THE TRUSTEES OF
PRINCETON UNIVERSITY

FINAL REPORT

OF THE

WYTHES COMMITTEE

April 15, 2000

Wythes Committee Report

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PREFACE

The report that follows reflects reactions and comments from the University community to the January 29, 2000 version of this report that was widely distributed at the request of the Board of Trustees. The Trustees express their appreciation to members of the University community for their suggestions. In particular, the Trustees note the widely-expressed commitment of Princetonians to maintaining an exceptionally high quality of undergraduate and graduate education at Princeton.

This report was adopted by the Board of Trustees on April 15, 2000. As plans are developed for implementation of the report's recommendations, the Trustees and members of the administration will consult widely with appropriate University committees to assure that adoption of these recommendations serves their intended purposes.

WYTHES COMMITTEE REPORT

I. INTRODUCTION

As part of its ongoing responsibilities to oversee and review the programs and resources of the University, the Board of Trustees from time to time over the past 15 years has paused to assess the overall quality and evolution of the University's programs, the adequacy of its financial, physical, and human resources, the allocation of those resources, and new opportunities to pursue more fully the University's mission and enhance its distinction. These assessments have considered specific strategic issues facing Princeton in light of factors internal to the University, as well as external forces that can influence the University's objectives and its capacity to achieve them. Most recently, the Hambrecht Committee Report [1989] and the Strategic Plan [1993] resulted from such reviews.

The recommendations of these earlier studies (e.g., processes to monitor the operating budget, the President's Teaching Initiatives, creation of a campus center, fundraising priorities) continue to provide important guidance to Princeton and the most important objectives of the 1993 Strategic Plan are now in place. In addition, the quality and range of Princeton's educational, scholarly and support programs have grown substantially, as have our financial and physical assets. Among the newest of Princeton's academic initiatives are such critical programs as: the Bendheim Finance Center, the Institute for Integrative Genomics, the Center for the Study of Religion, and the Princeton Society of Fellows in the Liberal Arts. Moreover, in recent years the University has undertaken a comprehensive physical planning process for the entire campus, has developed a systematic capital budget, has built a number of major new facilities (including Scully Dormitory and the University Stadium), is currently constructing other buildings (the Frist Campus Center, the Friend Engineering Center, and the Wallace Social Sciences Building), and is planning still other building projects (the construction of a Genomics laboratory and the refurbishment of Joseph Henry House and East Pyne as a Humanities Center). Furthermore, as part of an overall effort to increase our investment in the maintenance and renewal of our entire physical plant, a comprehensive program to substantially refurbish our undergraduate housing has been initiated. Other important recent initiatives include a new undergraduate financial aid program to provide greater assistance to low- and middle-income families, and a comprehensive program to upgrade information technology in preparation for the new century, including networking, hardware, and software improvements, extending from the Library through administrative offices, and from faculty to incoming freshmen. Many of these initiatives have been made possible by the substantial growth in Princeton's endowment and the success of the 250th Anniversary Campaign which is now nearing completion.

Given these and other evolving circumstances, accomplishments, and opportunities, the time seemed right for the Board once again to consider some of the long-term strategic issues facing the University. At the President's request, in the fall of

1997 the Trustee Executive Committee asked Trustee Paul M. Wythes ’55 to chair a special Ad Hoc Trustee Committee established for this purpose. The Committee included Trustees Jon E. Barfield ’74, Dennis J. Keller ’63, Karen Magee ’83, Edward E. Matthews ’53, Robert S. Murley ’72, Robert H. Rawson ’66, John H. Scully ’66, Sejal A. Shah ’95, President Harold T. Shapiro *64, and John J. F. Sherrerd ’52, with Provost Jeremiah P. Ostriker acting as Secretary to the Committee.

The Committee’s Charge

The Committee’s work began in the fall of 1997 with the expectation that a report would be issued to the Board of Trustees by the beginning of the year 2000. The first decade of the 21st century, rather than the year or two immediately ahead, was the assigned focus for the Committee’s attention. Since its initial charge was broad, the Committee’s first task was to determine which issues facing the University it could most productively address. After consultation with the President and the Provost, the Committee decided to concentrate on determining the optimal allocation of Princeton’s human, physical, financial, and other resources to support the University’s long-term objectives and to sustain and extend its distinction within a rapidly changing external environment. The specific topics considered and addressed in this report are as follows:

The size and composition of the undergraduate and graduate student bodies, the faculty, and the administrative and support staffs within the context of Princeton’s long-time objective to sustain the outstanding quality of these human resources.

The long-term adequacy of Princeton’s physical facilities, with particular attention to undergraduate dormitories.

The management of the University’s endowment and oversight of the University’s operating and capital budgets.

The adequacy of the University’s approach to sponsored research and corporate and foundation fundraising.

The vitality of the Library and the use and management of new information technology, including programs that use these technologies to enhance our teaching here on campus, and to enhance our educational outreach to alumni and others.

The Committee’s work was guided by two overarching principles. First, Princeton has an obligation to exercise responsible stewardship of the exceptional resources that the University has accumulated over many years – its academic programs and Library, its exceptional faculty and staff, its financial and physical resources, its important and close relationship with its alumni, and its outstanding international reputation. The Committee underscores the importance of safeguarding these resources in a challenging and ever-changing environment and assuring that they will be maintained into the future.

Second, in addition to safeguarding its resources, Princeton has an important obligation to optimize its contributions to higher education, to the world of scholarship, and to society, in ways that are consistent with its mission. Princeton's current strength and recent substantial growth in resources – physical, financial, and intellectual – provide the University with opportunities to serve even better its students and alumni, the nation, and the world. This is the motivation behind recent decisions to expand into new intellectual fields, to develop new courses of study for students (such as the new undergraduate certificate program in Finance and the masters degree programs in Finance and Engineering), and to begin to reach out in new ways to alumni (for example, over the Internet and through distance learning programs). As the modern history of higher education vividly demonstrates, if an institution does not evolve, it cannot retain either its distinction or its social relevance. Two questions that emerged as central to the Committee's work were whether there were initiatives Princeton should undertake (or programs it should eliminate or consolidate) to make optimal use of its remarkable resources, and whether Princeton should extend its educational and scholarly reach.

Central Purposes of Princeton University (Mission Statement)

In the course of its review, the Committee members found it useful to restate Princeton's central purposes (mission statement), which they describe as follows:

> Princeton University strives to be both one of the leading research universities and the most outstanding undergraduate college in the world. As a research university, it seeks to achieve the highest levels of distinction in the discovery and transmission of knowledge and understanding, and in the education of graduate students. At the same time, Princeton aims to be distinctive among research universities in its commitment to undergraduate teaching. It seeks to provide its students with academic, extracurricular and other resources – in a residential community committed to diversity in its student body, faculty and staff – that will permit them to attain the highest possible level of achievement in undergraduate education and prepare them for positions of leadership and lives of service in many fields of human endeavor. Through the scholarship, research and teaching of its faculty, and the many contributions to society of its alumni, Princeton seeks to fulfill its informal motto: "Princeton in the Nation's Service and in the Service of All Nations."

In addition to a distinctive emphasis on excellence in undergraduate education, Princeton is currently distinguished by the following characteristics:

- an undergraduate student body composed of individuals who have exceptional academic promise, strong personal qualities, and a variety of backgrounds, talents, and interests;

- an undergraduate admission policy that is entirely need-blind;

a single faculty, all of whom are expected to teach both undergraduate and graduate students and all of whom are engaged in research;

a focus on the arts and sciences and engineering, with a selective commitment to professional education;

an unusually loyal and supportive alumni body that is composed of individuals who have had a disproportionate impact on the local, national and global communities in which they live;

a "human" scale that is sustained by controlling growth and encouraging opportunities for personal interaction;

a physical setting of aesthetic and historic significance; and

a determination to continue to occupy a position of independence and leadership in education, scholarship and research, and service to society.

The Work of the Committee

Between October 1997 and January 2000, the Committee met 25 times, including four all-day meetings. To assist the Committee in its work, a substantial amount of historical and comparative data was assembled. This background material established a common base of understanding and served as a shared starting point for discussions. (Selections from this background material are attached to the report and referenced in the text as "Figure number.") Wherever appropriate, the Committee included the standing committees of the Board in its on-going review, and it kept the entire Board apprised of its work through regular reports at Board meetings and four discussions in the Committee of the Whole that focused on the Committee's work.

The Committee began its work by thoroughly reviewing both the status of the University's endowment and the size and composition of the student body, faculty, and staff, and, where possible, by comparing Princeton's situation with data from peer institutions. Introductory discussions convinced the Committee that the question of whether the number of undergraduates should be modestly increased deserved especially close attention, and that resolution of that question would have a pervasive impact on virtually all other issues to which the Committee would give attention. As discussion proceeded about each area of University life – faculty, staff, physical plant, budgets, and financial resources – questions about the desirability and feasibility of increasing the number of undergraduates were continually asked. Therefore, while this report makes recommendations in each of its main areas of review, a conscious effort has been made to relate discussion in all areas to the question of the optimal size of the undergraduate class in the years ahead.

For reasons enumerated in the report, the Committee is recommending that Princeton increase the size of its undergraduate student body by approximately 10

percent, from 4,600 to 5,100 students. The Committee believes that an increase of this magnitude would enhance the quality of the overall educational experience at Princeton and would make more effective use of the University's extraordinary resources. By providing its distinctive educational experience to a somewhat larger number of students, Princeton has the capacity to make an even greater contribution to the society it serves. In the Committee's estimation, the increase should be phased in over four years, probably beginning three or four years from now after additional dormitory and dining space has been constructed. The Committee believes that these are the only additional facilities that would be required.

The Committee makes this recommendation, in part, because of the remarkable depth and quality of Princeton's applicant pool, and the opportunity this offers to expand the range of talents, perspectives, and academic and nonacademic interests in each class while continuing to apply the highest possible standards for admission. It is the Committee's belief that recent and projected rates of growth in the size of the faculty, which have expanded the range of educational opportunities on campus, allow Princeton to increase the size of the student body while maintaining its historically low student-faculty ratio and sustaining such core elements of the Princeton undergraduate program as individual attention to students, small class discussions, and the advising of senior theses by tenured and tenure-track faculty. Even with the proposed increase, the Princeton undergraduate student body will be the smallest among its principal competitors; at the same time, a modest increase in the size of the student body will help ensure that undergraduate education remains at the center of the University.

Some have suggested that Princeton may face a choice either to improve its current undergraduate program or expand the size of the student body. It is the Committee's belief that Princeton has to do both, and has the resources necessary to do both. The Committee makes a number of specific recommendations for safeguarding the quality of undergraduate teaching and campus life. But in the Committee's view expanding the student body will improve the undergraduate program by adding to the intellectual, cultural, and educational vitality of the campus. While the order of magnitude proposed (i.e., 10%) is much smaller than the increase that accompanied coeducation (i.e., 40%), the Committee is confident that this increase, like that increase 30 years ago, will invigorate Princeton and enhance its overall quality and capacity for leadership, without altering in any significant way the fundamental nature of the Princeton undergraduate experience.

II. RECOMMENDATIONS

To achieve its goals and sustain its position of leadership in a highly competitive environment, Princeton seeks the flexibility necessary to minimize the impact of adverse changes and to take full advantage of beneficial changes. In fact, Princeton has been exceptional over recent decades in managing its resources so that substantial flexibility is achieved. For example, increases in available income from the endowment as a consequence of extraordinary returns from capital markets have been applied in substantial measure to increasing the proportion of our operating budget devoted to the maintenance and refurbishment of our capital assets (e.g., the dormitory renovation program) as well as to financial aid for lower- and middle-income families. Similarly, the program of continuous review of our administrative operations now in place provides a means to evaluate regularly and, where warranted, to re-direct institutional resources to the direct support of students and faculty.

How best to position Princeton to deal effectively with inevitable but unpredictable change and how best to increase even further Princeton's strengths and its flexibility became touchstones of the Committee's review and form the basis for many of the recommendations that follow.

