

THOUGHTS ON THE

AMERICAN UNIVERSITY

AT THE DAWN OF THE THIRD MILLENNIUM

Frank H. T. Rhodes

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I am happy to have this opportunity to pay tribute to Dale Corson for the extraordinary leadership he has provided for Cornell, and to all sectors of higher education, over so many years. The health of higher education today rests squarely on the efforts of those who have loved learning, advanced its borders, and defended it well. And in each of those activities Dale Corson has made a notable contribution as teacher, as scholar and as advocate for all that is best in the life of learning. Father Theodore Hesburgh, president emeritus of Notre Dame, once remarked that the greatest service a president can provide to his university is the example of his own life. Cornell stands permanently indebted to Dale Corson for the outstanding example of his own life. Dale, I salute you, congratulate you and thank you.

The end of century, and even more the end of the millennium, is a time when we are showered with lists: the ten most wealthy people, the ten most influential individuals, the ten best songs, the ten most decisive battles, the ten most significant inventions, the ten most popular movies, the ten best books, or even the ten worst books. All of us, I suppose, could suggest candidates for each of these. But I want to suggest a strong candidate for the list of the ten most significant inventions of the millennium. I believe, by any reasonable standard, the university should be at, or near, the top of any such list

Why is the university the most significant creation of the second millennium? After all, other social institutions have been more inclusive in their membership: the nation state and the city, for example. Other communities have been more homogeneous and exercised more direct influence upon their members: the Communist party, for example. Other inventions have produced more immediate impact: the internal combustion engine and antibiotics, for example. And still other means of learning and communication have reached a larger audience more directly and less expensively: printing, broadcasting and the internet, for example.

But, the university, while it is an institution, a community, a cradle of invention, a means of learning and a source of communication, combines and compounds the influence of each of these in uniquely powerful fashion.

From modest beginnings, over nine hundred years ago, it has become the quiet but decisive catalyst in modern society, promoting neither political action nor government policy, but providing the knowledge and data on which both are developed; manufacturing no products, but creating the science and technology on which those products depend; producing no newspapers, magazines or TV programs, but training their publishers, writers and producers; informing public understanding, cultivating public taste and contributing to the nation's well-being as it nurtures, and trains each new generation of architects, artists, business leaders, engineers, farmers, lawyers, physicians, poets, scientists, social workers and teachers -- as well as a steady succession of advocates, dreamers, doers, drop-outs, parents, politicians, preachers, prophets, social reformers, visionaries and volunteers -- who leaven, nudge and shape the course of public life. No longer an ivory tower, the university, while it strives to retain its independence and impartiality, runs demonstrations of agricultural projects in the desert, grapples with the social problems of the inner city, develops alternative energy sources, provides the most sophisticated health care, monitors natural hazards, shelters and informs the debate on every vexing issue of public life, provides most of the basic scientific and biomedical research on which our future well-being depends

and, in the United States, educates half the rising population directly and all the rest of us indirectly. Cherishing the independence and autonomy society has granted, the university has, for nine long centuries, been a place of "full and fair enquiry, bringing wisdom to bear in human affairs," as John Masefield once described it.

The university as we know it is the product of the second millennium. It is one of the few institutions that spans almost the whole of the millennium itself. The University of Bologna was founded in the 11th century; others followed soon afterwards.¹ Although many universities are of much more recent origin, the university, as an institution, is a creation of the early years of the second millennium. The university is one of the most distinctive institutions of the second millennium, with a nature, membership, responsibility and autonomy that make it unique.

It is also, as Clark Kerr has reminded us, one of the most durable institutions of the millennium: "About eight-five institutions in the Western World established by 1520 still exist in recognizable forms, with similar functions and with unbroken histories, including the Catholic church, the Parliaments of the Isle of Man, of Iceland, and of Great Britain, several Swiss cantons, and seventy universities. Kings that rule, feudal lords with vassals, and guilds with monopolies are all gone. These seventy universities, however, are still in the same locations with some of the same buildings,

with professors and students doing much the same things, and with governance carried on in much the same way.”²

The original purpose of the university was to conserve and transmit the learning and skills of church , by which most were founded and accredited. Their membership included chiefly ordinands and those who were to serve in offices for which the church held a special responsibility, such as law and medicine.

Growing secularization of the universities in the 19th century saw not only changes in financing and governance, but also change in mission. The curriculum was expanded and professionalized. In the United States, the Morrill Act of 1862 gave great impetus to this movement, while research and public service were increasingly seen as the responsibilities of the university.

Until the 19th century, the universities had little impact upon the professions, modest impact upon their surrounding societies, and made little contribution to the general corpus of knowledge and invention. But in a mere century, all that has been transformed.

- Universities have become the essential gateway to and foundation of every major profession. They have expanded and improved training in what were once non-professional occupations, from interior design, library science and business to nutrition, agriculture and journalism.

