being developed within the next year. These profiles will include information about collection history, the availability of world publications in the subject of the collection, and most important, an indication of the Library's future plans with regard to development of each collection. Such information will be indispensable in facilitating dialogue between librarians and researchers, in coordinating collections with other libraries, and in seeking gifts and grants.

C. Modernize library services and broaden access to collections and information

Scholars and students need up-to-date cataloging if they are to take full advantage of the extensive resources found within the Yale Library. The sheer size of the Library's collections and the dispersion of their

catalogs complicate accessibility: there are 135 catalogs to millions of volumes, documents, and manuscripts. In addition, 100,000 items are in cataloging backlogs, which grow daily as more volumes are received, so that many of the Library's scarce and unique items are not yet available to Yale scholars.

In order to allow these scholars full access to its resources, the Yale Library has begun to implement the Orbis online catalog, making possible a University-wide computerized bibliography. The initial catalog will contain 800,000 titles, with approximately five million titles slated for conversion from card records to machine-readable records over the next five years. Brief records in Orbis will be created for the 100,000 uncataloged volumes of Western language materials in the backlog, and they will be shelved in areas physically accessible to Yale readers. Similar bibliographic and physical access to non-western language materials, pamphlets, and other non-standard items will be provided. It is hoped that access to Orbis will eventually be provided for Yale offices, classrooms, colleges, dormitories and even homes. A schedule and funding plan for this conversion will be developed, with a projected cost of $15 million over the five-year period.

A schedule and funding plan will be developed to add and replace equipment and software required for the delivery of automated information services. Resources will need to be reallocated so that the Library can purchase new equipment needed to accommodate high speed network communications, growth of the Orbis database, and retrieval of images by high-resolution monitors and printers. Opportunities for the introduction of increasingly sophisticated services in the Medical Library will be pursued, including activities such as partnership in the IAIMS proposal to the National Library of Medicine which will directly improve service and provide a model for other Yale libraries. The Library will also work to provide leadership in the storage, retrieval and use of information in non-print forms.

In addition, programs will be initiated to foster more efficient transferal of information. In the near future, a schedule and funding

proposal will be developed to expand use of telefacsimile services, as well as other mechanisms to accelerate the delivery of information to scholars. As a next step, telefacsimile machines capable of copying directly from books will be installed in the Sterling and Social Science libraries. The Library will work with other offices to complete inventories of the various sources of information in electronic form on campus, and access will be provided both technically and through end-user support programs to a host of off-campus data sources.

Such programs will expand access to a much broader range of information resources. The Library has long been involved in the sharing of cataloging records and in the exchange of interlibrary loans, and is an initiator and active partner in resource-sharing consortia. More recently Yale has joined in acquisition and preservation agreements wherein each partner agrees to be responsible indefinitely for a particular subset of world publications. Beyond such interinstitutional resource-sharing lies the vision of national interactive scholarly networks. With this vision in mind, the Library is taking steps toward innovative and enhanced information and resource management systems.

D. Support major museum collections

Yale's museum collections reflect the University's commitment to the acquisition, preservation, and exhibition of the best possible examples of the art and artifacts of world cultures from antiquity to the present. These collections also represent a special mission to contribute to the education of future generations of professional museum curators, directors, university professors, and artists, as well as the enlightened citizen who first comes to appreciate these collections as a Yale student. They also represent a major financial burden to Yale which is not shared by many other research universities.

Responsible preservation, care, and management of collections is a primary priority. Immediate goals involve the improvement of care of collections through enhancement of conservation staff and facilities. In

some cases, particularly in the University Art Gallery, there are plans for expanded educational opportunities in the area of conservation. Conservation programs will be a major priority in the next decade. This will involve the development of educational programs for art historians and artists, as well as the creation, in collaboration with academic departments, of formal academic programs in conservation for the training of future museum directors and curators. The development of an opportunity for graduate students to observe closely and even participate in some training aspects of conservation efforts will allow Yale to assume national leadership in the training of museum professionals and in the education of students who choose careers as art historians. This initiative represents the kind of intermeshing of the life of a museum with the wider academic mission of the University that will be the cornerstone of future planning.

Each collection will undertake a process to set priorities for acquisition that will improve that collection and contribute to the research and teaching of the University. The coordination of the acquisition goals of the major collections, while contributing to the excellence of individual collections, will provide the foundation for excellence in our academic programs.

To accomplish its mission within a teaching institution, a collection must maintain close relationships with corresponding and complementary academic departments. The involvement of curators, professors, and students in the planning and preparation of exhibits will continue to be at the heart of this collaboration. Future directions will involve new commitment to the collaborative development of interdisciplinary programs and acquisitions. Mutual review and collaboration among collections in the development of programs of conservation will be one example of this effort. Yale will encourage new partnerships among collections and renewed partnerships between collections and academic departments.

GOAL V: ENHANCE THE USE OF COMPUTING IN TEACHING AND RESEARCH

Information is a basic commodity in the intellectual marketplace of a university community. The rapidly growing knowledge base and our resulting need for quick access to it are changing the nature of teaching and research activities at all universities. Already half of the Yale students own computers, and the remainder typically have access to one through roommates, friends, or public clusters. Five years ago approximately 1600 members of the Yale community used mainframe computers, while today virtually everyone (16,000) has access to micros, minis, or mainframes. Through institutional and personal purchases, Yale has acquired a substantial quantity of information processing technology that is used by faculty and students in a wide variety of disciplines. If Yale is to leverage that investment in support of its academic programs, we must provide training and advice on use of the equipment and an electronic communications network for linking these resources.

Over 85% of entering Yale College students have had experience with computers and 95% of them use them while here. Most undergraduates and graduate students are fully comfortable with using computers regularly. Therefore, it should be relatively easy to enable them to do more and more with computers as they undertake their learning and research tasks. Faculty in all disciplines are using computers in interesting ways, from History Department members creating and using special data bases to Biology Department faculty establishing leadership in worldwide gene-mapping activities. Some faculty in the humanities are just beginning to discover how access to greater information can assist them, while some science faculty routinely use the National Science Foundation Network for high-speed communication with the National Super-Computer Centers. Local and national data networks provide access to information stores in central data bases and facilitate collaboration between Yale scholars and their colleagues elsewhere.