A. UNDERGRADUATE EDUCATION

Background

As stated in the Committee's assessment of the central purposes of the University, outstanding undergraduate education is one of Princeton's defining characteristics. Princeton has enormous, and in some respects unique, resources to offer undergraduates. The Committee carefully reviewed with the President and others the quality of the students admitted over the past two decades, the quality of the education they receive at Princeton, and the quality of their overall experience.

Size and Composition of the Undergraduate Student Body

In tracing the evolution of undergraduate education over recent decades, the Committee examined information about class and precept sizes, the ratio of students to faculty, instructional methods, hours of instruction, and the quality of teaching. Dean of Admission Fred Hargadon reviewed in detail with the Committee the academic and nonacademic qualities of the applicants admitted and the nature of the choices that currently must be made. Admission data included the numbers of applicants, percentages of applicants admitted, percentages of those accepting admission, and analyses of the evolving composition of the undergraduate student body from 1972 to the present. Other data compared the size of the undergraduate student body, over time, to other sectors of the University, and to the size of the undergraduate student body at peer institutions. [See Figures 1-4]

These comparisons demonstrated that while the rest of the University has grown considerably over the past 25 years, the undergraduate student body has not grown since coeducation was fully implemented in 1972. The size of the faculty has grown on average by 1% each year from 1970 to the present, and is anticipated to continue to grow at a somewhat smaller rate through 2004 as a result of commitments that have already been made as a result of planned growth. [See Figures 5-6] In addition, the size of the physical plant has expanded substantially in almost every area (library, classrooms, athletic facilities); the administrative and support staffs have grown commensurately; and the University's endowment – along with annual contributions to the University – have expanded very substantially in real terms. [See, for example, Figures 4, 13] In comparison with the institutions with which the University competes most actively for students, Princeton's undergraduate classes, which now number approximately 1,150 students, have remained substantially smaller than those of Yale (1,350), Harvard (1,650), or Stanford (1,650).

Furthermore, the size of the admitted class has been held constant at a time when Princeton's applicant pool has grown in richness and depth. The percentage of applicants admitted to Princeton has fallen from approximately 40% in the 1950s to the current range of approximately 12%. Dean Hargadon told the Committee that the applicant pool is so rich in excellently qualified students that he could admit two undergraduate classes of the current size and of essentially the same exceptional abilities and promise. This growth in highly qualified applicants means that the University is turning away greater numbers of excellent students, and one concern is that this trend might discourage some excellent applicants from applying. Moreover, because of the pressure on freshman admission, for the past decade it has been impossible to preserve enough flexibility to accept transfer applicants to Princeton.

Student Life

Just as the University is committed to safeguarding and enhancing where possible the quality of academic instruction distinctive to Princeton, so also the University must remain committed to preserving the quality of student life outside the classroom which is also one of Princeton's distinctive features. The Trustees' recent commitment to this objective is demonstrated by their approval of the dormitory renovation program which allows the University to refurbish over time all student dormitories. The Board's approval of the Frist Campus Center will provide the University community with a significant addition of space oriented toward greater and more diverse social options, located very deliberately in close proximity to some of our educational programs. The physical size of the center and the variety of programs and activities it will house – including offices for student organizations, formal and informal dining opportunities, a large multi-purpose room, performance and film space – are intended to enhance student life significantly.

In campus discussions that followed distribution of the Committee's proposed recommendations, undergraduates and others underscored the important connection between strong student life programs and the quality of the Princeton experience. These

views echoed those of Trustee Taylor Reveley '65, former chair of the Trustee Student Life, Health and Athletics Committee, who has remarked:

> "At a wholly residential college such as Princeton, extracurricular life has a powerful impact on the extent to which students are a) productive in all regards (all academic life included – if things are going badly outside the classroom and library, clouds descend on [academic life] as well), b) educated in such areas as leadership, character, the capacity to live responsibility and gracefully with others (including people of different genders, races and nationalities), the capacity to serve others, and the capacity to enjoy life (whether on the playing fields, in music, art and theater, or in other social encounters), and c) helped to develop life long habits conducive to sound body and sound spirit as well as sound mind."

The support provided by the Residential Colleges and the offices that report directly to the chief student affairs officer -- Athletics, Religious Life, Health Services and Undergraduate Students – is fundamental to our students' achieving the education and personal growth outside the classroom described by Trustee Reveley. These offices and programs require strong continuing support from the University as a whole. As the Committee considered a possible increase in the size of the undergraduate student body, and possible initiatives intended to introduce cost-savings through staff changes, the importance of maintaining exceptional student life programs was emphasized.

Undergraduate Financial Aid

As part of its discussion about undergraduate students as well as during its consideration of the University's financial resources, the Committee reviewed undergraduate tuition costs and financial aid policies. Clearly, a strong financial aid program is critically important in convincing many of the best students to apply to Princeton and to accept the University's offer of admission. Changes made in 1998 to the financial aid program were intended to make Princeton more accessible to middle and lower income students. It is still too early to have convincing evidence of the full impact of these changes, but the program seems to have had promising results, at least in arresting further reduction in the number of matriculating students receiving aid. However, questions remain about whether even these significant changes went far enough to enable low and middle income families to afford a Princeton education.

This review sparked lively discussion that focused in part on the value families and students place on education and the varying capacities of families to afford Princeton's tuition. The discussion underscored principally the Board's firm commitments to maintain need-blind admission and to assist those families who, even after the enhanced financial aid program adopted in 1998, may continue to experience significant difficulties in affording a Princeton education, particularly low-income families and those in the $50,000 to $100,000 annual income category.

Recommendations

Size of the Student Body

After reviewing the available data and examining both the desirability and the feasibility of taking such a step, the Committee recommends increasing the total size of the undergraduate student body by approximately 500 additional students (approximately 125 per class). Constructing the necessary residential and dining facilities for this number of additional students is likely to require 3 to 4 years, and larger classes would probably be phased in over a 4-year period, so full implementation of the Committee's recommendation would most probably be achieved in 7 to 8 years.

Members of the Committee initially approached the question of increasing the size of the student body from different points of view and with differing assumptions. In considering this proposal, the Committee was reminded of the positive impact on Princeton of the most recent increase in the size of the student body following the institution of coeducation in 1969. In discussions with the Committee, and later with the entire Board, the President underscored the importance of change for institutions of higher education. If a university does not evolve with changing times, it cannot retain either its distinction or its social relevance. These discussions encouraged the Committee and the Board to give careful consideration to a change in the size of the student body, and after extensive discussion each member of the Committee became convinced that this change was both desirable and feasible. The main reasons for the Committee's recommendation can be summarized as follows:

First, the Committee concluded that a modest increase in the number of students admitted to each class would strengthen the quality of the University. Dean Hargadon submitted convincing evidence that far from sacrificing academic or nonacademic quality, adding 125 students to each class would enhance its quality and vitality and enrich the University as a whole. In a separate study, conducted concurrently with the work of the Wythes Committee, an ad hoc Faculty Study Group on Undergraduate Admission came to a similar conclusion. After reviewing the same information given to the Wythes Committee, that group also recommended that the size of the undergraduate student body be increased to allow Princeton to benefit from more of the talents and perspectives currently available in the applicant pool. If 500 students were added, they would be expected to include representatives of almost all the groups that currently make up undergraduate classes (including legacy, minority, and international students), although not necessarily in the same proportions. Because the number of student athletes is determined by the Ivy-League mandated size of varsity programs, this category is not expected to grow. An increase in the size of the student body could also open the possibility of admitting a small number of transfer students of exceptional abilities and promise. Members of the faculty in reviewing this recommendation urged the Trustees to use such an opportunity to further strengthen the diversity and the intellectual quality of each class.

A second reason for increasing the size of each undergraduate class concerns scale. Princeton is distinctive among research universities in its focus on undergraduate teaching and in the relatively large size of its undergraduate student body compared to other parts of the institution. Over the past 25 years, however, undergraduates have become an increasingly smaller proportion of the whole University. Princeton's academic scope cannot be held steady if Princeton is to remain a leading world-class scholarly institution, and as its academic programs grow, so too does the size of its faculty. It follows that the size of the undergraduate student body, after having been held constant for more than 25 years, could now also increase modestly if undergraduate education is to remain at the center of the institution. Because of projected continuing growth in the size of the faculty, the student-faculty ratio at Princeton would remain very favorable (i.e., approximately 7 to 1; see Figure 3) even after the number of undergraduates is increased.

A third reason for increasing the size of the student body emerged during the Committee's review of Princeton's resources. Princeton has substantial, even unique, financial, physical, and human resources, and members of the Committee reflected on the very great benefits they each had received at Princeton. In the view of the Committee, Princeton has an obligation to make the greatest possible use of its exceptional resources for the benefit of higher education and of society. Members asked themselves whether the University is now fully meeting this obligation. The proposal to increase the number of undergraduate students grew out of a strongly felt responsibility to make the benefits of a Princeton education available in the future to as many students as can be accommodated within the parameters of Princeton's resources and without significantly changing the Princeton experience.

The Committee was careful to evaluate the feasibility of increasing the size of the student body at this time. In particular, it examined the impact of such a change on the physical campus, on the University's financial resources, and, most importantly, on the Princeton educational experience. The following points emerged in the course of these discussions:

Impact on the Quality of the Student Body: As suggested earlier, the current great strength of the applicant pool is a major reason that the Committee recommends an increase in the size of the undergraduate student body. The Committee anticipates that the quality of the pool will remain high and may even increase as more and more students become aware of Princeton's enhanced commitment to financial aid.

Impact on the Quality of Undergraduate Education: Protecting, and where possible strengthening, the undergraduate educational program is a basic objective of the University. Throughout the Committee's discussions there was a strong commitment to maintaining the defining characteristics of undergraduate education of Princeton, including precepts that do not exceed 12 students, faculty advising of independent work, and an overall student-faculty ratio at the current level of approximately 7 to1. An essential benchmark for Princeton is that its student-faculty ratio should remain consistently superior to that of the institutions with which it directly competes. As

described in this section and in the section on the faculty, an increase in the number of undergraduates of the size being proposed is expected to be roughly proportional to the increase in the size of the faculty that is likely to occur between now and the time by which the proposal would be fully implemented. Just as important, the growth of the faculty that has occurred over recent years or is planned to occur is in those areas of study that are of greatest interest to undergraduate students (for example, finance, aspects of engineering, and molecular biology). Managing the allocation of faculty resources to meet changing requirements for undergraduate instruction is challenging, and careful attention by the University will be required, if the size of the undergraduate student body grows, to assure undiminished quality and emphasis on personal instruction. It is possible that additional planned growth in the faculty will need to occur in certain areas where pressure on teaching and advising is greatest. The Provost noted that this additional modest growth in the faculty will allow the University to address imbalances even more effectively. In addition, the Committee concluded that these challenges should be a focus of the University's attention in any event, are currently being addressed, and can assuredly be met. [See Figures 3, 5, 11, 12a-c]

Impact on the Quality of Student Life: The quality of the Princeton educational experience is influenced also to a substantial degree by the opportunities Princeton offers students outside the classroom through the Frist Campus Center, the Residential Colleges, and programs offered and supported by the offices of undergraduate students, athletics, health services, and religious life. Maintaining these exceptional educational, social, and cultural opportunities is essential, and the University must be prepared to meet the additional challenges of sustaining its objectives in student life if the number of undergraduates is increased. This will undoubtedly require increased resources directed to this area. Increasing the number of undergraduate students also offers the University opportunities to improve student life, by creating more diverse social, dining and living options and by extending even further the range of student activities.

Impact on the Graduate School: It may be necessary to increase the number of graduate students admitted to certain departments, especially those that now have unusually high numbers of concentrators, where the quality of the graduate applicant pool will sustain such an increase and where additional assistants in instruction or research are necessary and well qualified to support adequately the University’s teaching mission.