- Universities have become the primary agents for basic research in this country and they are having a growing impact upon applied research, in everything from medicine and bio-engineering, to computer science and communications.
- Universities have had a huge impact upon their regions, from Route 128 in Massachusetts, to the Research Triangle of North Carolina, to Silicon Valley. Employment, economic development, and almost every area of public life have been influenced by this growing impact.
- Universities have become major agents of social mobility, growing in their own inclusiveness, and providing the means for economic advancement for many previously denied access to traditional careers and opportunities.
- Universities have become significant providers of social services, beginning with model schools, but now embracing such things as tertiary care hospitals, health networks, legal services, technology parks, engineering research centers and athletic and other entertainment.

In this major accretion of tasks and this huge expansion of role, the university of 2000 bears only the most general resemblance to the university of 1900. The contemporary university has grown not only in size and number, but also in inclusiveness of knowledge, in variety, in complexity, in quality, in the inclusiveness of

its membership, and in its intellectual, professional and social role. Paradoxically, in spite of these major changes in responsibility, membership and complexity, the university has shown almost no change in its organization, management, and governance and only modest change in its teaching style. Indeed, the responses it has made to changing social needs have been only in part planned and only in part idealistic. In part they have also been opportunistic, sometimes reluctant and sometimes absentminded.

Some of the changes I have described above -- the function of preparation for professional careers, activity in basic research, role in social mobility -- are true of the universities in many parts of the world. In other respects, however, the American research university is a distinctive institution, whose 19th century history is one of gradual divergence from its European sister institutions.

The rise of the American research university reflects a pattern not seen elsewhere on anything approaching the same scale. In Europe, for example, at the close of the nineteenth century, a handful of universities -- Berlin, Cambridge, L'Ecole Polytechnique, Göttingen, Heidelberg, Oxford and the Sorbonne among them -- represented the standard towards which all other universities aspired. A listing of the world's top ten universities -- had there been one in those days -- would have included, at most, only one or two American institutions. A century later, such a list might have included two-thirds or more universities from the United States.

What were the distinctive factors that produced this transformation? Perhaps there were six or seven particular characteristics.

- First, institutional mission has played a significant role. Whether developed out of older colonial colleges -- Columbia, Harvard, Princeton, Yale -- or created by nineteenth century benefactors -- Chicago, Cornell, Duke, Hopkins, Stanford, Vanderbilt -- or established by states in response to public needs -- California, Illinois, Michigan, North Carolina, Virginia, Wisconsin -- all American research universities embraced a mission of research, undergraduate, graduate and professional education and many, especially the state universities, consciously adopted a wider role of public outreach and extension. This mixture of functions produces tensions -- research versus teaching being a frequent complaint -- but it also produces benefits of cross-fertilization and professional cooperation. The performing arts exist alongside law and medicine. Philosophy and public health share a common home with economics and environmental engineering. All disciplines and all students are swept up in the atmosphere of inquiry and discovery that pervades the campus. All this has been developed around the core of a college of arts and sciences, a legacy of both the colonial college and the need to educate large numbers of undergraduates, coming from a variety of pre-college backgrounds. This widespread membership of the undergraduate student body, representing a rapidly growing proportion of the traditional college-age group, distinguished the American university from its more selective and elite European counterpart until the last few decades.
- Second, the sponsorship of American research universities is distinctive. There is no one sponsor, no overseeing ministry, no national plan or government

regulation. Decentralized, feistily independent, uncoordinated, pluralistic, American universities have been opportunistic, adaptive, creative and responsive to new opportunities. The pattern of state control and centralized funding, so typical of most European universities, is here replaced by 50 states, each with distinctive goals and needs, and scores of independent institutions, each with its own goals and traditions. While internally American universities -- whether public or private -- tended to assume a broadly similar functional organization, their independence from central government planning and control gave them a vigor that proved more elusive in the regulated European institutions, where faculty members are often civil servants and where central government control extends not only to management of institutional enrollment and programs, but also to regulation, budgeting and evaluation of individual academic departments. It is ironic that, whereas the older universities in Europe -- including the great civic universities of the nineteenth and earlier twentieth century -- were privately founded by religious orders, individuals, cities and other communities, they were later effectively nationalized into a national system of higher education, rigidly planned, budgeted and controlled by a central ministry. Even in those countries, such as Germany and Switzerland, where local states - *landes* - supported universities, they did so within the context of a well-defined national plan.

In contrast, the great state universities of the United States, have tended to become more diversified over time, with each state supporting a distinctive range and style of institutions, many of which have gained a substantial degree of autonomy. Unlike the planned “command” educational systems of Europe and elsewhere, the

unplanned, opportunistic, pluralistic “system” of the United States has proved adaptable, flexible and remarkably successful.