This recent expansion of communication systems has opened new research horizons for modern scholars; thus, to remain in the first rank of research universities, Yale must support student and faculty applications of such information processing technology across various disciplines. Only in this way can we continue to attract and retain the best faculty and the best students in each discipline.

A. Develop campus-wide infrastructure for access to computing

The Yale campus already houses an extraordinary amount of computer hardware. What is now most needed is an electronic communication, training and technical support infrastructure for those who use these facilities. The intent is not to impose high-technology communication on all faculty and students, but to make it possible for each person to use the technology considered the most effective for maximizing his or her scholarly productivity. The Orbis online library catalog (introduced in Goal IV) can be considered the core of such an infrastructure, to which other data bases can be added as desired. A few faculty and students who have the resources to pay for use of remote commercial databases can scan and retrieve information from electronic versions of such databases as Chemical Abstracts, Medicine, and Current Contents. In addition, there is a growing collection of databases and journals available on CD-ROM. A current project of the library and information systems staff is to develop a cost-effective means for making this kind of information readily available to all faculty and students. Since such an effort would build upon substantial existing organizational, computing, and communications resources, the incremental cost should be modest relative to the potential benefits.

In the near future Yale will be able to publish electronically its academic course offerings and, as students have suggested, course descriptions and reading lists as well. The Yale Weekly Bulletin and Calendar, now a newspaper, could be incorporated into a campus

information system. The recent renovation of Calhoun College stimulated Calhoun students to develop a plan for HounNet, an integrated communication and information system for support of the Calhoun community. The effects of increased access to faculty colleagues both within Yale and in the greater academic community are inevitably going to multiply as students and faculty continue to examine the myriad ways of increasing the efficiency of communication.

B. Create a University committee for applications of computer technology

Given the world's accelerating information base, our desire is to lead our country's research universities in support of faculty and student use of that information. Currently available information technologies present Yale with more opportunities to exercise that leadership than can possibly be pursued. To pursue these opportunities Yale will establish a new University committee to assess the needs and opportunities and advise the staff in the development of strategies for expanding access to the increasing body of information within available resources. As faculty research becomes more data-dependent and academic programs become more entwined with the technological manipulation of data, a University committee such as that proposed, bringing faculty from different disciplines together with administrators with planning and information system skills, will enhance our ability to move into the future in a coherent and exciting way.

We will also need to introduce strategies for the refinement of the library plans presented in Goal IV as well as for the introduction of a campus-wide infrastructure, recognizing at the same time the need for continuous modification of plans as the science of information technology itself is enlarged. The leadership provided by this new committee will be indispensable. Strategic planning will be ensured, and the imbalances in understanding of information technology which presently divide faculty will be prevented from becoming an obstacle to progress. Accordingly the

Provost will request the Faculty of Arts and Sciences Steering Committee to establish such a new committee during 1991.

The committee will focus on the application of broadly defined information technologies to instruction, research, and administrative activities that support academic programs. Print, voice, video, and data will all be considered, and it is hoped that the new committee will provide important guidance on the allocation of central and departmental efforts as well as on the acquisition of technology.

GOAL 6: STRENGTHEN YALE'S PROGRAMS IN MATHEMATICS, SCIENCE, AND ENGINEERING

Over the past two decades, Yale's position of national prominence in the sciences has risen dramatically. The establishment of the Howard Hughes Medical Institute has brought new distinction to the biological sciences; all of the physical sciences departments have been significantly strengthened with excellent new appointments and promotions; and the engineering faculty has been reorganized into several new departments. One way of measuring Yale's position in the national scene is by membership in the National Academy of Sciences. Between 1960 and 1970, about 25 of Yale's faculty were members. In 1990, Yale shared with Harvard the honor of having five members elected, more than any other campus in the country. These new members brought Yale's total to 55, the sixth highest, after Harvard, Stanford, Berkeley, M.I.T., and Cal Tech.

Several ongoing and planned research programs reflect the ambition and vigor of the physical sciences in an impressive way. For example, in Physics, after a major upgrade, the famous Tandem Van de Graaff accelerator in the Wright Nuclear Structure Laboratory is facilitating deeper probing into the structure of the nucleus. Yale's high energy physicists are also playing an important role in the research and development for the Superconducting Super Collider, which will be the world's largest particle accelerator. Its construction has been approved by Congress to take place in the next decade.

The Yale Astronomy Department has recently reached a three-university consortial agreement to share in the funding and operation of a 3.5 meter telescope to be located at the Kitt Peak National Observatory near Tuscon, Arizona. This instrument, by taking advantage of the evolutionary advances in the areas of optics and electronics, promises to be the most powerful of its size ever constructed and will produce substantially better images than are available on any other American telescope.

The Department of Computer Sciences, along with faculty from Princeton and Rutgers, have proposed the establishment of a national research center for massively parallel computing aimed at the development of applications programs to solve the next generation's most significant scientific and engineering problems. The center, to be headquartered at Rutgers, with subcenters at Yale and Princeton, will be known as The Research Center for Hypercomputing Science and Engineering. The project has proposed an annual budget for research of about $10 million, to which must be added the costs of the massively parallel computers the Center will eventually need to carry out its mission.

In these and other projects taking place in Chemistry, Geology and Geophysics, and Mathematics, Yale faculty are contributing to science at the international level, reflecting the commitment to this area made by Presidents Brewster and Giamatti and renewed by President Schmidt, who has made it clear that Yale will continue to strengthen the sciences, including the building and renovation of science laboratories, the appointment of new faculty, and the development of new research programs.

A. Create new engineering faculty positions in clusters of excellence

As a major part of its effort in recent years to strengthen programs in science and engineering, the University has announced the authorization of up to 10 new junior equivalent faculty positions, to be added at the rate of approximately two per year, beginning in 1990-91. These positions, a mixture of tenured and non-tenured, will be clustered around a few interdisciplinary engineering areas, most of them building on strengths already present at Yale and cutting across more than one department (and perhaps connecting to another science department) so that they will be attractive to exceptional scholars and will have an impact on the stature and identity of engineering at Yale. Indeed, this initiative should ultimately place Yale's program in the designated areas among the strongest in the world. Furthermore, this strategy of making appointments may serve as a

model for other areas in that the new positions will be used judiciously, building on strengths and creating specific areas of excellence by clustering appointments rather than diffusing the resources over too broad a spectrum.