Impact on Physical Resources: The Committee received information about the physical capacity of the campus, including identification of possible locations for additional residential and dining facilities, in accordance with the master plan recommendations of the University's architectural consultant. This information shows that an increase of 125 students in each class would require additional dormitory space, since dormitories are now at or slightly above desirable levels of occupancy. Moreover, 250 more first- and second-year students could not be accommodated by the five current residential colleges. Like the dormitories, the colleges also are at or beyond maximum levels in terms of bed spaces and dining facilities, and in terms of

achieving their educational as well as social objectives. On several occasions, the Committee reviewed potential locations for new dormitory and residential college space, and posed questions about the desirability of several locations that were suggested. In part at the Committee's request, the Grounds and Buildings Committee reviewed these questions in detail and reported that it is convinced that the campus can accommodate additional facilities of the size required without adversely altering the unique character of the campus or its beauty. Beyond additional dormitory and dining facilities, it was demonstrated that no other construction would be required, since existing and currently planned classrooms, libraries, study and athletics facilities, and other facilities are already adequate to accommodate such an increase. However, it is worth noting that the recommendation to increase the size of the student body comes at a time when the University is constructing important new resources that will support not only the academic but the non-academic aspects of student life. The Wallace and Friend Centers, for example, offer new study space. And the opportunities that the new Frist Campus Center represent should be emphasized. The additional square feet that facility will add to campus space dedicated to student activities is significant as are the resources that the Center will offer in support of these activities.

Impact on Financial Resources: The Provost provided the Committee with information that demonstrated convincingly that an increase in the size of Princeton's undergraduate student body of the magnitude being recommended would have either no financial impact or a slightly positive effect. Because a substantial portion of the costs associated with undergraduate education are fixed, and, as noted above, do not require additional investments to accommodate the proposed increase, the marginal costs of the increase would be essentially fully covered by increased income from tuition and fees. The Provost and the Associate Provost and Associate Treasurer, Christopher McCrudden, reviewed financial projections in detail with Mr. Wythes and with the Chair of the Finance Committee, Mr. Scully; that Committee's Vice Chair, Mr. Matthews; and the Vice Chair of the Executive Committee, Mr. Sherrerd. As noted, increases in residential and dining facilities would be the only building requirements. The financial projections provided by the Provost did not assume that donors would be found for such new facilities, but instead assumed that these costs would have to be absorbed in the operating budget. If donors were identified (which seems entirely possible), the financial implications of the proposed increase would become more positive. While the Committee believed that it had a responsibility to assess the financial implications of its proposal, it felt strongly that the decision of whether to increase the size of the student body should be made on educational, not financial, grounds. Educational, not financial, considerations were of primary importance.

Impact on the Princeton Educational Experience: As described above, the Committee's analysis of the data it received, and its discussions of the issues raised by the possibility of increasing the number of undergraduates, convinced all of its members that an increase of the magnitude proposed would be both desirable for Princeton and feasible. A fundamental question for the Committee was one that has no precise

quantitative answer, namely exactly what impact an increase of 500 students would have on the distinctive atmosphere of Princeton and the nature of the Princeton educational experience. The Committee had lengthy discussions about the importance of size and proportion. In the end, it was not possible for the Committee to determine with precision how many students at Princeton would be "too many," just as it was not possible when over a thousand students were added in connection with coeducation. Clearly the answer can change over time and may be different for different individuals. And it seems likely that the answer is to some degree comparative, that is to say, relative to the size of other institutions with which students compare Princeton and with which Princeton compares itself. The proposed increase would, in the Committee's judgment, achieve significant benefits, sustain Princeton's distinctive characteristics, and enhance the quality of the Princeton experience, an experience that is deeply valued by each member of the Committee.

Finally, the Committee recognizes that increasing the size of the undergraduate student body would be an extraordinary step for Princeton. The last such increase occurred over 30 years ago when Princeton became coeducational. The current size and quality of the faculty and the stability and strength of Princeton's financial and physical resources not only support such a step but encourage it. The Committee is convinced that the contemplated increase in the size of the student body will have a positive impact on the character of the University experience that is so treasured by Princeton alumni. In this sense, the proposed increase of 500 students would not be "too many." At the same time, the Committee emphasizes that this step reflects a particular conjunction of exceptional educational strengths and opportunities, and recommends that this issue not be opened for discussion again for a substantial number of years. As a general comment, the Committee notes that Princeton currently enjoys a position of particular strength, thanks in large measure to the exceptional leadership of President Shapiro. The President has led Princeton University for 12 years, and he is currently the senior member of the Council of Ivy Group Presidents. The President's preeminence in the field of higher education and the great strides that Princeton has made during his tenure as President give the Committee confidence in Princeton's ability to achieve the significant benefits the Committee foresees in increasing the size of the student body.

Student Life

The Committee reaffirms the University's commitment to an exceptionally strong student life program as an integral component of Princeton's educational mission. The Committee prepared its recommendations as the University was conducting a search for a new chief student affairs officer, and the search process identified areas where student life programs might be strengthened further. A clearer articulation and stronger shared commitment to Princeton's objectives with respect to student life could better serve students and better fulfill the University's educational mission. To achieve Princeton's ambitious objectives requires a stronger partnership among those in the University who are involved with student life, including senior administrators, members of the faculty, the Residential Colleges staffs, and student life administrators. The Committee urges that these objectives be kept clearly in mind as a new chief student affairs officer is selected.

Financial Aid

The Committee believes that families in higher income categories who can afford a Princeton education should pay for it. However, the Committee is strongly committed to the principle that Princeton should be affordable for all, including families at a range of income levels who have difficulty covering college costs. The Committee recognizes that the Priorities Committee recommendations for the FY01 budget include important steps to help middle income families and recommends that the University continue to give serious consideration to increasing the support offered to these families. Any such proposal would of course require a careful analysis of the University's ability to support such an enhanced program over the long term.

B. THE GRADUATE SCHOOL

Background

The Committee issues its report on the eve of the centennial of the Graduate School and takes this opportunity to reaffirm the central importance of the Graduate School to the University's mission. The Graduate School embodies the future of higher education and assures the continuing transmission of knowledge and learning to society at large. As rankings by the National Research Council suggest, Princeton's ability to attract the most distinguished faculty and to build departments of preeminent quality depends importantly on the vitality of the Graduate School.

The Committee considered a wide range of issues related to graduate education, including the size and composition of the Graduate School, sources of support for graduate students, and the job market for masters and doctoral degree recipients, with reference where appropriate to comparative information for comparable graduate programs at other institutions. The Dean of the Graduate School, Professor of Religion John Wilson, described how the School seeks to control and manage the size of graduate programs in academic departments and attract the best students. While the size of the School, currently at approximately 1,800 students, has exhibited stability over the years, some areas have been reduced while others have grown. For example, in response to such factors as changing demands in the job market and shifts in faculty interest, the School recently has modestly reduced the number of doctoral candidates and increased the number of masters candidates. Fluctuations in numbers of applicants have mirrored the experience of Princeton's competitors. While departments have a central role in the graduate student admission process, the School exercises significant central control over the number of students who are admitted and their quality. The quality of the applicant pool has been and remains superior. The Dean underscored that he believes that any consideration of the size of the Graduate School has to take into account the importance of maintaining a critical mass in each area of study.

With respect to financial support for graduate students, Princeton is unique among its peers in providing full support for 4-5 years for those graduate students pursuing doctoral degrees, and in its relatively modest use of undergraduate instructional positions to support graduate students. In the social sciences and humanities, where support of graduate students often does include assignment as assistants in instruction, students are not normally required (and often are not permitted) to teach their first year. Princeton is attempting to provide more fellowships for first-year students in science and engineering so they too can devote their first year to their own scholarship and research without the competing pressure of assignments as assistants in sponsored research. The Dean noted increasingly fierce competition in the financial support offered to the best applicants among the premier graduate schools, especially in the sciences and engineering, and said this trend was likely to continue.

The Committee also discussed the difficulty of predicting what kinds of experiences doctoral candidates will have in seeking teaching positions in the next

decade. The large cohort of faculty hired in the 1960s is reaching traditional retirement age, but the composition of some faculties is changing, with tenure-track positions being replaced increasingly by non-tenure track positions.

The critical topic of training graduate students to become effective teachers was also considered. This is one of the principal objectives of the new Center for Teaching and Learning. The Committee was informed that evaluations are conducted of the English competency of graduate students, especially those who will teach, and learned that courses are provided to those who need more training in English. The University is strengthening its commitment to assure that all those who teach have achieved English competency.

The Committee considered what impact, if any, an increase of 500 undergraduates would have on the size and composition of the Graduate School. Discussions with Dean Wilson and with the Dean of the College, Professor of History Nancy Weiss Malkiel, suggested that such an expansion of the undergraduate student body would require little change in the overall size of the Graduate School. There are, however, some areas of the Graduate School that are projected to grow modestly, and these areas coincide with areas of increasing undergraduate student interest. As discussions with the Faculty made clear, it may be necessary to add relatively small numbers of graduate students in certain departments where the quality of the applicant pool can sustain higher admissions rates; and the administration will work with the Dean of the Graduate School and the Faculty Committee on the Graduate School to develop implementation plans for such expansion, while maintaining the high quality of undergraduate education.

After careful review of the Graduate School with Dean Wilson, the Committee makes the following recommendations whose purpose is to assure that the Graduate School enters its second 100 years with the resources and flexibility to maintain its leadership position.

Recommendations

Size and Composition of the Graduate School

The Committee endorses the administration's plan to maintain at approximate current levels the total number of graduate students at Princeton. Slight decreases in the humanities and social sciences doctoral programs overall, to be offset to some extent by slight increases in selected areas, and modest increases in masters' programs in the School of Engineering, the new Finance program, and the Woodrow Wilson School are projected and endorsed. The Dean of the Graduate School working with the Faculty Committee on the Graduate School will assess whether increases in the numbers of graduate students in specific departments are desirable.

Financial Aid

The Committee endorses the goal of continuing to improve financial aid packages and maintaining competitive fellowship programs that will enable Princeton to attract the very best graduate students. Noting both the increasing competition for the best students in science and engineering and the benefits to these students of postponing assistantships in research to the second year of study, the Committee endorses the University's goal to provide greater fellowship support for first-year students in engineering and the sciences. Overall, slightly lower total numbers of students in the Graduate School would likely be offset by slightly higher costs for these students, resulting in essentially the same relative costs to the University in the years immediately ahead.

Quality of the Graduate School: Preparing Graduate Students as Teachers

The Committee also endorses the University's recommitment to more effective training of graduate students as teachers, through the McGraw Center for Teaching and Learning and through other means. Preparations for those who are to instruct Princeton undergraduates should include formal evaluation of teaching skills and readiness, active mentoring programs, and finding appropriate opportunities for graduate students to teach. The Committee underscored the importance of timely evaluation of language skills for non-native English speaking graduate students, and the importance of their completing successfully the necessary training in English before beginning their teaching assignments. The University must insist that every person to whom instructional responsibilities are assigned is capable of effective communication in English.

C. THE FACULTY

Background

Size and Composition of the Faculty

The Committee's consideration of Princeton's faculty focused on its size and composition over time and in comparison with peer institutions (essentially the Ivy League plus Stanford, the University of Chicago, MIT, and Johns Hopkins), and on the strengths of the academic departments and of instruction, especially the teaching of undergraduates.

With respect to the size and composition of the faculty, data provided by Dean of the Faculty Joseph Taylor and the Provost revealed several striking trends. Over the last two decades there has been slow but steady growth in the ranked faculty (assistant, associate, and full professors) at a rate of about 1% per year, during a period when the student body has not grown. [See Figures 5-6] As a consequence, Princeton now has the largest faculty in the arts and sciences among its peers. [See Figure 7] Since the size of its student body is at the lower end of the scale, Princeton has a highly favorable student to faculty ratio. [See Figure 3] In the interval 1977-1997, the ranked faculty in arts and sciences at Princeton grew by 20%; at Harvard it grew by 6%; and at Yale it fell by 14%. There are 792 faculty FTE's (full time equivalents) at Princeton and commitments already made will increase that number to approximately 810 by the year 2004. [See Figure 6]

Specific examples from each division illustrate the reasons for the previous growth of Princeton's faculty. In the humanities, the Humanities Council was expanded with the addition of extraordinary talent in Creative Writing; in the social sciences, growth in Economics and Finance responded to strong student and societal interests; in the natural sciences, Molecular Biology became a department, reflecting major scientific progress and opportunities; and in engineering, Computer Science emerged as a new field, while related areas of Electrical Engineering expanded. Clearly, in each of these cases the University responded to opportunities that strengthened it considerably. While these areas grew, there was little corresponding shrinkage in other academic departments. And while some individual departments grew more than others during this period, the overall distribution remained astonishingly constant at approximately the following ratios: Humanities:Social Sciences:Natural Sciences:Engineering = 35%:24%:28%:13%, respectively.