- Third, the governance of American universities has been distinctive. The typical board of the colonial college, made up of independent “gentry,” developed into the lay board of trustees of the private university, whose independence became a model for the generally less independent, politically appointed or elected board of regents of the public universities. The latter boards, though of variable quality, have tended to have far more authority and autonomy than the typical boards of universities in other lands. Because the board of American institutions had a major role in justifying, obtaining and providing funding for their individual universities -- as opposed to dispensing what was provided from a remote central government ministry - - their identification with the aspirations and success of their universities was immediate and strong. This has led to a degree of inter-institutional competition unknown elsewhere, which, though it has its liabilities, has been a force for good. In this, the great private universities -- the Ivy League, Stanford, Chicago, CalTech, MIT and others -- have been pacesetters not only for the independents, but also for most of the public. It is not that private universities were unknown in other nations, but rather that their limited number and particular role (often specialized professional -- as in France, the U.K., Germany, and Sweden, for example -- or serving particular religious, or ethnic communities, or devoted to expanded undergraduate education -- as in Japan, Brazil and Venezuela, for example) have made them much less influential.
- Fourth, the leadership of American higher education has had a strong influence on its development. Though many would argue that there has been a decline in the

influence of presidential leadership since the giants of the late nineteenth and earlier twentieth century, still the power of the American university president, however exercised, has typically been substantially greater than that of his or her counterpart rector, vice chancellor, principal, or president elsewhere. Imaginatively exercised, supported by a strong faculty and a committed board, presidents have shaped and nurtured their institutions to a remarkable degree. Andrew Dickson White at Cornell, Charles Eliot at Harvard, Daniel Coit Gillman at Johns Hopkins, David Starr Jordan at Stanford, and many others, seized the responsibility entrusted to them and led their universities to greatness.

- Fifth, the American university remains an organizational enigma, whose loosely coupled structure and collegially-based organization defy the established canons of management. But the very flexibility of the internal organization of the American university has nurtured its entrepreneurial spirit. The basic unit of organization -- the department -- is not, as in some other countries, the domain of a single professor, presiding over it, sometimes with a heavy hand, for an indefinite and often prolonged period, but an alliance of more or less equal colleagues, democratic in spirit, if not always in fact. The elected chair, the first among equals, serves for a specified term -- often three or five years -- renewable by agreement. This system, while it has imperfections -- lack of continuity and lack of strong leadership -- has major benefits in its lack of rigidity and in the entrepreneurial opportunities it provides for all its members.

So, too, does the academic career ladder, where a full professorship can be the career aspiration of not one, but of most faculty members of a department. The

incentive to continued striving provided by this structure contrasts sharply with the more restricted career opportunities of the traditional academic hierarchy in other countries.

While the department chair in the American university has been relatively weaker than his or her opposite number in other countries, the office of dean has typically been relatively stronger, representing a substantial level of administrative and financial independence and academic responsibility. This, too, has fostered a sense of entrepreneurial initiative and scholarly creativity. Behind much of the success of the American university lies the steady leadership and vision of generations of deans who have nudged the aspirations and nurtured the creativity of their colleagues.

- Sixth, the size of most American research universities has been a positive factor in allowing a critical mass of faculty in those areas, especially the sciences and science-based professions, where scale and teamwork are critical to success in research. While less important in the arts or humanities, the larger size of the science-based faculty allows a degree of specialization and cooperation which have major benefits in research. This does not mean, of course, that a physics department of 60 faculty members is necessarily superior to one of 30, but there are few eminent small departments.

- Seventh, the pattern of federal support for research has been critical to the success of the American research university. A variety of federal agencies -- the National Institutes of Health, the National Science Foundation, the Department of Defense, the Department of Agriculture, the Department of Commerce, among them -- have offered financial support at growing levels, aimed at varying national needs, from

national defense to health care, from environmental conservation and agricultural productivity to regional economic development. Almost all this support has been based on proposals designed by the professor-investigator, rather than being contract work, designed by the sponsoring agency, and it has been awarded on the basis of the merit of the proposals submitted, with awards screened and largely determined by independent panels of expert peers. This pattern, first established by Vannevar Bush more than half-a-century ago, has returned an incalculable dividend on the nation's investment in research.

In other nations, much of this type of research would have been performed in national institutes or academies, having little linkage to universities.

- Eighth, none of this would have been possible without an unabashed competitive spirit and entrepreneurial attitude within the university. The great private universities, with their long traditions of strong alumni financial support, the openness to industrial and state partnerships pioneered by the leading land-grant universities, and the existence of charitable foundations, willing to share in the research enterprise in everything from multimillion-dollar telescope systems to inner city poverty and drug abuse, have represented an extraordinary degree of support and opportunity for the American university.

These factors, taken collectively, have shaped the history of the American university over the last century. It would be rash, of course, to suppose that any one factor has been decisive -- quite different patterns of organization and oversight, for example, have been used by the various states in their support of the great flagship public universities -- but collectively these features have defined the characteristics of

the most successful universities. Unplanned, opportunistic, well-governed, well-led, as conservative in some respects as it has been entrepreneurial in others, the research university is one of the great success stories of America's 20th century history.