Engineering at Yale currently comprises autonomous departments of chemical, electrical, mechanical engineering, and applied physics, all of which share graduate programs and administrative support functions under the Council of Engineering. This influx of new engineering faculty will alow us to initiate new projects and complement existing research. The selection of the areas into which the new engineering positions will be assigned is to be made by the President and Provost after receiving recommendations from the Physical Sciences Advisory Committee. The committee's task is to review and evaluate proposals made by the engineering faculty which have been screened by the Engineering Council. The areas finally recommended will already have some strength at Yale, both in faculty and facilities, and will have the potential to become internationally outstanding. Of course, each area should be important and active within engineering.

After receiving recommendations from the Physical Sciences Advisory Committee for the first round of assignments, the President and Provost agreed to assign one junior faculty equivalent to particle fluid dynamics, one junior equivalent to polycrystalline materials and solid mechanics, and one senior position to computer engineering. Among the areas that will be considered in the second round are biochemical engineering, combustion and reacting flows, microelectronics, and robotics.

Significant increases in the level of science faculty and research requires a great deal of planning and the identification of new resources. In addition to the salaries required for the positions themselves, funds must be found for graduate fellowship support, faculty and student research, and the laboratory space and facilities needed to support research. The Development Office is actively seeking the funding necessary for these incremental positions, and indications are good that the pace of two per year will be achievable. This rate of addition will allow the University

time to specify the most desirable areas of research, to select the best possible scientists, and to prepare the laboratory space and research facilities each appointment will require.

B. Establish a Center for the Life Sciences

The rate of new discovery in the life sciences is accelerating phenomenally, manifesting in the multi-disciplinary, highly technical resources that can now be brought to bear on any single issue. Rarely can an individual faculty member raise sufficient capital to support a comprehensive investigation of a single experimental problem. Instead it has become imperative to have research groups make use of shared laboratory cores. With this in mind, a space advisory committee within the department of Biology has studied both space and pedagogy issues and made a number of recommendations.

As a result of this study, there has been proposed a new, interdepartmental program and facility to be known as the Kline Life Sciences Training and Research Center and housed on the fourth and fifth floors of Kline Biology Tower (space which will be vacated by the department of Molecular Biophysics and Biochemistry when it moves into its new building). This interdepartmental program will be available for the training and research needs of the entire life sciences community, thereby contributing to the interdisciplinary spirit Yale wishes to sustain. It will also facilitate and nurture interactions between research and graduate training groups both on Science Hill and at the School of Medicine.

The proposed new interdepartmental Center will incorporate state-of-the-art instrumentation and equipment for student and staff training, so that the research agenda of scientific inquiry can be made accessible to students at all levels. It is envisaged that the new core facilities will facilitate important changes in the curriculum for both advanced undergraduate and graduate students. At present, undergraduates receive most of their life science training through a series of lecture and laboratory courses which are both geographically and intellectually displaced from the

excitement and realities of biomedical research. Experimental biology is much more than a set of facts; it is a process which can best be learned through the discussion and execution of well designed experiments. At present, not enough of our students can actually experience the realities of independent study conducted in faculty research laboratories. The proposed new core facilities, cutting across the life sciences, will permit exciting changes in the mode of teaching experimental biology.

By establishing a multi-departmental center in the life sciences Yale will expand the educational experience of both undergraduates and graduate students. In addition, the advanced instrumentation and its attendant staff will be available to serve a wide range of the faculty's research needs. Finally, this Center will demonstrate by example the way in which the fragmentation of scholarly inquiry often undertaken by individual disciplines can be replaced by a more effective mode in the hands of an interdisciplinary team of scholars.

C. Enhance research and teaching in the field of structural biology

Structural Biology is the discipline in which sophisticated instrumentation such as X-ray diffraction, magnetic resonance, and electron microscopy is used to determine the structure-function relationships of macromolecules: principally the nucleic acids and proteins. Yale is already one of the leading institutions in the world in this field, with work centered primarily in the Department of Molecular Biophysics and Biochemistry, and in the Department of Chemistry.

With the construction of the new Center for Molecular Medicine at the School of Medicine, scheduled for completion early in 1991, and the new Molecular Biophysics and Biochemistry building, scheduled for completion in 1992-93, Yale faculty will be able to conduct research and teaching in structural biology more effectively. Thanks to a major financial contributions from the Howard Hughes Medical Institute, a new core

laboratory will be created as well as incremental research and teaching spaces for several members of the faculty.

D. Restore Yale's preeminence in the field of ecology and evolution

A decade ago, Yale's faculty was second to none in the field of ecology and evolution. There followed a series of retirements and departures, however, which seriously depleted our faculty strength in this key area, and a visiting committee was brought to campus to advise on how best to rebuild. On the basis of their advice, it was decided to search for two new senior and two new junior faculty members, whose research would emphasize modern experimental approaches to evolutionary biology. At the same time, planning began for the total renovation of the Sachem Street wing of Osborn Memorial Laboratory, including two floors for faculty research in ecology and evolution. Both the searches and the renovations are nearing completion, and within the next two years we expect to be well on our way to restoring Yale's leadership in evolutionary biology.

Research and teaching in the areas of ecology, evolution, and the environment will be further strengthened by the creation of the Yale Institute for Biospheric Studies, made possible by a recent gift of $20 million from Edward Bass. The Institute, the headquarters of which will be in the newly renovated wing of Osborn, will bring together scholars from such diverse schools and departments as Forestry & Environmental Studies, Organization and Management, Law, Epidemiology and Public Health, Biology, Geology and Geophysics, and the Peabody Museum. A new professorship in organismal biology will add significantly to Yale's strength in the areas of ecology and evolution. The Institute will organize educational and research programs that will cut across traditional boundaries and foster new modes of interdisciplinary cooperation.

E. Strengthen Yale's interdepartmental neurosciences program

Over sixty members of the University faculties, distributed over seventeen academic departments, now participate in an interdepartmental Ph.D. program in the neurosciences. While the majority of these are in the School of Medicine, a significant number are members of the Departments of Biology, Computer Science, Electrical Engineering, and Psychology in the Faculty of Arts and Sciences.