The age distribution of the faculty has changed rather significantly over time, with a fairly steady increase from an average age for full professors of 49.4 years in 1976 to 53.7 years in 1996, or 0.2 years per year. [See Figure 8] During the same period the ratio of full professors to assistant professors increased from 1.53:1 to 2.72:1. [See Figure 9] Thus, Princeton's faculty has become steadily more senior. The explanations for this growing seniority are numerous, with each factor contributing a small amount. Uncapping of the faculty retirement age (legally mandated in 1994) has been a small

component; increased hiring at the senior level of scholars with established reputations has contributed to the current composition; and the aging of the large cohort of faculty hired at junior levels in the sixties and seventies has played a significant part.

The current age distribution, weighted toward the higher end, and the increase in the proportion of faculty at the most senior ranks raise several concerns. In departments where there is an imbalance between senior and junior faculty, the vitality and infusion of new ideas associated with hiring younger faculty can be missing. Moreover, the larger number of tenured faculty can reduce the University's flexibility to allocate resources to areas that need to grow or to new fields of inquiry that need to be nurtured.

Dean Taylor explained Princeton's compensation policy and retirement options, and described recent aggressive initiatives to increase diversity among the faculty. Levels of compensation have increased significantly at Princeton in comparison with its peer institutions. This increase correlates at least in part with enhanced faculty quality, as demonstrated by independent external university rankings, including most importantly the National Research Council's evaluation of graduate programs. With respect to diversity, approximately 20% of the faculty are women, a somewhat smaller percentage than the average in the Ivy League. [See Figure 10] In the ranks of assistant and associate professor, the representation of women is considerably larger, 35% and 30% respectively. The promotion rates for women and men on the faculty have been statistically indistinguishable in recent years. Therefore, since more than half of Princeton's professors are promoted from within, it is reasonable to project that the fraction of women on the faculty will increase into the 30% to 40% range in the next 6 to 8 years. The greatest percentage increase will occur in the physical sciences and engineering, the divisions with the lowest current levels of representation. With respect to minority representation, Princeton is approximately in the middle of its peer group. Specifically, about 8% of the professorial ranks are Asian Americans, and 5% are faculty of color. The University continues to search for better ways to increase the proportion of our faculty who are individuals of color. Increasing the numbers of Black and Hispanic faculty will require significant continued recruiting efforts, and on-going support of their scholarly and educational progress, especially where the pools of potential candidates are so small.

Overall, the Committee agrees that the increases that have taken place in recent years in faculty size and seniority have occurred for understandable and sound reasons. For the future, the Committee emphasizes that changes in faculty size and distribution should be the result of the University's conscious effort to achieve desirable goals, rather than simple extrapolations from past decisions. Specifically, care should be taken that the number and distribution of faculty positions, with regard to academic disciplines and seniority, reflect to the greatest degree possible Princeton's real teaching and research needs. The Committee notes that if the size of the undergraduate student body is modestly increased, care should also be taken to assure that desirable teaching ratios are maintained. In the Committee's judgment, the current size of the faculty, and its anticipated size over the years immediately ahead, are fully adequate for maintaining

desirable teaching ratios at Princeton, even with a modest increase in the size of the undergraduate student body.

Quality of the Faculty: Research and Instruction

The Committee spent considerable time in detailed discussion with the President, the Provost, and the Dean of the Faculty concerning individual departments – their specific strengths and weaknesses, reasons for past growth or decline, and prognosis for the future. In the most recent National Research Council survey, 24 out of 29 (i.e., 82%) of the rated academic departments at Princeton (six additional departments were in fields not surveyed by the NRC) were ranked in the top 10 nationally, and 16 departments were rated in the top 5. This a truly remarkable showing. Only three universities had more departments in the top ten (Berkeley, Stanford, and Harvard), and all have many more programs and much larger total faculties (faculties of the arts and sciences plus those of all professional schools) and student bodies. The rankings show an improvement over the 1983 NRC survey in which 18 of the 26 rated departments (i.e., 70%) were ranked in the top 10, and 10 were ranked in the top 5.

Whatever reservations one may have about their methodology, these ratings provide the best single measure of overall academic quality and Princeton's results reflect a substantial strengthening of its faculty since the previous NRC survey approximately a decade earlier. The University's intention is to maintain the exceptional quality of its academic departments, and to strengthen particular areas as required. The President, the Provost, and the Dean of the Faculty review each academic department annually to assess its strengths and weaknesses. External reviews are conducted on a regular basis (approximately every 6-7 years on average) or in anticipation of special opportunities or in response to special needs. These mechanisms for oversight are accompanied by the ongoing work of the Faculty Advisory Committee on Appointments and Advancements, which reviews each proposed senior appointment and tenure decision, and by the Academic Planning Group, composed of the Provost and the senior academic deans, which meets throughout the academic year and monitors faculty and instructional performance.

The discussions concerning departmental reviews underscored for the Committee the importance of established, ongoing procedures to assess the vitality of academic departments and programs. As the NRC rankings suggest, the University enjoys excellence in a large number of fields. It has added faculty and other resources to take advantage of emerging fields that advance the University's mission. The Committee also notes, however, that while some departments have been created or have grown, there has been little offsetting elimination or reduction in the size of other departments. There also has been a considerable increase in programs, institutes, centers, and other settings for academic activity. While this seems an appropriate response to current requirements and strengths, it is important that any assessment of the overall academic mission of the University and the quality of its faculty consider the possibility of reducing the size of departments and programs, or, as required, consolidating or eliminating some of them.

Committee meetings devoted to the quality of undergraduate instruction focused on trends in class sizes and individual instruction. [See Figures 11-12a-c] The issues are complex. For some types of teaching – such as introductory language classes – there are clear class size limits that should not be exceeded, with smaller classes generally being better. For some lecture courses dealing with introductory material, the learning environment may be healthier if class size is not too small. Other teaching environments, including precepts, freshman seminars, and lab sections, where students learn from one another, also tend to have their own optimum sizes. Most of the Committee's discussions centered on these types of instruction because, in the Committee's view, these opportunities represent an especially important part of the distinctive Princeton experience for undergraduates. The President stated that, from his experience, precepts that did not exceed 12 students in number were optimal, depending on the nature of the material and the instructor involved. This number brings a variety of viewpoints and possibilities for exchange that make precepts successful. Also, there is more likelihood that students will have other classes in common, which can foster exchange among them. More than 12 students reduces the possibility for each student to engage with the work of the precept. The Dean of the Faculty reported that most precepts currently had approximately 12 students, and that this number had been a stable norm for many years.

As noted earlier, the Committee's discussion of faculty size made it clear that the ratio of students to faculty at Princeton has been decreasing and is projected to continue to decrease [see Figure 3], and that the increases in faculty are tending to occur in areas of greatest interest to undergraduates. The Committee's discussions about instruction, especially precept size, convinced the Committee that with the current and projected faculty size, the University is capable of sustaining the opportunities for personal interaction with faculty, lively precept and seminar exchanges, and independent work advised by tenured and tenure-track faculty that importantly define the Princeton academic experience. As faculty members in their reactions to this report have underscored, care will be needed in implementing an increase in student body size to assure that adequate teaching resources are made available, particularly in those departments that have especially large enrollments, in order to maintain the highest possible quality of undergraduate education. The Provost noted that a dynamic environment, where both the size of the faculty and the size of the undergraduate student body were increasing, would allow Princeton to address imbalances more effectively.

Throughout these discussions, the President, the Provost, and the Dean of the Faculty made clear their continuing commitment to constantly strengthening the level and quality of teaching at Princeton. The President's 250th Anniversary Teaching Initiatives each year have generated and provided support for more than two dozen promising projects to improve course content, enhance the teaching skills of graduate students, incorporate computer technology into the classroom, and help faculty develop new courses. Recent steps to improve the curriculum are summarized in Appendix A.

In its discussion of the quality of instruction, as in its discussion of the preparation of graduate students for teaching, the Committee considered the problems created when those with instructional responsibilities are not able to communicate effectively in

English. Aggressive steps have been taken to assure that all teachers at Princeton, and in particular graduate student assistants in instruction, receive training in English when necessary before beginning their teaching assignments. The Graduate School has played a leading role in developing these programs, and it is expected that the new Center for Teaching and Learning will also be helpful in this regard. While much has been accomplished, the Committee's impression is that this remains a problem in some departments. As mentioned earlier in the section on the Graduate School, members of the Committee were assured that the University will insist on competency in English as a prerequisite to receiving teaching assignments.

Recommendations

The Committee underscores the following fundamental principles with respect to Princeton's faculty: Princeton is committed to maintaining a world-class faculty whose members excel in both teaching and research. Princeton is committed to a single faculty – all Princeton faculty teach, and all faculty are expected to teach undergraduates; there is no separate graduate or research faculty. The University seeks a diverse faculty, and Princeton's commitment to diversity is apparent in the recent new initiatives to increase the number of women and minority faculty, especially in the sciences and engineering. In support of these principles, the Committee makes the following recommendations:

<u>Composition and Compensation of the Faculty</u>

The Committee supports the Dean of the Faculty's current efforts to oversee appropriately the growth and composition of the faculty. Such efforts can help assure opportunities to bring younger scholar-teachers to campus, and with them the vitality and new approaches they represent. The Dean's oversight also can help to assure appropriate balances in individual departments between senior and junior faculty, and can provide greater flexibility for the University to allocate positions among academic fields in ways that will best meet changing research and teaching needs. As described by the Dean of the Faculty, the means to achieve these ends include reducing the amount of senior recruiting, increasing the rate of recruiting at the assistant professor level, and continuing to maintain the highest standards for promotion of junior faculty.

Change is essential if universities are to keep pace with new fields of inquiry. Maintaining flexibility in distributing all resources helps the University meet the new requirements change can impose. The Committee supports the recommendation that each faculty vacancy should initially be "returned" to the Dean of the Faculty to be allocated as required either back to the original department or to another department or program where opportunities are greater or needs are more pressing. The Dean estimates that as many as 15% of all vacancies that occur at the senior levels and approximately 10% of all vacancies at the junior levels might be reallocated.

The Committee strongly concurs in the importance of maintaining compensation at levels sufficient to attract and retain faculty of the highest level of quality.

The Committee agrees that there is no need at this time to provide new incentives for senior faculty to retire.

The Committee supports aggressive efforts to increase the diversity of the faculty. Progress has been made in recent years, but Princeton remains quite far from the levels to which it can reasonably aspire in some areas, given the talent available.

The Vitality of Academic Departments and Programs

The Committee believes it is essential that the strengths and weaknesses of departments and programs continue to be evaluated on a continuing and regular basis. The Committee recognizes the importance of yearly internal reviews by the President, Provost, and Dean of the Faculty. In addition, it emphasizes the importance of independent evaluations and supports the practice instituted several years ago of regular periodic formal reviews (approximately every 6-7 years) of academic departments and programs by external visiting committees. The Committee recommends that reviews of programs and departments routinely include the possibility of reduction, consolidation, or even elimination of some departments or programs where these measures may be advisable.

Instruction

The Committee strongly recommends that precept sizes not exceeding 12 students be maintained. (The Committee recognizes that there is a difference between precepts and classes – which can be larger – in departments such as Economics that make use of classes.) This objective can be achieved mainly with the already projected increase in the size of the faculty, even with an increase in the student body of the magnitude being proposed, although modest additional faculty growth in areas of greatest student interest may be required. In implementing the recommendation to increase the size of the undergraduate student body regular consultation will take place with the Dean of the College and the Faculty Committee on Course of Study.