So how does the American research university stand at the gateway to the 21st century? Is the model that we have developed adequate for the challenges of the years ahead? Of course, we cannot know, any more than an audience gathered to discuss the same topic in 1899 could have foreseen the staggering changes that were to lie ahead during the years of the 20th century. In 1900, for example, only 4% of the college-age population were enrolled in college. At the close of the 20th century, the figure is about 43%. In 1900, relatively few women, and almost no members of underrepresented minority, ethnic and low-income groups, attended college. Today the campus has been transformed by the participation of all these groups, and society is the richer for it. In 1900, the universities were storehouses of knowledge, but by and large, they made only a modest contribution to the growth in knowledge itself. All that has changed, as America's universities are the dynamo that drives the knowledge explosion. Nowhere is that more clearly seen than in the remarkable growth of science and technology with all the benefits that provides from medicine to communications.

In 1900, America's universities were only loosely associated with preparation for the professions. Medicine existed largely outside the universities and law was a

recent arrival on most campuses. Now the universities are the unique pathway, not only to the older professions, but also to a host of new professions, developed from knowledge the universities have created.

In 1900, the economic impact of the universities was very localized, arising chiefly from the demand for accommodation and services by the academic population. Since then, universities have become economic catalysts, not only to their immediate communities, but in a wider region. A Bank of Boston report, for example, noted that MIT faculty and graduates have created no fewer than 4,000 high tech companies that provide 1.1 million jobs. These companies have annual global sales of over \$232 billion. If they and their profits were regarded as a national economy, they would rank 23rd in the world.³

All those changes, each remarkable in its impact, have taken place in the space of a century within institutions that must have looked, at the turn of the 19th century, as stable and secure in their ways, as do our universities today. In fact, the optimism of American higher education is well illustrated by the 1997 annual report from the American Council on Education, whose president, Dr. Stanley Ikenberry, introduced the report with the comment, "American higher education is at the top of its game."

The shorter-term changes to which universities must respond are already clear, though their particular impact is far from clear. The first change involves knowledge itself, the commodity around which every university exists. Knowledge is the new

economic currency, the new national capital. Every nation's well-being has depended in the past on its natural resources -- its mineral deposits, topography, climate, population, communications, and so forth. These will still be important, but the most important element will be knowledge.

Now knowledge is not like other natural resources. It is undepleted by its use. It multiplies, even as it is shared and applied. Even as it is challenged and tested and questioned, it is refined and increased. But knowledge is not a resource we simply stumble upon. It is not something we pluck out of the air. Knowledge is created. It is coaxed into existence by thoughtful, creative people. It is not a free good. It comes only to the prepared mind. And that is why colleges and universities are crucial in the new economically competitive world.

So far, so good. But four more trends impinge upon that. And the first is information technology. How do we measure the effect of information technology? It is a major new opportunity for our institutions because it provides completely new access and new approaches in the dissemination and application of knowledge. Yet it is also a major new threat because having created it we have been slow to employ and modify it.

Information technology will transform the traditional pattern of learning because the old pattern pursued knowledge and a degree as the goal. The new pattern seeks competencies and skills as things to be transmitted. The old pattern was site-based --

one campus, one place. The new pattern is unconstrained. Any person, any study, any time, any place. The old pattern was a standardized curriculum, with limited choice. The new pattern is an individualized program with unlimited choice.

The old pattern involved a fixed calendar. The new pattern is infinitely flexible. The old pattern was faculty centered, faculty presented. The new pattern is student centered, student discovered. The old pattern was cost intensive. The new pattern is cost effective. The old pattern involved purchasing the whole package, a four-year degree. The new pattern involves cherry picking, on time, as needed, as required, disarticulated.

The effect of all this? We still don't know. But we need to take the initiative, rather than drift, by indecision, into a future not of our own making.

There is another trend that may be even more disturbing for some institutions: Our monopoly of higher education is about to end. We are about to become a deregulated industry, with all the turmoil that has produced for other industries. As long as learning depended on a fixed base and fixed resources, and as long as it depended on libraries, labs, lecture rooms, and professors who were the resident authorities, we had a monopoly. We are self-accrediting, and we have done a good job, on the whole. But we also are self-credentialing in terms of those we graduate. This is about to change.

The University of Phoenix is also accredited to award degrees. It is one of five for-profit institutions quoted on the NASDAQ. Last year, it enrolled 60,000 students, and its profits -- *its profits* -- were \$33 million in 1997. Its price-to-earnings ratio is 50, which makes it a glamour stock. And there are others.

The group of for-profit universities is dwarfed, however, by distance education. Eleven different nations have distance-learning universities with more than 100,000 students. In Turkey, for example, Anadolu University has 530,000 students, and the cost of instruction for those students is one-tenth of the cost of instruction at conventional universities. And lest we immediately aver that the quality of those programs is inferior, a recent student ranked Britain's Open University -- which has 157,000 students and operates at 50 percent of the cost of traditional campuses -- tenth out of 77 traditional universities in the quality of its programs.

And in all this, our own colleges and universities are rushing to join Cyber League, rather than Ivy League, schools. From 1993 to 1997, the number of cyber schools grew from 93 to 762. And students enrolled now total around a million, compared with 15 million in traditional higher education.