Neuroscience is one of the fastest developing scientific fields. Over the next decade, we expect to see a dramatic increase in the scope and level of research and teaching in this area. As an example of new initiatives we can expect, a group of Yale neuroscience faculty has made a preliminary proposal to the State of Connecticut for an Advanced Technology Center, to be called the Center for Theoretical and Applied Neuroscience. Members of the Center will conduct advanced research in three related areas: molecular neuropharmacology, computational neuroscience, and artificial neural networks. Yale neuroscientists work in many other sub-disciplines, however, and there will inevitably be a burgeoning of activity across the entire spectrum of neuroscientific fields.

In order to support these new initiatives, the neuroscientists are now organizing a governance of the Interdepartmental Neuroscience Program, including its two Co-directors, two Directors of Graduate Studies, an Executive Committee, an Admissions Committee, and a Curriculum Committee. The Provost and the Dean of the School of Medicine have already provided the program with space and an operating budget, and the faculty are expected to be successful in obtaining a large increment of training grant and research support.

F. Increase cooperative research activities involving industrial organizations

Prior to the 1980's, Yale did little to promote the transfer of technologies developed in its laboratories to the state where they would serve society through further applied research and development. In 1983, the University established an Office of Cooperative Research for this purpose, with a full-time Director and staff. In the ensuing seven years, cooperative research agreements with industry have multiplied several fold: in 1988-89, for example, over $9 million in research support and over $440,000 in royalties were generated. Over the seven years, more than $2.2 million have been received in royalties. These numbers illustrate both the financial advantages and the greatly accelerated pace of cooperative research at Yale. Much more can be done, and a review of the Office of Cooperative Research is now underway to explore ways in which it can function even more effectively.

By cooperating with industry, Yale's faculty significantly increases the scope and applicability of its research and avails itself of laboratory resources not otherwise accessible. For example, a member of the Yale Biology Department has been engaged for several years in a cooperative research project with the DeKalb-Pfizer Seed Company, in which modern methods of genetic engineering are being used to study and control the flowering of plants. Cooperative research agreements with industry now exist in a number of Yale departments, in both the Faculty of Arts and Sciences and in the School of Medicine.

Another way in which Yale has been cooperating with industry is through its recently developed master's degree program in engineering. By scheduling a number of introductory graduate courses in the late afternoon or in the evening (at least two from each engineering department), we have made it possible for area engineers to obtain a Yale master's degree in engineering in four years (or less) while continuing to work full time as professional engineers. There are presently fifteen engineers in the program, eight of whom obtained the master's degree in 1990.

G. Improve and support instruction in mathematics and the sciences

The level of mathematical literacy among secondary school students appears to have steadily decreased in recent years. Many students graduate from secondary school possessing only the most primitive of mathematical skills and are unable to solve problems involving mathematics beyond elementary arithmetic. These students cannot fully participate in a liberal education for they are unlikely ever to experience the beauty and power of mathematics and will be at a serious disadvantage in any attempt to understand modern science.

An important part of an attempt to deal with this problem will be a review of the existing introductory courses in mathematics and the development of new courses. One such course would be directed toward improving the ability to understand mathematical concepts of undergraduates who are not planning to major in the sciences. A second would be devoted to improving the mathematical skills of potential science majors. These are not to be conceived as remedial courses. It is important that both types of courses have real substance and that they be designed with the abilities of the students in mind. This is not an easy task and will no doubt require significant time and effort on the part of the mathematics departmental faculty.

To ensure the highest possible rate of success among students in these courses, it is essential that the instructors involved be chosen with care. In most cases the classes involved will be taught by faculty, but where appropriate sections will be staffed with graduate students. These students should have substantial classroom experience and meet high standards of proficiency in English. Where necessary, instruction in English as a foreign language will be available to graduate students at no cost.

In recent years, increasingly large numbers of students attending Yale have expressed interest in majoring in the sciences. In the course of

their stay at Yale, however, many of these students change their plans and elect to major in non-science areas. The Dean of Yale College is presently developing plans, assisted by a new ad hoc faculty committee on the sciences, to accelerate the recruitment of serious science students and to seek new ways to ensure that students who have expressed interest in science majors continue that preference through to graduation. For example, summer programs are presently being designed to offer students who have been accepted to Yale special assistance in science instruction in the summer before they begin their freshman year.

A new Math/Science Tutoring Program is another component of the general effort in Yale College to generate more interest in mathematics, science, and engineering and to encourage even more undergraduates to major in the sciences. Modelled on the successful writing tutorial programs established a few years ago in the residential colleges, this program provides much-needed assistance to students taking courses in science. Tutors aid those students who find their science courses difficult and encourage students to become interested in courses which they might otherwise avoid. The tutors also serve as role models to undergraduates, offering them a sense of how mathematicians and scientists go about solving problems and how they interact with colleagues in other fields. Given the new, more rigorous science requirements for freshmen who entered Yale in the fall of 1989 -- three required courses in the sciences, two of which must be in the natural sciences -- the support provided by the Math/Science Tutoring Program will be even more important in the near future. The program builds confidence and represents Yale's commitment to help each student fully to develop his or her potential. By securing a permanent funding base for instructional support in mathematics and science Yale will reaffirm the essential importance of this core competency in the liberal learning experience.

GOAL VII: STRENGTHEN INTERNATIONAL STUDIES AND FOREIGN LANGUAGE INSTRUCTION

The truly great universities of the future will be those displaying vigor in both the core arts and sciences and in the professional schools, while at the same time carefully adapting the various parts of the university's system and programs to the new order of global interdependence. Yale has long demonstrated the ability to play a leadership role in research and teaching activities related to the international agenda. Despite some current gaps, there is reason to believe that with a concerted effort Yale can reassert leadership in this area. It is unlikely that we can command the study of all areas of the world, but where we have the potential for excellence, we should move forward. With awareness of a need to weigh alternatives and establish priorities, Yale intends to strengthen international studies and foreign language instruction and to explore new ways to prepare students for participation in a globally defined society.

A. Rebuild strength in area studies and initiate programs in international affairs

For the last several years Yale has been engaged in rethinking its presence in all areas of international studies. The University believes that it must be responsive to a world in which nations are growing increasingly interdependent, and in which economic, environmental, and health matters affecting one area touch others as well. Yale consequently intends to give increased attention to traditional studies of international relations, including diplomacy, strategy, and competition for power, as well as to focus on newer forms of scholarship which emphasize global changes in economic, environmental, demographic and social conditions. The University believes that departments should continue to study the cultural uniqueness of particular areas of the world; but it also believes that these

studies must be conducted with a keen awareness of the interconnectedness of all societies.