The Committee strongly endorses the University's commitment to assign only tenured and tenure-track faculty (and, in some special circumstances, lecturers and members of the professional research staff with Ph.D.'s, or practitioners in the Woodrow Wilson School and the performing arts) to advise senior independent work.

The Committee strongly endorses efforts by the President and others to develop and encourage further excellence in teaching. The Committee encourages the University to build on the proven success of programs such as the President's 250th Anniversary Teaching Initiatives and the President's Awards for Distinguished Teaching as promising new ideas emerge and as further funding becomes available for this central institutional purpose.

Noting that classroom instruction is concentrated in certain hours of the day and certain days of the week, the Committee supports efforts to increase use of Fridays for teaching, to make better use of physical space, and to reduce overlaps in course scheduling, which in turn would increase course choice options for students.

D. THE ADMINISTRATIVE AND SUPPORT STAFFS

Background

With the assistance of Vice President for Finance and Administration Richard Spies *72, the Committee reviewed the size, composition, and organization of the administrative and support staffs.[1] Data showing changes over time in the sizes of staffs in academic departments and administrative offices were developed and considered. [See Figures 13-14] Comparisons with peer institutions regarding staff sizes and resources allocated for staff are difficult because of differences in institutional mission and organization (for example, the presence elsewhere of large professional schools or university hospitals) and because of differences in accounting procedures and the lack of historical data. Nonetheless, such information was provided in selected areas. The Committee discussed with Mr. Spies, the Provost, and the President how staff performance is measured, both for individuals and for departmental units.

Size and Composition of the Administrative and Support Staffs

For the most part, Princeton appears to be comparable to similar institutions in terms of the fraction of its overall budget devoted to administrative and support services and in its staffing levels in those areas. The total number of administrative and support staff grew substantially in the 1980s, from 1,949 full time equivalent positions (FTEs) in 1980 to 2,313 in 1988 (an increase of almost 20%). This number has remained essentially level since 1988 – there are now, in FY00, 2,310 such positions – but the overall increase over two decades was still sufficiently large to warrant further discussion. [See Figures 13 and 15]

Much of this increase is attributable to decisions in the early 1980s about areas where staffing levels were found to be inadequate (e.g., fundraising); where changing circumstances required a higher quantity and quality of support (e.g., technology); or where new programs were established (e.g., the residential colleges). To cite three examples: the fundraising staff was increased from 58 in 1980 to 107 in 1998; staff in the general area of computing and information technology increased from 102 to 207 over this same time period; and 17 new positions were added to the staff when the system of residential colleges for all first- and second-year students was created in the early 1980s. In addition, growth in academic programs and in important extracurricular areas – women's athletics, for example – occurred over this period and generated a need for increased support. [See Figure 14] As noted, the total staff over the entire period from 1980-98 showed an overall increase of approximately 20%, which is equivalent to a growth rate of approximately 1% per year. Although this is essentially the same overall rate of growth as experienced in the faculty over this same period, there was little or no

[1] "Administrative" staff have managerial and professional responsibilities, and are paid an annual salary on a monthly schedule. "Support" staff include service and trade groups and office and clerical workers, are paid an hourly wage on a biweekly basis, including overtime, and some of these staffs are unionized.

growth in the student body during this time. For the future, the Committee believes that such a rate of growth is not warranted.

There was also concern that the majority of this increase occurred in the administrative staff, which is on average considerably more senior and more expensive than support staffs. Between 1980 and 1998, the administrative staff grew from 460 FTEs to 766, an increase of 67%. As was observed with respect to faculty growth, there are at least two disturbing aspects of this trend. Not only are administrative staff, on average, about twice as expensive as members of the support staffs, but the rate of turnover among senior staff is relatively low, reducing opportunities for new individuals with fresh ideas to find opportunities at Princeton.

The University has aggressively sought in recent years to increase the diversity of backgrounds among staff members, especially in the administrative ranks. Progress has been made in attracting women to such positions. The goal of increasing minority representation in these ranks has proved to be substantially more difficult to achieve, mainly because the pool is relatively small and the competition is fierce.

Budgeting Process for Administrative and Support Staffs

Departments receive overall budget allocations that may be used for salaries or, if the department wishes, and with central administrative approval, for other uses (new technology or new equipment). For the most part, individual departments make decisions about the number and composition of support and administrative staffs in their units. This budgeting system provides departments with considerable discretion, and resources can be shifted fairly easily between increased or reduced staff and other departmental needs. But this system also makes it very difficult to consider and accomplish tradeoffs across administrative units.

Quality of Administrative Units and Staff Performance

The University recently has increased considerably its emphasis on "pay for performance" for members of both the administrative and support staffs. This program is intended to upgrade over time the level of performance of individual members of these staffs. The performance of administrative units is also expected to be enhanced by a newly instituted program of departmental reviews designed to assess departmental strengths and weaknesses and to suggest new ways of accomplishing their work. These reviews are now scheduled at regular intervals, drawing on external professional help where appropriate. The recent review of the Facilities Department was described to the Committee, and appears to be a very promising model for other administrative reviews now underway. While the emphasis of these departmental reviews is on improved quality of service and efficiency, close attention is also paid to possibilities of capturing budgetary savings. Mr. Spies reported that the expectation for savings resulting from the Facilities Department review will be $2 million per year by 2001, on an on-going basis. (The current total budget is approximately $83 million per year, excluding major maintenance and related expenditures which were not part of the review.) Further

"administrative restructuring" that will occur as a result of similar reviews in other areas are expected to achieve additional savings. Mr. Spies projected that those savings over time could add as much as $600,000 per year to the total savings resulting from the Facilities review.

Professional Research and Technical Staffs

In addition to the administrative, support, and library staffs, the University employs professional research and technical staffs who are appointed by the Dean of the Faculty. These staffs are critically important in maintaining the University's excellence in research and provide increasingly important technological support to the University's teaching and research mission. These staff members include post-doctoral fellows appointed by faculty for discrete periods of time and usually for specific research projects, visiting faculty from other universities who spend sabbatical time at Princeton doing research, and members of the Computing and Information Technology professional technical staffs who are full-time, regular University employees. The Provost described the University's commitment to providing those on research appointments with opportunities to further their education. He also described the funding sources for professional staffs, presented an historical overview of the size of the staffs in the various disciplines, and provided the Committee with copies of a report issued by Associate Dean of the Faculty Jeremy Brown that describes the current size and composition of these staffs and the policies that govern their employment at Princeton.

Recommendations

University staff members are among the critical resources of the University. The current levels of dedication and achievement exhibited by Princeton's staff members are exemplary, and make a significant contribution to Princeton's enviable excellence. The Committee's recommendations with respect to administrative, support, and library staffs parallel those made for faculty, and their main objectives are the same: to provide more effective, somewhat more centralized oversight of growth in order to assure greater efficiency and greater flexibility, and to continue strengthening quality.

Size and Composition of the Administrative and Support Staffs

The growth in administrative staff size referred to earlier in the report has been caused by the need for and has resulted in greater professional support for faculty and students (including increased availability of technology), for increased fundraising capability, and for other important University objectives. But as Princeton prepares for the challenges of the next decade, and in order to maintain the flexibility that will undoubtedly be required to meet new demands, some changes in the patterns of University staffing are necessary. The overarching objective in this area is that, over time, a decreasing fraction of the University's resources should be devoted to administration and support, in order that a greater proportion of University resources may go directly to faculty and student expenditures. Achieving this objective will require even greater administrative efficiency, which means even more productive performance by

administrative and support staff members, facilitated wherever possible by use of increased technology. At the same time when academic or other programs grow or are added, necessitating, for example, construction of new facilities, and especially if the size of the undergraduate student body is increased, necessitating, for example, creation of a new residential college, increases in certain support staffs will undoubtedly be required.

Strenuous affirmative efforts should continue to be made to assure equal opportunity in all staff recruitment and advancement decisions, with the expectation that over time the diversity of backgrounds of staff members at all levels will reflect the diversity of the nation which the University seeks to serve.

Budgeting for Administrative and Support Staffs

The current budgeting system for staff positions meets many needs and serves many purposes, including departmental flexibility, but it hinders attempts to consider and accomplish tradeoffs across units. The Committee supports proposals from the administration to consolidate responsibility for budgeting nonacademic staff, and to establish clearer targets for staff size relative to the total University budget. These proposals include revising the existing vacancy review process to provide more flexibility to shift positions across departments over time and perhaps adopting explicit limits on staff size and on the ratio of senior to junior staff positions. The control of this process should be held by the Vice President for Finance and Administration.

Quality of Administrative Units and Staff Performance

The Committee strongly supports both the increased emphasis on “pay for performance” and the program of administrative reviews now underway. All units should, over a 5-6 year period, be scheduled for such reviews, to identify areas where efficiencies, improved performance, and budgetary savings can be identified and achieved.

E. PHYSICAL RESOURCES

Background

Princeton is defined in part by its physical appearance, and the nature of the campus is a significant aspect of the Princeton experience. Therefore, the grounds and buildings that make up the campus are counted among the most important of Princeton's resources. Through the Committee on Grounds and Buildings, the Trustees discharge their responsibilities for continuing oversight of these resources, including, in particular, the oversight of location, design, construction, and maintenance of University buildings. The Committee's selection of specific areas for review was determined by recent events (including the major renovation program for dormitories) and its focus on the size of the undergraduate student body. While the Committee concentrated on these areas, it also reviewed general background information regarding the oversight of Princeton's physical resources. In particular, the Provost outlined policies and procedures that guide the University in formulating its capital budget. [See Figure 16] These were the result of recommendations made by a Trustee committee, chaired by Wilbur Gantz '59, that studied the University's capital budgeting process in 1991. The Committee concluded that, in general, this process ensures a desirable level of financial planning before new projects are undertaken.

The Committee's work began just after University consulting architect Rodolfo Machado delivered a campus master plan, and during a period in which the University was enhancing its already strong commitment to the maintenance of its physical facilities. [See Figure 17] Princeton has historically given proper, responsible attention to long-term major maintenance. Each of the three most recent upward adjustments in the level of spending from Princeton's endowment has been allocated primarily to the University's major maintenance program, most recently to an accelerated dormitory renovation program. However, only with the most recent increase has the University achieved the generally recognized goal of applying 2% of the estimated replacement value of the physical plant to major maintenance each year. The University will not reach a fully optimal condition until this new long-term major maintenance plan has been in effect for a number of years.

Because of the University's recent focus on dormitory renovation and the Committee's consideration of a possible increase in the size of the undergraduate student body (which would necessitate a corresponding increase in dormitory space), the Committee paid particular attention to undergraduate dormitories. With Provost Ostriker, Vice President for Facilities Kathleen Mulligan, Director of Physical Planning Jon Hlafter '61, and General Manager of Plant and Services Michael McKay, the Committee considered a newly developed long-range (30-40 year) plan for continuing major renovation of all undergraduate dormitories and alternative timetables for executing particular segments of this plan. The construction of Scully Dormitory made possible the removal from use each year of one dormitory for full-scale renovation, and the Committee considered the advantage of constructing another dormitory to permit not one but two dormitories to undergo major renovations each year, until all of the older

dormitories most in need of renovation are completed. This second new dormitory would then be used either to help absorb an increase in the size of the student body or to reduce dormitory density and increase common space in the dormitories.

Since the Committee was considering the possibility of adding approximately 125 undergraduates to each class, it also discussed the need for a new residential college and its possible location – although the question of location would be a topic for final decision by the Committee on Grounds and Buildings and the Board. More generally, the Committee reached the following judgments regarding the impact on campus facilities of its proposed increase of approximately 500 students in the undergraduate student body:

Such an increase would not require additional academic or support facilities beyond new dormitory space and a new residential college. Athletic facilities, library space (including carrels), classroom space, and meeting and recreational space are all adequate.

- The campus has sufficient capacity on the existing campus side of Lake Carnegie to accommodate the required additional dormitory space and a new residential college, and adding such facilities in these locations would enhance the scale and setting of the campus.