On these trends will be imposed another, which is a continuing change in the demography of both the national population and the population enrolled in higher education. The number of students is expected to grow from about 15 million today to at least 16.1 million in 2005. The largest growth is expected to be in the southeast

and in the western states, and there will also be relatively strong growth among older students. An increasing number of entering students will probably require some degree of remedial assistance in order to succeed. And the relative number of students involved as full-time, residential, traditional-aged students will probably decline as off-campus learning and part-time enrollment become more popular.

The final change is one that concerns funding of higher education and is closely related to the question of the end of the monopoly long enjoyed by universities. As public funding for higher education continues to decline as a share of overall public expenditures, creative new partnerships will be required to finance the costs of higher education. Partnerships, strategic alliances, takeovers and mergers are likely to disturb the tranquil world of higher education.

Viewing these challenges, several thoughtful observers of higher education conclude that there are speedbumps in the road ahead, arguing that the success story of the late 1990s, is about to come to a sharp and unhappy conclusion.

- Peter Drucker, respected observer and dean of management leaders, has observed: “Thirty years from now the big university campuses will be relics. Universities won’t survive. It’s as large a change as when we got the first printed book.”⁴

- And the voices from within, closer to the business of higher education, contain equally bleak predictions. Eli Noam, professor of economics and finance at Columbia University, in a recent paper in *Science* entitled “Electronics and the Dim Future of the University,” argues that the new wave of electronic development will do to the universities what the development of printing did to medieval cathedrals; it will remove from them the monopoly they had on the dissemination of information. And he asks, “Have we reached the end of the line for a model that goes back to Nineveh, more than 2,500 years ago?”⁵
- Or listen to the late Bill Readings, associate professor of comparative literature at the University of Montreal, in a book published two years ago by Harvard University Press, “We have to recognize that the university is a ruined institution, while thinking what it means to dwell in those ruins without romantic nostalgia.”⁶

So at the close of the millennium we find two contrasting views of the future of the research university. One view, held by knowledgeable observers, argues that the university has never been stronger, that it is “at the top of its game,” and that its prospects are bright. The other view, held by equally informed observers, is that wrenching changes are about to take place. Which of these two views represents reality? Only time will tell, but I believe that the success of the university in the coming years will depend to a large extent on how it deals with six pressing issues that now confront it. Curiously enough, these issues involve some of the very factors that have made the university so remarkably effective in the 20th century. The paradox of this

situation is that qualities that had been a source of institutional strength may, under the changed conditions of the 21st century, become a liability unless we take thoughtful steps to address them. Let me illustrate what I mean by addressing what I see as six of the most pressing issues.

1. Mission, role and function of the university.

I have argued above that the mission that universities inherited at the dawn of the 20th century has played a significant role in their success. But the pattern of the 20th century development of many universities, both old and new, has been a trend towards increasing uniformity. I have elsewhere referred to this as the Harvardization of the campus, by which I mean that universities, beginning from strikingly different origins and originally serving very different purposes, have uncritically accepted the notion that the pathway to success lay in emulating the leading universities of the nation, partly in the comprehensive range of programs offered and partly in the insistence that the award of the doctoral degree in every field was essential to be worthy of the designation of university. In contrast to this, I believe that success in the 21st century will go to those institutions that define their particular mission in more distinctive and direct ways than has been the case in the past. Many in higher education are cynical of mission and value statements, perhaps justifiably, for many read as bland and self-serving. But that skepticism may also reflect an uneasiness in attempting to pin down the precise purpose and function of an individual institution, as opposed to the more generic role of the university. Yet with every industrialized

country now seeking to expand its educational programs, it becomes less and less credible for individual institutions simply to offer generic identities. In the future, the institutions that prosper will be those which have embraced a more specific role and a more restricted niche.

To talk in specific terms about role and function of a university is to make a statement of priorities. Just as no institution can possibly teach all languages and all literatures, so no institution, even the most wealthy, can now offer programs of the highest quality in every major area of learning. It is this very selectivity and differentiation, however, against which many academics rebel. Perhaps the most urgent and the most difficult task of both board members and rector/presidents is to identify, in appropriately refined terms, the mission, role and functions of their institutions. This will involve a responsible blend of vision and hard-headed realism, as well as patient negotiation and difficult choices, but only by making choices in this way can universities continue as strong and vigorous institutions, capable of seizing new opportunities, developing promising areas and effectively serving their communities.

2. The residential campus.

_____The typical pattern of the 20th century development of colleges and universities has been the growth -- explosive in the last three decades -- of the fixed-base campus. It is already clear, however, that trends now in place will make learning beyond the

bounds of the campus(off-campus learning) a far more important feature of all aspects of education than it has been in the past. The walls of the campus are becoming increasingly porous and much of the instruction provided by the campus will take place at a distance. This raises in direct form the question of the future role of the residential campus in the overall pattern of higher education.

No discussion of the residential experience as a method of learning can ignore the burgeoning fact of information technology upon every aspect of life. Yet strangely, the process of learning remains only marginally influenced by the extraordinary power of information technology, perhaps because those who are our students enjoy much greater skills and imaginative capacities than those who are their teachers.