Some thirty or forty years ago, Yale was readily identified as an outstanding university in international affairs. In some areas, however, its reputation over the last generation has declined. In the coming decade, Yale plans to reestablish its position by increasing support for faculty recruitment and graduate student support in the international area. It will also improve its physical resources for teaching, administration, and research, as well as for creating the kind of gathering spaces that will make it attractive for scholars engaged in common enterprises to mingle.

As Yale enters this new period of growth in international studies, it begins with two important strengths: excellent library resources and a distinguished faculty, even though at this time the latter are unevenly distributed among areas. In making these observations, it is important to note that Yale has excellent faculty outside those departments traditionally associated with the study of international affairs who could contribute to the growth of this program. There are distinguished faculty, for example, in the Schools of Forestry and Environmental Studies, Law, and Medicine, and in the departments of Anthropology, Geology and Geophysics, Economics, and Astronomy working on issues which include subjects such as atmospheric change, tropical forest preservation, atmospheric geochemistry, and climate changes. All of these interests could be put to productive use in the development of an ambitious International Studies Program based in the Faculty of Arts and Sciences.

The Yale Center for International and Area Studies is presently developing long-range plans for faculty development, including plans to bring to Yale senior faculty in those areas in which the University currently has openings. In addition, the Center hopes to integrate into the regular faculty scholars who are currently supported by outside gifts, to seek funds to endow professorships in international studies, and to increase the number of visiting scholars who can bring to the University fresh and exciting perspectives.

B. Create an undergraduate major in International Studies

Increased attention to international affairs will also be reflected in undergraduate education. Supported by the Dean of Yale College, a new major in International Studies has been proposed by a committee chaired by Professor Gaddis Smith, Director of the Yale Center for International and Area Studies. The major is currently under review by the Yale College Course of Study Committee. Although the focus of the major will be contemporary, the analysis of current situations must be well grounded in an understanding of relevant history. In addition, a major in International Relations should provide students with the capacity to understand and analyze the many changes -- environmental, political, economic, cultural, and demographic -- which are taking place in the world. The major must therefore be interdisciplinary and require students to study in a number of intellectual disciplines including history, political science, economics, languages, sociology and anthropology, literature and the arts, and the sciences, particularly the earth and environmental sciences.

C. Broaden graduate and professional international programs

The University also intends to broaden its resources for graduate and professional students in the area of international studies. The Yale Center for International and Area Studies now administers a two-year International Relations master's program and through area studies councils is indirectly responsible for two other master's programs. In the School of Forestry and Environmental Studies, a global initiative is well under way that has attracted support from virtually all of the country's leading foundations with an interest in global environmental issues and problems. There are joint degree programs between the International Relations Program and the Schools of Law and Forestry and Environmental Studies. In the School of Medicine, and particularly in the area of public health, the international outlook is also becoming increasingly more important.

In order to attract and support the best students, Yale will need to devote more resources to these areas, especially since the Federal government has recently been reducing its support in this area. In addition to the support which all graduate students require, additional monies will be sought, since graduate students in international and area studies often require special travel and research funds.

An example of a new multi-unit program already underway is the Orville Schell Center for the Study of Human Rights. Located in the Law School and chaired by Professor Drew Days, the Center creates a new mechanism for Yale to exercise leadership in an area of significant global importance. Just as proposed programs in international relations and global change addresses issues ranging from geopolitical boundaries to climatic change, and from language instruction to the impact of stratospheric ozone, so the Schell Center gives Yale a nucleus around which to engage both graduate and undergraduate students in educational issues relating to essential human liberties.

Given Yale's historic concern for teaching the values of civil liberties and constitutional rights, and our commitment to human rights, it is appropriate to devise new means through which we can exercise leadership in this area of undisputed importance to our students. The present generation of students will spend most of their lives in the twenty-first century; many will be in positions through which they could extend the principles of essential human justice and dignity. They must have the best education in this area that Yale can offer them.

D. Improve and modernize foreign language instruction

The initiatives in Yale's effort to strengthen international education have significant consequences for other areas of study, particularly those involved in language instruction. All students in Yale College are now required to study a foreign language, which alone represents a challenge to existing resources and language facilities.

Yale's language and literature departments have a long and very strong history as leaders in their fields. Highly innovative approaches including the use of video in the teaching of French, computer-assisted instruction in German, and cultural literacy methods in Russian and African language programs have already been introduced. Partly because of these advances, Yale's language facilities, recently enlarged and updated, are already severely taxed. Ideally, a new "high tech" language facility should be created. This would not only relieve the pressure on the existing facilities, but would provide the newer equipment needed to support such innovative methods of instruction as interactive video disc and to respond to the students' growing needs for self-directed and accelerated studies. This facility could also provide assistance for the less commonly taught languages demanded by graduate and professional student research. Such a program and facility would serve as a language pedagogy resource center informing these instructional efforts nationwide.

In addition to experimentation with new pedagogical techniques and the improvement of facilities, it will be necessary to begin a process of supplementing and improving the staff in existing language programs. A full review of the language requirements will soon be made. It has become essential for some students to become proficient in second and even third languages. With this in mind, the Dean of Yale College has appointed a committee to review the Foreign Language Proficiency Requirement and to examine, among other issues: comparability among different measures of proficiency for various languages at Yale; the degree of equivalency between such measures of proficiency and the completion of an intermediate-level course at Yale, Yale placement tests, and standardized College Board tests; and the effects of the requirement on staffing, offerings, and enrollments in foreign language departments.

It has been recommended by the Humanities Advisory Council that steps be taken to avoid construing language proficiency as either an end in itself or as a study with a primarily utilitarian value. Instead they have urged departments to intensify the linking of the learning of language with the study of literature and culture, thereby enhancing the traditionally strong departments of languages and literatures. By providing students

with proficiency in a foreign language, Yale is providing access to the literature and, through that literature, to the culture of another country.