- The costs of adding a dormitory and a residential college would result in a capital budget shortfall for several years unless donors could be identified for these facilities, but financing such a temporary shortfall could be readily accomplished.

- An additional residential college would have benefits beyond accommodating additional freshmen and sophomores. In particular, it could provide additional capacity to house upper-class students who may wish to live in the colleges longer than two years. While such a proposal requires further study, there would be educational benefits to including upper-class students in the colleges.

The Committee's extensive discussions concerning possible locations for new dormitory and residential college spaces raised issues that have broader implications for University facilities, including the importance of open space to the character of the campus and a strong desire to preserve the beauty of the campus. These topics are also of concern to the Committee on Grounds and Buildings, which devoted a special day-long meeting earlier this fall to these and similar issues with general, overarching impact on the University's grounds and buildings initiatives.

Recommendations

- Dormitory Renovation Schedule. The Committee on Grounds and Buildings is continuing to discuss the most advantageous schedule for dormitory renovation. Our Committee strongly supports the current overall dormitory renovation program. In addition to preserving important University assets, this program can affect the composition of the student body since the overall condition of undergraduate

dormitories can be a factor in an applicant's decision to accept Princeton's offer of admission, and the University's major competitors have improved their own dormitories recently. The Committee also endorses the proposal to renovate those dormitories most in need of repair on an accelerated schedule, essentially completing renovations of two dormitories each year for the next several years after completing a second new dormitory (in addition to Scully Dormitory). This accelerated schedule would result in the most advantageous financing of the renovation program and would provide some of the additional dormitory space that will be required in a few years if our proposal to increase the size of the undergraduate student body is accepted.

Oversight of the Capital Budget. As a stated goal of the University's capital budgeting process, the University generally commences work on new capital projects only after sources for at least half of the funding for the project have been identified. Significant exceptions to this rule, such as the stadium, have recently been permitted. While the reasons for these exceptions have been clear, and each exception was reviewed with the Trustees, the Committee is concerned that exceptions not become the rule and urges that they be approved only when overwhelming programmatic or physical needs exist.

F. FINANCIAL RESOURCES

Background

The Trustee Committee on Finance and the Directors of the Princeton University Investment Company (PRINCO) provide regular oversight for the University's financial assets, including management of the yearly operating and capital budgets and investment of the endowment. In addition, the Trustee Audit Committee reviews the systems and controls established to monitor and safeguard the University's financial health. (An external indication of confidence in the strength of Princeton's finances is the triple-A bond rating the University has maintained since first being rated in 1980.) Because of this ongoing oversight, and because a full-scale briefing of the entire Board regarding endowment spending policies occurred in January 1999, the Committee limited its consideration of financial resources to a review of PRINCO's investment philosophy, and an overview of the principles and procedures governing management of the operating budget, with some closer attention to specific sources of income, to the financial implications of an increase in the undergraduate student body, and to future financial planning.

Corporate and Foundation Fundraising

The Committee discussed corporate and foundation fundraising with Vice President for Development Van Williams '65 and the Director of Corporate and Foundation Relations Mary Baum *89. Princeton's receipts from these sources have grown more slowly than has income from other sources. Comparisons from 1986 to the present with peer institutions (the Ivy League plus MIT and Stanford) place Princeton in the lowest third of the group and show lower comparative growth – although comparison on a per capita basis provides a stronger relative showing. [See Figures 18-19]

Sponsored Research

Because research is a fundamental component of the University's mission, and because sponsored research accounts for a significant portion (roughly 20%) of the University's total operating budget, the Committee met with Associate Provost for Research and Project Administration Allen Sinisgalli, who gave the Committee a status report on sponsored research and on recent developments in the area of intellectual property. Princeton does relatively well in attracting research support from industry and government. Sponsored research recently has grown at a rate of 5% a year. [See Figure 20] The Committee inquired about possible implications of the recent reduction in the budget of the Princeton Plasma Physics Laboratory (expenditures were approximately $60 million in 1999 compared to $104 million in 1995). The Provost and Mr. Sinisgalli described this change as a "positive rebalancing," since the reduction directed the focus of the Lab away from mission-oriented technological applications to basic science and research.

The Committee also discussed the University's recent more aggressive approach to patenting, copyright registration, and licensing. Total program income for FY99 was approximately $2.6 million, a 23% increase over FY98, and growth in these areas is expected to continue. The University now accepts equity in companies in place of royalties. The Committee noted that the faculty is nearing completion of its review of current policies with respect to ownership of intellectual property, including courses that can be distributed over the Internet ("courseware"). Their recommendations will be reviewed by the Academic Affairs Committee and by the full Board.

The Princeton University Investment Company (PRINCO)

The President of PRINCO, Andrew Golden, met with the Committee to review Princeton's investment approach and structure, including PRINCO's long-term asset allocation policy. A review of the history of the means by which the Trustees have overseen the investment of Princeton's endowment gave the Committee a useful context for assessing the current PRINCO organizational model. The Committee noted that the endowment has grown to $6.5 billion and is contributing an increasing proportion of the overall University budget (i.e., approximately 32%). The Committee endorses PRINCO's management of the endowment and believes it has fulfilled its mission. A separate review is currently underway to assure that high expectations will continue to be met.

Financial Planning

The Committee's work was conducted during a period of unusually strong and sustained economic performance in the United States, when Annual Giving reached new levels (more than $30 million per year) and support of the Anniversary Campaign surpassed the ambitious upwardly-revised goal of $900 million eight months in advance of the conclusion of the five-year Campaign. The Committee offers the following facts as examples of the strength of the University's financial position:

- The endowment as of July 1, 1999 stood at $6.5 billion.

- Princeton has the largest per student endowment of any of the nation's research universities.

Over the past decade, Princeton's performance comfortably ranks in the top quartile of all university endowments.

- Although relatively late in moving into alternative investments as an asset class, the University has made substantial progress since the commencement of its relationship with Nassau Capital in 1995.

Withdrawals from the endowment have consistently been in the range of 3.5-5% over the past 20 years, thereby allowing sufficient reinvestment to achieve real growth in the

endowment in support of both current and future generations of Princetonians. [See Figures 21-22]

With the exception of the two years 1988 and 1989 when there were relatively modest deficits, the University's operating budget since 1980 has been in balance or shown a slight surplus. [See Figures 23-28]

Over time, the University has successfully maintained a balance between expenditure and income streams and a diversity of income streams both of which have helped protect the University from the adverse impact of change.

Such strong and stable financial resources and prudent spending policies have given Princeton appreciable flexibility. The Committee applauds the Trustees' recent decision to use this flexibility to make a Princeton undergraduate education more affordable to middle and lower income families. The Committee also notes that for the past eight years the University has lowered the growth of tuition increases each year. Last year's tuition increase was 3.5%, the lowest rate of growth in 30 years, and for the 2000-2001 academic year, the increase will be even lower -- 3.3%.

The Committee urged the University to develop realistic expectations for a future that is unlikely to be similar to the present and recent past. An essay by President Shapiro on "External Factors," attached here as Appendix B, draws attention to important changes that could have an impact on the University's financial well-being, such as changes in the capacities and priorities of important current sources of support, including federal and state governments, foundations and corporations, alumni and friends. His essay raises the question, "How can Princeton best prepare for unanticipated events?" Princeton has managed its resources in recent years in ways that minimize exposure to unanticipated shocks and maximize institutional flexibility. When increased spending from the endowment has become possible, these increases have been applied almost exclusively to increased investments in physical facilities – in large measure substituting one form of asset for another, and pursuing a program that could relatively easily be modified in adverse circumstances. A healthy mixture of sources of revenue characterizes Princeton's income statement, and where a program has a sole source of support (such as the Plasma Physics Laboratory), it has been kept distinct. In addition, Princeton has not leveraged its assets by substantial borrowing. The Committee notes the importance of sustaining such management practices to help assure the University's ability to address the challenges of change.

Recommendations

Financial Planning

The Committee firmly endorses the careful financial management policies that have enhanced Princeton's strength and protected Princeton's financial flexibility. [See Figure 29] It recommends that the University take advantage of the current strength of both the economy and the University to identify means that could be utilized, as

necessary, on comparatively short notice, to reallocate resources and achieve budgetary savings, in the event of adverse economic developments.

The Cost of a Princeton Undergraduate Education

The Committee supports the commitment expressed by the Finance Committee to continue the current trend of lowering tuition increases, so long as inflation remains under control and appropriate faculty compensation levels are achievable.

The Committee discussed with the President, the Provost, and the Dean of the Faculty both how to increase the number of funding applications to corporations and foundations, as well as to government agencies that support sponsored research, and how to assure an increased success rate for applications. Consideration should be given to encouraging greater faculty participation, particularly in raising funds from corporations and foundations. For government sponsored research, increased incentives for faculty, such as perhaps sharing indirect costs at higher rates with departments and faculty, should be among the possibilities considered.

PRINCO

The Committee urges the Board to consider carefully any recommendations that may result from the review led by Trustee Edward Matthews ’53 of Nassau Capital, which is now completing its first five years.

G. NEW TECHNOLOGIES AND EDUCATION

Background

The Committee had several opportunities to hear from the Provost and from Associate Provost Georgia Nugent ’73, who is leading a review of the University’s initiatives and plans with respect to use of new technologies both to enhance campus-based instruction and to develop distance learning programs. Princeton’s program to date has consisted of the beginning use of technology to enhance on-campus course work and the creation of several Web-based courses and Web-casts directed to Princeton’s alumni body. These programs were described, including the technological and professional assistance necessary to produce courses and course material. The programs have been well received by students and alumni. Comparisons were provided with other institutions, and some members of the Committee reported on their own direct experience with distance learning, as part of coursework or as part of their professional enterprises. The possibility of entering into agreements with other institutions of higher education as partners in enhanced technology initiatives or with outside professional companies that can provide marketing or technical expertise seems worth pursuing. The newly appointed Director of the Alumni Council, M. Kathryn Taylor ’74, with whom the Committee met, is strongly committed to expanding distance learning and other technological programs and services for alumni.

The Provost and the President discussed with the Committee principles that they believe are essential to successfully take advantage of technology in Princeton’s educational and research programs. The primary audience for such programs (initially at least) should be Princeton's own students, faculty, and alumni. This would situate such initiatives firmly within the current mission of the University and would both reflect and enhance the unusually close and lasting connection that alumni have to Princeton. The President noted his desire to take advantage of these new technologies to enhance, in a variety of ways, our alumni education offerings. Alumni might enroll for a program that would include components to be completed off campus, through distance learning techniques, as well as components that provide opportunities to spend defined periods of time on campus as part of such a course. In keeping with Princeton’s commitment to serving society, the Committee also urges the University to include possibilities for individuals outside the University community to participate in aspects of distance learning programs.

From the information gathered by the Associate Provost about initiatives elsewhere, and from Princeton’s experience to date creating such offerings, it is clear that costs associated with distance learning programs include substantial initial amounts of both time and money to identify and engage professionals who can design the necessary information programs, build the necessary infrastructure, and help faculty in development and use of on-line information. The time cost for faculty who are creating technology-enhanced learning components for courses can be very significant.

Members of the Committee pointed out that many institutions which committed early and significantly to distance learning did so through professional schools and draw on students who are funded by corporations willing to pay high tuition costs for these programs. It seems advisable for a number of reasons to charge fees for such courses with a reasonable minimum objective of recovering costs.

Recognizing the significant faculty time commitment required to create enhanced technology courses, for those cases where the courses are being developed for an audience outside the University community, Committee members expressed concern about a possible negative impact on time devoted to teaching students, particularly with a somewhat enlarged student body. The Provost pointed out that existing University rules governing the use of faculty time, especially for consulting, apply also to enhanced technology programs faculty develop outside of their University responsibilities. In addition, the faculty for distance learning initiatives might include retired members of the faculty or individuals from outside the University community. Some members of the faculty with experience in distance learning courses have indicated that these experiences can provide insights that enhance their undergraduate teaching.