Given the explosive growth of knowledge, to which the universities have themselves made substantial contributions, and our increasing dependence on it, we have to ask whether the existing traditional patterns of learning are adequate for the needs of the changing world. Not only is knowledge itself increasing at an ever expanding rate, but new methods of learning and new means of delivery are themselves undergoing rapid development. In contrast to this, the leading universities still employ what is essentially a medieval residential system in which youthful students are instructed by tutors and lecturers in a broad range of subjects judged to be appropriate for a baccalaureate degree.

This traditional structure has been supplemented over the years by other means of study, including especially post-graduate and professional schools, internships and other similar programs, part-time, sandwich and extra-mural arrangements, continuing professional education, both formal and informal, and most recently a major expansion in distance-learning.

Unexamined among the burgeoning numbers who still participate in traditional educational schemes is the question of whether or not the format, contents and nature of a baccalaureate degree, and especially of a traditional residential experience, remain appropriate to the needs of the new millennium. In some countries, such as the U.K. for example, there has been implicit recognition that it does not, where degrees which formerly occupied three years of full-time student attendance, now typically require four. Such change, though significant, is scarcely radical and it remains easier to continue the present pattern and style than it is to challenge and modify it.

Yet our net investment in the traditional campus-based residential baccalaureate experience is enormous, and is made even more so in the United States by the professional requirement that those aspiring to practice in fields such as medicine and law should receive virtually no professional instruction in those areas until they have completed a non-professional, though frequently pre-medical , or pre-legal, baccalaureate degree.

What is surprising here is the lack of any debate, either professional, national, or institutional, as to whether these ancient arrangements continue to serve society well. Nor is it clear who should address that question, for it may be argued that the universities themselves are ill-equipped to provide an impartial review and recommendation. Yet few are as well equipped as universities to address these issues, even if the ultimate decisions do not rest in their hands. With increasing demands from the higher education community for a greater investment in plant, equipment and capital needs, such a review seems both timely and important.

At another level, other questions remain unaddressed. In spite of the volume of research produced by the university, little attention has been paid to the cognitive process and to the effectiveness of various teaching methods. Nor is there any serious study of the value added to the educational experience by its residential component, together with the large and costly range of services typically associated with it. A critic might argue that unless universities can demonstrate significant value-added to the educational experience from the residential style, one should examine other alternative arrangements.

Even to raise these questions will be seen by some as an unfriendly act, but universities, if they are to prosper, need themselves to address these issues and to lead both the debate which they would generate and the reforms which may arise from such reviews.

3. Information technology.

_____ Research universities are awash with information technology. Some would claim that they invented it. Certainly, they have made major contributions to its development. They use it on a massive scale, not only in the mundane world of purchasing and record-keeping, but also in research and scholarship of all kinds. Furthermore, it has revolutionized practice in fields as different as medicine, law and architecture, as well as being the basis for huge improvements in information storage and retrieval systems.

How universities collectively and individually respond to the challenges and opportunities of information technology will do much to shape the future. This technology has the capacity, even in its present form, to provide vast increases in access, to provide improved quality, to create new partnerships, to reduce costs, and thus to increase the capacity of the university to serve its several audiences. The world's cyber universities are growing rapidly and some appear impressively effective.

I believe no institution is immune to either the competitive effects or the educational benefits of information technology. How it will be used will vary from institution to institution and in that variety will lie the seeds for future success. It is doubtful if any institution can go it alone as far as the development of off-site learning is concerned. But, just as books have expanded the capacity of a leading author to reach a wider audience, so in time must well-crafted video lectures by the world's leading authorities displace the one-time performances on local campuses, with those

who had formerly served a lecturers, now serving as coaches, mentors and guides to the new learning experience. This will threaten both traditional university practices and also, perhaps, the role of the professor, but it may represent one way of making a significant reduction in costs, while at the same time allowing improvement in quality. Many questions will be involved if such a practice develops. How, for example, will questions of intellectual property be resolved? Who should produce teaching materials? Should we follow the practice of books, where independent publishers contract with the professor, or will the contract be with the university, who will then invite particular members of its faculty to contribute, or will both systems exist side-by-side? What about questions of copyright and royalties? How will credit be determined? What kinds of business partnerships and alliances will this involve? To what extent will institutional autonomy and academic freedom be influenced by any such arrangements? These and related questions are now pressing and deserve serious attention.

4. Patterns and limits of outreach.

_____ Since their earliest days, Americas' universities have accepted responsibility for a measure of public outreach. Nowhere is this more fully developed than in the Land-Grant universities, whose record of success in this area has been extraordinary and whose influence continues to be of major significance in regional economic development and societal wellbeing. As the importance and impact of knowledge increases, more and more demands are made upon both the expertise and the purse

of universities -- public and private -- to address issues of community concern. These requests range from research and professional service, to investment in community development. Increasingly, universities are seen, not only as agents of economic growth, but as sources of community renewal. What is unaddressed in these increasing demands is the larger question of coincidence between such outreach and the core responsibilities and obligations of the universities to its own members. Ideally, each would complement the other, but in practice, the total costs of outreach are rarely recovered by those providing support, and frequently the university covers part of these ventures out of its own resources. Where universities choose to do this, there is clearly no problem, but the difficult question involves the extent to which the university facilities, faculty, student time and administrative attention can satisfy the needs and demands of the local community. It would be particularly helpful to have a thoughtful review of the guidelines and benchmarks which representative institutions have developed in this important activity.