Given the centrality of foreign language instruction to the academic program, and the commitment to continue language requirements, the time has come for the University to raise endowment funds for foreign language instruction. Foreign languages have always been an important part of the Yale academic program, and we are well positioned to build on a strong base. Through the steps recommended by the Humanities Advisory Committee and further refinements of basic agreements on directions, Yale will reaffirm its commitment to foreign language instruction as an important cornerstone in the institutional plan to prepare students for participation in a globally defined world and in a multicultural nation.

GOAL VIII: EXTEND YALE'S LEADERSHIP IN INTER-DISCIPLINARY TEACHING AND RESEARCH

Two trends are familiar to the faculties of all academic institutions: increasing specialization in traditional disciplines and interdisciplinary inquiry into broader research or scholarly concerns. A tension may be created by these two phenomena, but the contradictory direction suggested by these trends is often more apparent than real. Whereas true expertise requires specialization, the problems and questions confronting most experts can commonly be best addressed by a multidisciplinary perspective. Such a perspective may be obtained through working or learning from specialists in fields other than one's own. Excellence in research or teaching then often depends on both a solid expertise and an ability to use a multidisciplinary perspective when appropriate to the problem at hand. Interdisciplinary approaches depend upon and can never substitute for the disciplinary strength represented by strong departments, where the power to appoint continues to reside. At Yale the disciplinary departments have traditionally viewed contributions to interdisciplinary studies and teaching among their primary activities. This healthy balance between the departments and the interdisciplinary programs they support must be maintained.

Interdisciplinary programs grow from within departments, from the creative energies of individual faculty members and from the stimulation of student interest as it gains the support of faculty. It is in this context that Yale seeks to extend its well established and highly valued preeminence in interdisciplinary research and teaching. Interdisciplinary activities are already common within each of the four divisions: the Humanities, the Social Sciences, the Biological Sciences and the Physical Sciences. It is a natural intellectual habit at Yale. Yale College undergraduates, as well as students enrolled in the various graduate programs, have long benefitted from working with prominent faculty of keen intellect and imagination who are able to transcend the boundaries of disciplinary training and bring the insights, knowledge, and methodologies from a variety of disciplines to

insights, knowledge, and methodologies from a variety of disciplines to bear on a variety of concerns. Without sacrificing any of the prerogatives of the departments themselves, in the coming period Yale will take steps to extend the trajectory achieved during its historical leadership in interdisciplinary studies. By so doing the University will be able not simply to meet frontiers but to create them.

Yale faculty have long been familiar with the interdisciplinary nature of both scholarly inquiry and teaching. The present cross-departmental planning taking place in international studies is but one example of drawing on expertise in a wide variety of fields to build new research and teaching programs. The consistent success of the Directed Studies Program for freshmen in Yale College is another. Numerous programs now well-established at Yale, such as African and Afro-American Studies, Judaic Studies, Comparative Literature, and American Studies, have departmental or quasi-departmental status as they draw on the faculty strength of a wide variety of other departments. Molecular Biophysics and Biochemistry has become a flagship discipline joining the Faculty of Arts and Sciences and the School of Medicine. Many Yale departments are in fact interdisciplinary in their own right. Classics, which includes history, literature, art, and archaeology, is one example; Religious Studies, particularly with its strong connection to the Divinity School, is another.

Many interdisciplinary programs have no departmental affiliation, but cut across many disciplines: Medieval Studies is a particularly strong program, located primarily at the graduate level. Sponsored primarily by Yale College and serving the undergraduate curriculum are effective programs in Women's Studies, Theater Studies, and Film Studies. Given the strength of the Faculty of Arts and Sciences departments and the rich cross-fertilization of research efforts made possible through the linkages to the professional schools, Yale can and should continue to play a leadership role in interdisciplinary research and teaching activities and to develop the resources necessary to secure and advance its position. Excellence in interdisciplinary teaching and research has been and will remain a hallmark of a Yale education and an appropriate emblem of a liberal education.

A. Secure Directed Studies as a permanent feature of the humanities curriculum

Yale College freshmen have greatly benefitted from having the alternative of the Directed Studies Program, a set of carefully related interdisciplinary courses which substitute for the traditional set of electives in specific departments. The texts for each of the Directed Studies courses are studied along with relevant assignments covering the same time period in the others. Thus a Directed Studies student engaged, for example, in the ancient world, receives a comprehensive interdisciplinary view of that period through study of its history, philosophy and literature. For generations many of Yale's preeminent faculty have chosen to teach in the Directed Studies Program in order to provide students with the experience of working in small groups to pursue inquiry along interdisciplinary lines. Plans are presently underway to expand the program into the study of the sciences.

In order to secure the Directed Studies Program as a permanent part of the Yale College curriculum, the University has successfully made an application to the Andrew W. Mellon Foundation for a challenge grant to increase substantially the program's endowment. The Foundation has made an award of $1.5 million which requires a 2 to 1 match to create a $4.5 million endowment. The University is committed to meeting the match requirement, and to recruiting new faculty through the departments with a special training and talent for teaching in an interdisciplinary mode.

B. Implement a new program in Social Thought and Ethics

The University has initiated a new program in Social Thought and Ethics, which envisions the appointment of several faculty who will anchor the research and intellectual center of this program. In connection with the research program, plans are underway to create a new undergraduate major designed to engage students more directly in societal problems where public policy needs to be rethought or established in the context of ethical

issues. The Dean of Yale College has appointed an interdisciplinary faculty committee to draw up the main elements of the major and to create possible directions for a research agenda.

While the precise themes of the program are still being developed, it should be noted that faculty from a number of departments, including history, political science, and philosophy, will confer not only with one another but with faculty from professional schools such as Law. The University has received a three-year grant from the Ford Foundation to assist in the planning and implementation of the new major, and the Henry Luce Foundation has awarded Yale a grant to create a distinguished term chair to help launch the new initiative. Support has also been received to underwrite a series of lectures by outside speakers.

It is hoped that the new program in Social Thought and Ethics will represent a creative extension of Yale's current strength of faculty and program bridging the humanities and social sciences. This in turn will lead to an academic initiative which will have the desirable effect of heightening student awareness of the vast social changes that not only currently envelop us, but which will present themselves as even larger forces in the future.