The important topic of ownership of "courseware," (i.e., courses developed by Princeton faculty that make use of and can be transmitted over the Internet) was briefly reviewed with the Committee. The faculty is considering policies and procedures and the Trustee Committee on Academic Affairs is also reviewing these questions. It is expected that the full Board will have an opportunity to discuss these topics later in the 1999-2000 academic year.

Recommendations

The Committee is convinced that distance learning and other technology enhanced initiatives hold great promise for Princeton's students and alumni, and recognizes the particular importance and attraction of these initiatives for University faculty. The Committee believes that the time is right for the University to take the next steps in development of such programs, and strongly urges the University to develop as expeditiously as possible initiatives that can more fully extend the use of new technology in the University's teaching and research programs. In particular, with respect to distance learning, it is the Committee's expectation that a significant program will be in place by September of 2000.

The Committee supports principles for a distance learning initiative that were proposed by the Provost, the main components of which are as follows:

A Princeton distance learning initiative should serve the University's existing mission.

- The quality of the program should be at the same high standard as our classroom offerings.

- Princeton should build on its existing strengths in areas where faculty and alumni have particular competence and/or interest.

- The primary audience for such programs should be Princeton's own students, incoming students, and alumni. However, programs for broader audiences should be considered.

- For some services, there may be a charge to users, with the primary objective of covering costs.

H. THE LIBRARY

Background

Given the centrality of the Library to the University's mission, the Committee's review included a status report from the University Librarian, Karin Trainer, concerning recent developments and the challenges posed by changes in information technology. Despite the increasing availability of on-line electronic information, the number of Library circulation transactions between FY95 and FY98 has increased. This trend marks a departure from the experience of peer institutions, and is most probably connected to the central role of the Library in Princeton's approach to undergraduate education as well as the faculty's continued intense focus on library resources. [See Figure 30]

The Librarian outlined immediate challenges for the Library. The first concerns acquisitions. Princeton continues to devote significant funding to acquisition of monographs and journals, and University-wide savings from recent budget reductions were targeted in part toward increasing the Library's acquisition budget. Princeton leads competitors in terms of library support per student. However, the number of monographs acquired yearly is declining at a time when new fields of scholarship are rapidly developing. The second challenge relates to maintenance of library facilities. While new library spaces are being added, older libraries, including the Art and Archaeology Library and Firestone, need significant major maintenance that will improve their organization, their capacity to support computer technology, the accessibility of their collections, and the amount of space allocated to users versus space allocated to books. The costs of such improvements will be significant and will reflect the higher construction costs that are required when adding digital and computer capabilities. Finally, assuring that staff members are able to keep pace with rapid changes in information technology is an important challenge throughout the University, but perhaps nowhere more so than in the Library as increasingly more information is placed online.

Recommendations

Recognizing the importance of the Library to the University's mission, the Committee supports necessary renovations to existing facilities while looking forward to the enhanced library facilities that are being created in the new Friend and Wallace buildings and the Frist Campus Center. Over the years the University has given close attention to acquisition levels, and the Committee expects that evaluation of needs and prompt response to requirements will continue. Finally, the Committee recognizes that library staff members represent some of the University's most valuable resources. They are the bridge that often connects students, faculty, and staff to the critical information for their work. The conversion of an increasing amount of information to electronic format requires that librarians be at the forefront of learning to use these electronic resources. The Committee supports steps that the Library is taking to assure that the staff have these capabilities.

III. CONCLUSION

The Committee concludes its report with a statement of appreciation for the opportunity we have been given to examine an important set of strategic issues facing Princeton in the first years of the new millennium. We want to thank all who prepared materials for us, met with us, advised us, and challenged us to think deeply, carefully, and creatively about Princeton's capacity to sustain a position of leadership in a world of rapid and constant change.

As we indicated earlier, our work has been guided by two overarching principles. The first is our obligation to exercise responsible stewardship of the exceptional resources that Princeton has accumulated over many years and to assure that they will be sustained and strengthened into the future. We are persuaded that the budgetary and management policies and procedures currently in place, augmented by those recommended in this report, will allow us to meet this obligation, even in the challenging and ever-changing environment of the first years of the 21st century.

Second, in asking whether there were initiatives Princeton should undertake to make optimal use of its remarkable resources and whether Princeton should extend its educational and scholarly reach, our answers to both questions were "yes." For reasons enumerated in our report, we believe that Princeton should increase the size of its undergraduate student body by approximately 125 students per class; that it should enhance its financial aid programs for both undergraduate and graduate students; that it should take further steps to strengthen the faculty and the administrative, support, and other staffs; that it should extend its educational and scholarly reach, both on campus and off, through enhanced technologies; and that it should take a number of other steps that, individually and collectively, will enable Princeton to serve even better its students and alumni, the nation, and the world.

We do not in any way want to understate the challenges that we believe face Princeton and all of higher education in the years ahead. But we do want to express our confidence that, with continued diligence and thoughtful change, Princeton will remain especially well positioned to evolve in ways that enhance its distinction and its capacity to achieve its central and enduring purposes.

April 15, 2000

Appendix A

Some Improvements to the Curriculum, 1988 to the Present

In the past 10-12 years, Princeton has taken a large number of actions to improve the undergraduate curriculum. The following is not meant to be comprehensive list but provides a summary of some of the more important steps that have been taken.

Teaching

Dean's Fund for Curricular Innovation (1989), The 250th Fund for Innovation in Undergraduate Education (1997)
Center for Teaching and Learning (1998)
Visiting Professorships for Distinguished Teaching (1997)
Creation of Science and Technology Council (1989)
President's Awards for Distinguished Teaching (1991)
Writing Program review (1998-2000)
Grading pattern review (1996)
Summer Training for new graduate student Assistants in Instruction (AIs), plus training for non-English speakers (English as a Second Language) (1990)
AI Mentoring program (1997)

Learning

Study abroad initiative
Improved academic advising for freshmen and sophomores
Freshman Scholars Institute in Science and Engineering (1995), and in the Humanities and Social Sciences (1998)
Community-based Learning Initiative (1997)
Sophomore workshops (1997)
President's Award for Academic Achievement -- for freshmen and sophomores (1998)
Senior Thesis Writers' Workshop (1998)
Undergraduate societies of fellows in University Center for Human Values (1999) and Council of Humanities (proposed 1999-2000)

Curriculum

New general education requirements for AB and BSE students (1996)
Growth of Freshman Seminar Program from 11 (1989) to 65 (1999)
Committee on Diversity and Liberal Education (1994) -- annual publication of *Race, Ethnicity, and Cross-Cultural Encounter* booklet (1996)
New certificate programs: Applications of Computing (first graduates, 1996), Applied and Computational Mathematics (1992), Biophysics (1999), Engineering Biology

(1991), Environmental Studies (1993), Finance (2000), Hellenic Studies (1990), Jewish Studies (1996), Language and Culture (1993), Materials Science and Engineering (1994), Medieval Studies (1994), Musical Performance (1992) , Robotics and Intelligent Systems (1999), Visual Arts (1993)

Departmental changes: the division of Civil Engineering into CE and ORFE (1999); dissolution of Department of Statistics (1992)

Creation of Princeton Writing Program (1991)

Creation of Center for Human Values (1990)

Technology

Princeton Desktop Initiative (PDI) to standardize and encourage use of basic technology platform and set of programs (1996)

Creation of the PLACE and outreach efforts to faculty by CIT (1994)

Classroom and Scheduling Committee initiative to upgrade teaching spaces

Almost one-third of undergraduate courses now have web presence (1998)

Academic Regulations

New final examination policies (students not required to take more than one final exam in a day) (2000)

Policy that AP credits cannot be used for distribution requirements (1992)

Revision of academic calendar (1995)

Elimination of graduation requirement in physical education (1990)

Appendix B

External Factors

The Wythes Committee delivers its report to the Board of Trustees as Princeton prepares for the first years of the new millennium. Such moments in time invite reflection; to look forward, it is necessary first to look backward and understand Princeton's history. In addition, to assess the strengths Princeton brings to future challenges and potential opportunities, the University must take stock of external factors that may have an influence on Princeton and on higher education in general. As a point of departure for the Committee's work, President Shapiro provided the following essay, which presents some of his thoughts on the place of Princeton in the broader context of the history of higher education and then describes some of the external factors that may influence the University in the decades immediately ahead.

* * *

Introduction

The late 19th and early 20th century was a time of enormous change in American higher education. Spurred by immigration, rising agricultural productivity and continuing innovation in the industrial sector, K-12 education was broadly deployed, and the great comprehensive "land-grant" universities and the American research university together took the leadership in transforming American post-secondary institutions. It was also a time in which new academic disciplines were founded and the university's teaching and scholarly programs were reorganized along disciplinary lines. Similarly significant changes took place after World War II with the explosive growth of federally sponsored scientific research and with the enactment of the GI Bill and subsequent student aid legislation, the civil rights movement, and the creation of community colleges and technical schools – all of which dramatically expanded access to higher education for students from both genders; all ages, races, and income levels; and a broad range of aptitudes, aspirations, and life experiences.

For Princeton, the early 20th century was a more ambivalent moment. On the one hand, the Graduate School was founded and a new dedication to undergraduate education was inaugurated. On the other hand, Princeton moved rather slowly and hesitatingly to embrace fully the research university's new role in the rapidly expanding world of scholarship. Among the founding universities of the AAU, Princeton was unique in demonstrating both little desire to move away from the "Oxbridge" undergraduate model and little sustained interest in the reorganized and expanding professions such as law and medicine.

In the post-World War II era, this attitude changed a great deal, in part because of the great impact of both Bell Labs and the Institute for Advanced Study on the faculty's aspirations and in part because of new opportunities and new leadership. In any case, in the decades following World War II, Princeton once again established a position of leadership in both education and scholarship.

There are some who believe that the challenges and changes facing American higher education at the beginning of the 21st century are comparable in significance and scope to these earlier periods. They usually point first to the transforming effect of new information technologies, the breathtaking pace of discovery in the life sciences as well as in other fields of knowledge, and the growing interdependence of nations in an increasingly global society. But they also point to the increasing ethnic and cultural diversity of our society, some seemingly intractable social problems (including a persistent and growing gap between "haves" and "have nots"), the changing characteristics of college students, the growth of the traditional college-age population as we begin to hear echoes of the baby boom, changing attitudes and heightened expectations among higher education's patrons, increasing competition from others for the support of those patrons, changing employment conditions and governance structures in academic institutions, the growth of private sector competitors, and perennial concerns about the capacity of the U.S. economy to sustain both the remarkable diversity and the enviable quality of the system of higher education that has evolved in this country.

As we proceed with our planning for Princeton, we need to be aware of the many external forces that will shape American higher education in general and how these will shape the set of choices available to us. Most of these will be forces over which we have little if any control or influence, and while some will be at least partially foreseeable or predictable, others will not. From even a cursory review of history, we can be fairly confident of two things. First, universities have proven to be relatively sturdy institutions that have stood the test of time in providing important services to society. Thus, however they evolve, I would predict that they are likely to bear at least some continuing resemblance to their present form just as today's Princeton incorporates important aspects of its past. Equally clearly, however, if all we do is sustain our current portfolio of programs and "fast-forward" to some point in the future, we are bound to be disappointed, just as our predecessors at any point in our history would have been wrong if they expected future Princetons to look just like theirs.

What we know is that there will be change. What we do not know is exactly which changes will occur and how they will affect us. But at a minimum we can expect that the external forces shaping our future will at least include the following.

Societal Changes

We know that the echo of the baby boom generation will produce a one-third increase in the college-age population in the next decade. We also know that birth rates among most minority groups are higher than they are for whites, so our society is becoming increasingly diverse. We do not know what immigration policies our country will adopt over time, but these policies inevitably will affect both the composition of our national population and our ability to bring students, faculty, and staff from other parts of the world to Princeton. We also do not know whether there will be significant changes in high school graduation rates and college enrollment rates (or whether there will be changes in the depth, breadth, and quality of high school curricula, and therefore what

level of academic accomplishment high school graduation will come to connote). As the baby boom generation ages and life expectancies increase, we know there will be growing numbers of senior citizens, but we do not know how many of them will be interested in returning to school – or perhaps attending for the first time. We have no good way to project the future demand for Ph.D.'s, or for masters programs in various fields and professions – or, for that matter, what students or employers will expect masters programs to encompass. More generally, we do not really know whether the economic benefits of an undergraduate degree will continue to grow over time, or whether an increase in the number of citizens holding degrees, changes in the nature of work, greater emphasis on the acquisition of specifically measurable skills, the availability of the "internet," an erosion in the general quality of a traditional undergraduate education, or other factors will lead to a devaluation of the undergraduate liberal arts degree – if not from all colleges and universities, at least from some.