A related area concerns partnerships, for increasingly such outreach and public service involves partnerships with government agencies, corporations, foundations and private individuals, some of which require new protocols and procedures if they are to be successful. These partnerships may range from cooperation in field tests of new crops or clinical tests of new pharmaceutical products, to public health programs, community services or environmental projects.

The issues involved in these partnerships involve far more than the financial arrangements by which they are supported. They also involve questions of ethical norms and values, institutional autonomy and accountability, and the interests of both the public and of students, especially graduate students, who may be active participants in the programs.

Here again there is little to guide individual institutions as the number of these partnerships proliferates. A task force identifying best practices and dealing with codes of practice would be of substantial value.

5. Organization, governance, leadership and management.

_____ The pattern of university organization has remained essentially unchanged for the last century. But during that period the university has experienced explosive growth in numbers, size and complexity, and the significance and impact of its work has multiplied.

Governance and management need to be reviewed at at least four distinct levels:

- The Department. Does the traditional unit of university organization -- the department -- still represent the most appropriate organizational unit? Departments arose in the late 19th and early 20th centuries to represent the disciplines for which

they were named. These disciplines, in turn, reflected the division of the curriculum. We need to ask whether intellectually, pedagogically, and administratively, the division of a university into departments -- the traditional focus of tenure decisions, curricular design and student supervision -- still seems appropriate.

Intellectually much has changed since the turn of the century. What were pursued then, largely as pure disciplines, are still so pursued, though in most cases the disciplines have become more professionalized and, in some cases, practical application has influenced their development. But increasingly, intellectual interests span a variety of disciplines. Cultural, linguistic, sociological, political, historical and other studies within the humanities and social sciences are less and less frequently confined to a single discipline. Increasingly, such studies have become multi-disciplinary in their approach and sometimes in their authorship. Nor do the problems of society come in neat disciplinary packages. The traditional disciplines are therefore not wholly appropriate in terms of intellectual categories. Furthermore, they sometimes tend to weaken interest in interdisciplinary and multidisciplinary approaches, particularly when appointments and tenure are held only in traditional departments.

The transitory nature of disciplines is reflected in changes which have taken place in disciplines, and thus in departments themselves. Disciplines that were once apparently well-established -- geography for example -- are now less widely recognized and less highly regarded and geography departments have been closed

in many universities. Other disciplines are now fragmented into a host of sub-fields and specialties, which may enjoy little common discourse. The typical discipline of “English” is such an example. Within the sciences, new disciplines have developed and evolved, including such things as biochemistry, computer science, neuroscience, and others. The emergence of new disciplines is often cumulative, rather than substitutionary. Thus geophysics does not obviate the need to continue to teach both geology and physics, its parent disciplines.

If one asks whether pedagogically the department still “makes sense,” the answer is far from clear. Departments were established when the curriculum was relatively fixed, involving a dozen or so disciplinary courses. The departments at that time had very strong influence, not only upon the development of the curriculum, but also in their responsibility for its implementation and representation. Furthermore, they provided nurture and evaluation to students, who found in them a congenial home. The influence of departments in both these areas is now much less significant than it once was. Courses have proliferated. Department offerings have fragmented. Interdisciplinary courses abound. The oversight of the curriculum is in limbo.

Administratively, the department has been the foundation of the organization of the university, but, as the disciplines have developed, some departments have shrunk in size, being now represented by only three or four faculty members, while others -- such as English and psychology -- may number 100 or more faculty members in some of the larger universities. Added to this, the once strong role of department head has

now been replaced by department chair, and the individual appointed to this position often has little influence upon the imaginative development of the department or the creation of constructive linkages with other departments.

Taking these three aspects of the life of a typical department, its intellectual contribution, its pedagogic contribution and its administrative contribution, it is tempting to say that there must be a better method of coordination and management within the university. Unfortunately, that is far from clear. Though it is easy to suggest that the smallest departments should be merged into larger units, it is not clear that any alternative method is superior to the departmental organization we now have, even with all its admitted imperfections. The question may well become how do we take an imperfect organization -- the department -- and improve it? I believe that the two essential steps in bringing about improvement are to strengthen the leadership of the departmental chair and to provide periodic internal review, supplemented by external review, as appropriate, of the life and work of the department. In this way, one could retain the benefits of the department, but improve some of its present limitations.