C. Strengthen interdisciplinary research and program centers

In recent years both the curriculum and the research interests of the faculty have expanded significantly in the area of interdisciplinary and interdepartmental programs. The Andrew W. Mellon Foundation has enabled us to experiment with so-called "term chairs," appointments which allow senior faculty, for a limited period of time, to conduct teaching and research outside of their primary discipline and department. The interdisciplinary curricular expansion has not, however, always been matched by an adequate increase in funds for the departments to recruit and appoint faculty who can devote some of their teaching time to these programs. Since departments have primary responsibility to provide instruction for departmental courses and must make appointments with their disciplinary objectives in mind, it is important that some modest new funds

be allocated to enable them to make appointments which are specifically intended to make contributions to selected interdisciplinary programs without sacrificing any core departmental programs.

At the present time, there are virtually no unallocated funds available to which the offices of the Provost or the Yale College Dean may routinely turn to assist departments in the staffing of interdisciplinary programs or to foster new interdisciplinary activity within the existing faculty. There are no funds at all available to make a major department-based appointment that serves a cross-departmental service -- e.g., a former cabinet member, diplomat, or prominent political figure -- who may not fit into a particular departmental slot. To address these vexing limitations, it is proposed that new funds be allocated to this program, combining existing monies and new monies, to assist departments in the hiring of faculty whose teaching will be offered in interdisciplinary programs.

Many of these interdisciplinary programs are grouped together and supported in research and curricular centers, the most prominent being the Center for International and Area Studies, the Institution for Social and Policy Studies, and the Whitney Humanities Center. These and more focussed centers such as the Cowles Foundation and the Economic Growth Center are not only places where faculty and graduate students come together to share ideas and research, they are also the providers of important academic support both for research and for graduate and undergraduate programs. Their importance to Yale is well-recognized. One of Yale's most important objectives over the next few years is to develop a process whereby these centers can regularly be reviewed and, where necessary, strengthened or reshaped as their purposes and the needs of the intellectual community change. They are a vital part of the balance between departments and interdisciplinary activity, and as such they must be kept strong and well-focussed. All must contribute to the cohesiveness of the University and to its larger mission. Centers exist to serve faculty and students by fostering excellent teaching and research. The mission of no center should become isolated from the larger intellectual network.

GOAL IX: IMPROVE ACADEMIC SUPPORT SERVICES IN YALE COLLEGE

Yale College students find academic support in a wide variety of places, primarily through the many offices under the jurisdiction of the Yale College Dean's Office and throughout the campus through the efforts of academic departments and the libraries and museums. This support begins with orientation programs that take place just before and at the opening of the fall term and continues through a variety of tutorial and academic assistance programs to the efforts of the University Career Services to help students apply for fellowships, entrance into graduate and professional schools, and positions in a wide spectrum of occupations. At the core of the academic support for undergraduates, of course, lie the individual members of the University faculties who become the students' Freshman Faculty Advisers, Sophomore Advisers, and advisers to the many majors students choose. Yale has a strong tradition of direct and continuing contact between students and faculty, and maintaining that tradition is one of the University's most important goals.

In the broadest sense, the primary support system for Yale College is embodied in the residential college system, where for over fifty years students and faculty have come together in a wide variety of contexts: intellectual, social, artistic and athletic. In these colleges, each led by a fully committed Master and Dean and all comprising two or more residential fellows and a number of faculty whose offices are inside the college walls, a significant part of the undergraduate education occurs. The residential colleges have been studied, envied, and imitated and remain one of Yale's most prominent sources of pride. In 1983, in anticipation of the fiftieth anniversary of the colleges, President Giamatti initiated a comprehensive review of undergraduate educational life and appointed a committee to review the residential colleges. The Committee on the Future of the Residential Colleges made its report in 1984, celebrating the college system and recommending, among other things, increasing the number of educational programs based in the colleges.

A. Integrate residential colleges into the academic program

During the past decade, following the recommendations of the 1984 committee report and often aided by external temporary funds, Yale College has designed and implemented a number of innovative academic programs, many of which are centered in the residential colleges. The success of these programs has been obvious to students and faculty, and the time has come to seek more permanent financial support for them. By increasing the academic nature of the colleges, including seminars, participation of faculty fellows, and visits by scholars and alumni, the University intends to continue to enhance the educational role of the residential college

Fundamental to the Committee's report were recommendations aimed at making significant physical improvements in the colleges, both to reverse the effects of time and heavy use and to adapt the colleges to new programs. The renovation of these colleges is now one of the keystones of the capital rebuilding plan currently underway, and as the completion of Calhoun College has amply demonstrated, those renovations will dramatically enhance the functions of the colleges.

The residential colleges are of course not the only source of academic support for undergraduates. Yale is determined to offer the best education possible to each of its students, and that requires a broad range of support activities and educational programs. By long-standing design, Yale admits students from a wide variety of backgrounds and secondary school experiences. Accordingly, it would be unrealistic to suppose that all of our students have the same readiness or competencies when they arrive. By providing academic support services of a high quality for all students, Yale reinforces its desire for a diversified student body while respecting each student as an individual. Toward this end, Yale College regularly develops and examines new strategies for extending its academic resources.

B. Keep writing instruction a permanent part of the curriculum

Evidence clearly points toward a need for stronger written communication skills in all professions. The ability to write well, to organize and express ideas in a coherent and persuasive fashion, is consistently identified as a competency that cannot be compromised. Thanks to generous annual gifts from the Bass family, writing tutorial support in the residential colleges has become a hallmark of the Yale undergraduate experience, and writing intensive courses have been added to departments across the curriculum. Students have benefitted enormously from the personalized writing assistance,.provided through this program. In order to ensure the continuation of this support, Yale College's writing program must be undergirded more strongly to meet the rising costs of instruction and to expand the writing support services. Toward that end we propose seeking endowment funds to insure that writing instruction of every kind and at all levels will be available to Yale's students.

In addition to making writing assistance available to all students, Yale is developing new methods to introduce students to computer technologies and to utilize them as part of the research and writing process. Virtually all of Yale's students now regularly use computers, including the word processing function, and they need to be given full assistance to advance to more sophisticated uses of computers. They need, for example, not only to write on computers but to use them to gain access to information which will support their arguments and ideas. Everything suggest that students will be engaged in written communication in increasingly sophisticated ways, and thus their acquisition of English language skills must be both comprehensively undertaken and permanently secured.