These kinds of societal changes will affect the population that American higher education should try to serve and the value citizens attach to the college experience. Even if demand for higher education remains strong, society's capacity to support it will depend on the overall strength of the economy. Society's willingness to subsidize higher education will depend both on the political and social philosophies of those in office and the extent to which taxpayers perceive higher education as conferring public as well as private benefits as well as on the vitality and responsiveness of higher education itself.

Finally, the increasing globalization of our society and our economy has a number of implications for our programs and aspirations. It potentially affects the composition of the student body, the nature of the curriculum and our distribution requirements, the opportunities we provide for study and travel overseas, and our scholarly initiatives and priorities.

Changes among Patrons

All colleges and universities are shaped by the interests and capacities of their patrons.

While of relatively modest direct importance to Princeton, the nature and level of state support will continue to play a major role in shaping the overall contours of American higher education over the coming decades. Although the fiscal health of most states – and state universities – is very strong, state budgets could become constrained by economic slow downs and by the demands of their citizens both for other state services or for tax relief. In many states there has been a significant decline in the proportion of public college and university budgets that is provided by the state, with these declines then offset by some combination of increased charges to students, more aggressive private fundraising, and in a few cases reductions in the quantity and/or quality of their programs. What is clear is that the most distinguished state universities are formidable competitors of the best private universities in the competition for the best faculty and students and for federal research grants.

Of much greater direct importance to Princeton is the role that the federal government chooses to play in supporting research in science and other disciplines, graduate education, undergraduate financial aid, and other initiatives of importance to colleges and universities. The federal government also provides valuable indirect support for higher education through the tax exemptions it provides for charitable institutions and the tax incentives it provides for charitable giving, and it can have a major impact on colleges and universities through the regulations it adopts in areas ranging from the recovery of indirect costs to environmental matters to equal opportunity and affirmative action. In recent years we have seen proposals, for example, that would arbitrarily cap indirect cost recoveries at levels well below those we currently receive; suggestions that colleges and universities no longer deserve to be considered "charitable" institutions for tax purposes; and court decisions regarding Title IX that over time could substantially affect the size and nature of our athletics program. We also have seen how quickly and dramatically political currents can change: just two years after the 1994 Congressional elections gave rise to predictions that federal student aid programs would be decimated and federal support for science would be cut by more than a third, in 1997 Congress enacted more than $40 billion in new tax breaks to assist students and their families in paying for college, and leading members of the majority party introduced legislation that is designed to double federal spending on scientific research over the next decade. Looking ahead, it is very difficult to predict the future of federal science policy, tax policy, expenditure policy, or regulatory policy, although it is easy to predict that each of these policies individually – and the sum of them collectively – can have a major impact on American higher education, and especially on American research universities. In addition to federal and state governments, community colleges receive important support from their counties or municipalities.

Beyond governments, higher education's other patrons include companies, foundations, individual donors, and of course the individual students and families who make choices about what they want to buy and how much they are prepared to spend (or, perhaps, invest) for higher education. The interests and priorities of companies, foundations, and individual donors have changed – and undoubtedly will continue to change – over time, with consequent changes not only in which institutions they choose to support, but which programs and activities within those institutions they find most compelling.

Impact of Technology

Even if we assume that Princeton will continue to be a residential university where students and scholars engage in face-to-face conversation or work side-by-side in its libraries and laboratories, there is no question that new communications and computation technologies will lead to further changes in how we teach and learn, how we conduct research, and how we interact with each other and the outside world. We know that these technologies also will have major implications for the role and function of the Library of the future and for scholarly publishing. If, as some suggest, these new technologies exacerbate the division between society's haves and have nots – or the opposite – they have a potential impact on the composition of our student body and the

nature of our admission process. To the extent that they overcome constraints of time and space, they open many new opportunities for Princeton students, Princeton alumni – and potentially others outside the campus – to benefit more fully from Princeton's educational programs and to participate in additional ways in the life of the University.

For American higher education more generally, these new technologies already have given rise to opportunities for "distance learning," where offerings (of currently uncertain quality) that range from individual courses to entire degree programs are available electronically to anyone who wishes to participate. Shortly after World War II, half of all American college students attended private colleges and universities. Now that percentage has declined to less than 20 percent. With the growth of distance learning and the likely continued expansion of for-profit "proprietary" schools and educational programs offered by companies who have discovered important student needs that are not being met by existing institutions, we may discover a similar decline in the 21st century in the percentage of students who are educated in what we might now call traditional collegiate settings.

Finally, universities are also affected by the changing cost of communicating information, which historically has been very high, and now, thanks to new technologies, is rapidly approaching zero. However, just as the cost of transmitting information is approaching zero, the amount of information threatening to confront us is growing exponentially. In this environment the economic premiums available to those institutions that can most credibly evaluate the massive amounts of information now being aimed at and delivered to our offices and homes may also grow exponentially. While the future is difficult to predict, universities may be ideally positioned to perform this function and benefit financially from doing so, since we have evaluation processes that are demanding, open and focused on well-understood, respected, and relevant standards. Thus, while new telecommunications technologies are likely to change a great many of our practices, universities may also be asked to assume some new and/or expanded roles.

Changes within the Academy

Just as Princeton is buffeted by a host of social/political/economic currents, it is also shaped by changes in the nature of academic institutions and of the academic profession broadly defined, by competitive pressures from other colleges and universities, and by ever-changing expectations of what colleges and universities can and ought to accomplish.

Teaching and Research: One of the major forces shaping any college or university is society's expectations about what will be studied and what will be taught, and who will decide. Even if there is a consensus (which there may not be) that colleges and universities in general, and research universities in particular, should both preserve and pass on the cultural inheritance and traditional values of the past and challenge traditional understandings, critique accepted practices, and explore new ideas, we know that in different eras – and among different observers – there will be disagreement about where the emphasis should be placed. Within the academy itself there are different views

about the respective priorities of different fields and how they should be taught. To cite just one example: Princeton has received considerable national attention recently for its decision to study the pluralism of American society within its American Studies program, rather than through a proliferation of programs focused on particular ethnicities. In the sciences, one of the major questions is whether the post-World War II pattern of control of the science agenda by scientists is about to be replaced by more direct control of the scientific agenda by the financial supporters of the research enterprise (largely corporations and government). The ultimate question, of course, is who controls the scientific agenda and to what end, and the answer will help determine which science is conducted, and where, and by whom and at what levels of quality.

The Academic Profession: Nationally, a growing number of faculty are being appointed outside the tenure system, and therefore may not be part of the long-term faculty of the institution. This trend could have profound effects on the attractiveness of the academic profession, the role of faculty in institutional governance, and the status of academic freedom, and may exacerbate the tensions that already exist in many venues between tenure track faculty and those with temporary positions. Since tenure is a system designed to protect academic freedom as well as a key aspect of faculty governance, some worry about the future of academic freedom in this new environment. Others believe either that tenure does not provide ironclad protection of academic freedom (since even tenure contracts can be terminated under certain conditions), or that tenure is no longer necessary to protect academic freedom. Still others argue that academic freedom is an outmoded concept, or that tenure (understood as essentially unlimited job security) is a concept society can no longer afford. Whatever the future holds in this respect, it is clear that such forces as difficult budget constraints, new notions of accountability, the elimination of mandatory retirement, and in some cases the lack of a good match between faculty skills and student needs, are putting strains on the traditional tenure system and are raising questions about the nature and mode of faculty appointments and promotions.

Governance Issues: In an idealized world, society entrusts its colleges and universities to groups of either appointed or elected individuals (usually known as trustees or regents) who adopt a mission for the institution in the public interest and then employ faculty and administrators to carry out that mission. Traditionally, trustees or regents have looked to faculty to play a central role in the governance of the institution, and especially in developing policies and practices regarding the academic program. Both of these delegations of authority – from the "state" (directly or indirectly) to the trustees or regents, and from the trustees or regents to the faculty – require a certain amount of self-discipline on both sides and considerable mutual understanding about what the respective roles entail. But these are not immutable arrangements, and over time we could see some change in the distribution of authority and responsibilities within colleges and universities. As fields of knowledge emerge and evolve we also may find increasing need for structures for teaching and research that are more flexible and permeable than the departments into which most colleges and universities currently are organized.

Student Aid: While Princeton was not alone among private colleges in beginning to provide scholarships as early as the 18th century (in our case to "poor and pious youth"), and while the "land-grant" universities were designed from the beginning for students from families of more modest means, it was not until after World War II that America began to create a system that aimed to make it possible for every deserving student not only to attend college, but to attend the college – public or private – that could best meet the student's needs and best fulfill the student's aspirations. Three major developments were (1) the commitment of some of the leading private colleges and universities to admit students without regard to financial need and then to meet the full estimated financial need of each admitted student, which allowed schools to seek out and admit the strongest candidates they could find irrespective of financial circumstances and allowed students to eliminate, at least in part, price as a factor in choosing among these schools; (2) the development of federal grant, work-study, and loan programs that were intended to assure both "access" and "choice" for needy students; and (3) the dramatic expansion of the public system of higher education, including state colleges and universities and community colleges, which provided heavily subsidized educational opportunities (and therefore charged very low tuition) to students from all income levels.

Over recent years this system has often showed signs of eroding in a number of significant respects. As federal programs and institutional resources have failed to keep pace with rising costs, very few private colleges and universities can afford a "need blind, full need" policy. Most private colleges and universities either take need into account (at least for some part of the admission process), or admit at least some students without meeting their full estimated need. Moreover, until recently both federal and institutional programs have increased the proportion of aid they provide in the form of loans rather than grants. At the same time, many state universities are considering whether they should significantly increase their charges so that families with means can shoulder a greater portion of the cost of providing educational opportunities to their children. Both private and public institutions are making greater use of merit scholarships unrelated to need to increase the enrollment of their most desirable applicants. Some institutions have adopted practices known as "enrollment management" where financial aid officers tailor each financial aid offer to the particular circumstances of each applicant to maximize the likelihood of that applicant enrolling. In the aftermath of the antitrust settlement involving the Ivy institutions and other private colleges and universities, more and more students and families appear to be challenging their financial aid awards and trying to negotiate increases based on the offers of other places. Recent legislation has introduced a new set of tax credits for tuition, along with greater incentives for college savings, and we may well see the expansion of state (and probably the introduction of private) prepaid tuition programs.

The whole question of who pays for college, how much they pay, and how financial aid packages (or "tuition discounts") are determined and allocated is under active discussion in Congress, state legislatures, and institutions around the country. The outcome of these discussions could have significant strategic and financial implications for Princeton, and could lead to major changes nationally in the composition of student bodies at different kinds of institutions.

Conclusion

We have carried out this planning process assuming that Princeton will continue to be a geographically coherent community of students and scholars engaged in conversations across the generations that are aimed not only at understanding our cultural inheritance and that of others, but at developing skills, perhaps molding character, and pursuing a better understanding of the natural world and the human societies that inhabit it. Princeton's key overall objective is to attract, retain, support, and energize exceptional students, faculty, and staff, and provide them with the resources they need to push the limits of their abilities and aspirations. Whether and how the University can achieve these goals will depend not only on Princeton's own determinations and commitments, but on a broad array of external factors that will shape the institution and the environment in which it operates. A fundamental challenge is to anticipate and understand these factors as well as possible – and to accept the inevitability and even desirability of change – even as we recognize that our ability to foresee the future will always be imperfect, that new factors will emerge over time, and that the factors we do identify will themselves always be subject to change.

Harold T. Shapiro

FIGURES

Figures