C. Develop accessible video support for classroom teaching

Another recent successful experiment in supplementing course offerings has been the videotaping of introductory science courses so that

students can "repeat" and individually "replay" them. Used in chemistry courses for the first time this year, through special funds from the Yale College Dean's Office, this experiment has demonstrated its value. Students who may not have absorbed all of the lecture material in one sitting can now review the material as many times as they wish. This reinforcement process acknowledges that not all students learn at the same pace or in the same style. We intend to find the means necessary for each undergraduate to receive whatever support he or she requires in order to derive the greatest value from the Yale educational experience. The use of video support is an important part of this support.

Given the nature of current technology, the use of video materials will increase greatly in coming years, and the demands on our film resources will expand dramatically. Already, instructors of courses across the curriculum are adding videotaped material to their classroom presentations and to their required "reading." Currently the Audio Visual Department and the Language Laboratory find it difficult to keep pace with demand. The Film Study Center has had to respond to the growing popularity of film studies courses in Yale College and increasing attention to film on the part of graduate students. Continued attention must be paid to the collections and viewing facilities. What is most needed is the development of a comprehensive plan to take advantage of the new teaching and academic support services made possible by video technologies.

GOAL X: ASSURE FUTURE QUALITY THROUGH REGULAR EVALUATION OF PROGRAMS

As Yale sets out to maintain excellence and diversity in its faculty and student body, and to build on existing programmatic strength and distinction, it is imperative that better and more regular review of all academic programs take place. Since significant reallocation of resources will be required to attain the many goals we have identified, the University will not be able to continue every effort or program that has found its way into the institution. The Office of the Provost intends to undertake a new effort to identify ways to support its highest priority activities more efficiently. There may also be ways to increase the role of the divisional committees, giving them somewhat greater authority than at present. The review process will be a central element in identifying areas of strength and weakness. The advice of the divisional committees in this regard will aid in the reallocation of resources and help the deans to identify other curricular initiatives necessary to redirect and strengthen the offerings of departments.

A. Institute regular reviews of departmental programs in the arts and sciences.

The Expanded Executive Committee, composed of the President, the Provost, the Deans of Yale College and the Graduate School, and the four Divisional Directors, has recently devised new procedures for the review of academic departments which began in the 1989-90 academic year. The divisional committees will undertake major reviews of the departments in their purview at approximately five-year intervals. In most instances, each committee will review two departments each year; however, given the large number of humanities departments, the Humanities Divisional Committee may need to work on a different schedule.

In order to carry out the reviews, the divisional committees will meet with each department to discuss its long-range goals. Consideration will be given to patterns of recent and future departmental plans which take into account, among other things, strategies of faculty development, the ratio of tenured to nontenured members of the department, and the distribution among fields within the tenured ranks. The divisional committee will review the department's coverage of the various research and teaching fields within its purview, review the department's record in the recruitment and placement of graduate students, review the manner in which the department organizes its resources for both graduate and undergraduate teaching, and make determinations regarding the balance between resources and objectives.

In most instances, the review will include a visit by a small team of carefully selected scholars from other universities, who will meet with members of the department, with the chair of the appropriate divisional committee, and with the Provost. The divisional review will then be translated into a report to the Provost and the President. It will comment not only on the internal state of the department, but on the quality of the department on a national and international basis. Where appropriate it will make recommendations not only on the program, its resources, its administration, and its faculty appointments strategy. These reviews will assist both the divisional committees and the Steering Committee of the Faculty of Arts and Sciences in making decisions regarding the allocation of resources.

The departmental review procedures will, at the request of the Provost or President, also be used to conduct review of the various non-departmental programs and centers. The new system of review is expected to become part of a new institutional initiative in academic planning and should facilitate and regularize the process of continuous long-range academic planning.

B. Review all interdepartmental programs and centers

There is little doubt that as we strengthen our systematic thinking about the allocation of resources to undergird the arts and sciences, we also need to take full stock of the various non-departmental programs in the arts and sciences. These programs have proliferated and changed shape dramatically in recent years. Consider, for example, what has happened in the study of international studies, which began as a council with seven different areas grouped together under a holding company model, the Concilium. Today, under the auspices of the Center for Area and International Studies, there are programs in International Relations, seven Area Councils, and several committees and research programs. The status of these programs and councils can become confusing. Sometimes the presence of a critical mass of scholar-teachers in a particular area -- e.g., international security and arms control -- can become a good vehicle for raising external funds and later for launching new programs. Sometimes faculty initiatives in starting undergraduate or graduate majors or tracks generate the establishment of councils for specific interdisciplinary programs. Organizationally, however, the structure and basic objectives of the enterprise often seem unclear or redundant, or so independent as to be ineffective.

In order to insure a University presence in the work of these non-departmental programs, and in order to insure their essential contribution to the overall purposes of the arts and sciences, we propose undertaking formal reviews of all non-departmental units. Some such units may need reconfiguration; others may need greater or fewer resources; still others may no longer be sufficiently viable to continue in their present form. If new programs, centers, councils, committees, and institutes are going to be created, we need to have some general guidelines regarding their status at Yale, the proposed duration of existence, and their continuing relationship to the central mission of the institution. We also need to place some realistic limits on the number of such non-departmental units we can support in an era of increasingly tight resources.

C. Continue to monitor programs in the professional schools

Periodically, and certainly at the time a new Dean is chosen, each professional school is reviewed by the Officers and by the Yale Corporation. From time to time, in between such major reviews, Deans and their financial officers come before the University Budget Committee with full descriptions of the financial and academic plans of their school. In an ad hoc way, often precipitated by a recognition that a major problem or opportunity will emerge in the near future, schools conduct internal reviews of their programs, reaffirming some goals and setting specific new ones. As the academic plans currently under discussion in each of the schools take shape, they will include a schedule and procedures for regular reviews of their progress toward their goals. Programs, finances, space, enrollment, faculty development -- indeed all of the major components of a school's planning -- will be discussed and reviewed by an appropriate committee under the jurisdiction of the Provost and consisting of individuals from both inside and outside the University who might provide evaluation and advice about the mission of the school, the course it has charted, and its progress along that path.

To complete the comprehensive view of the Yale's academic strategy and to indicate the interrelationship that exists among the major components of the University, the academic strategies of each of the professional schools will follow this portion of the document.