- The college or school. Universities, since their earliest days, have been created on the basis of the college or school, known in many European universities as the faculty. The characteristic feature of this grouping is that it represents a collection of departments united by broadly common intellectual interests and methods. One finds typically, therefore, a college of engineering or a school of medicine or a faculty of law. A traditional college is headed by a dean who, in the better universities, has

substantial administrative and financial responsibility. In most cases, the dean is assisted by a small administrative staff and an appropriate advisory council. Perhaps the greatest variation in this traditional pattern of organization is found within the humanities, arts, social sciences and sciences. When I was dean at the University of Michigan, I presided over a college whose title was Literature, Science and the Arts; this was a mammoth grouping of some 50 departments, museums, colleges and institutes that, at that time, accounted for some 20,000 students. In many North American universities, this association still continues, with the arts, the social sciences and the sciences all unified under a single administrative leadership. In Europe, on the other hand, as well as in some North American universities, the three major divisions have been separated as individual colleges. In still other cases, particular groups of subjects, the earth sciences or the biological sciences, for example, have been separated as separate schools or faculties. The reason for the separation of what had once been combined extensive colleges is the unceasing intellectual growth in some areas, not least in the sciences. In universities where separation has taken place, it is argued that there is now little in common between, say, the sciences and the humanities. In those where an association is still continued within a single college, it is argued that the demands of liberal education favor the retention of the older association. There is no simple solution to this enigma, but the academic style, curricular direction, size and administrative complexity of the university will determine the most appropriate organization.

In general, collegiate structure is still remarkably effective, both intellectually and administratively, not least where a strong dean is present with a well-developed sense of intellectual purpose and direction. I believe it has proved effective largely because the colleges still define common intellectual interests and therefore are able to appeal to common standards and norms. Colleges have prospered when their deans have been willing to exercise authority in a way that current department chairs have generally not. What is needed here is for the deans to require of their chairpersons the same kind of financial responsibility and initiative that they themselves display.

Perhaps the other reason for the success for this division within the university is the fact that deans are generally carefully selected and well supported, occupying their positions for a significant period and regarding their appointment to these positions as a significant career move.

Could the present collegiate system be improved? Certainly it could benefit from better strategic planning, from better cross-college linkages, with appropriate incentives for partnerships in the attainment of university-wide goals and in the advice of a standing visiting committee from outside the college itself. None of these improvements would be revolutionary, but they would take what is now one of the strongest aspects of university organization and make it even better.

- The president. The president, rector, chancellor, or vice chancellor occupies an ancient office, the power of which varies greatly from country to country and even from institution to institution. In general, presidents, chancellors and vice chancellors in North America enjoy more autonomy than those in other parts of the world, in part, perhaps, because, unlike those in many industrialized countries, their universities are not wholly dependent upon the state for both financial support and direction. The presence of large numbers of independent universities in the United States makes the role of the president distinct.

I have recently written at some length on the art of the presidency,⁷ and there is also available a recently published report on renewing the academic presidency.⁸ That report urges the delegation of more substantial authority to the president and I believe that, if universities are to prosper in the new millennium, that will prove desirable.

- Board of trustees, board of regents, board of overseers. In contrast to all the organizational categories and responsibilities described above, the board exercises a governance function, rather than one of management. In essence, it exists to provide public accountability, public oversight and public support for the institution. It may be of several types. Some boards are statewide in their authority, overseeing the work of as many as 50 different institutions within a state, representing many levels of individual responsibility and intellectual and professional concern. Other boards have responsibility for only a single university. In public colleges and universities, board members may be appointed by the governor or, in a few cases, elected in statewide

elections. In private universities they are invariably self-appointed, often including substantial representation from the alumni association.

In general, the concept of board governance and responsibility has proved remarkably resilient and successful. Given the public responsibility of the universities and its growth beyond that of providing higher education, the function of the board is likely to grow more, rather than less, critical in the years ahead. This is not to say, however, the system has been without its problems. Boards of public institutions have, on occasion, become politicized and intrusive. The boards of some private institutions are so preoccupied by the fund raising that they have become largely symbolic rather than being actively involved in governance. In practice, much of the work of the large boards characteristic of private institutions is done through board committees. Perhaps the two greatest hazards of any board are the dangers of too much engagement, on the one hand, leading to intrusive micro-management, especially in athletics and in the medical school, and, on the other, of disengagement from the major issues, where board meetings become show-and-tell events, in which senior university administrators present a fairly cut-and-dried agenda, leaving little room for enquiry or guidance on the part of the board. This places a heavy responsibility on the board chairman and the president to work together to insure the maximum effectiveness of the board. Creatively used, the board provides an effective system, not only for assuring public accountability and responsibility of the university, but also in serving as a bulwark against both internal usurpation of authority, and public intrusion or control. The delicate balance between institutional autonomy,

personal freedom and responsibility, and public support and oversight, is one that exists in a constant state of dynamic equilibrium. A wise board will recognize the delicacy of that equilibrium and will nurture the vitality of the various forces that contribute to it.⁹

6. The place of institutional values

The sixth and final challenge to all universities seems to me to be the most difficult. It is to retain the bedrock values on which the university was founded in an age when the institution itself is becoming corporatized, where the notion of individual instruction has given way to distance learning, and where so much of the work of the university lies beyond the walls of the conventional campus. The university as an institution has always been committed to the conviction that teaching is a moral vocation, that scholarship is a public trust, that public service is a societal obligation and that an independent and open community is the essential means to both learning and discovery. That community is now more fragmented than ever before and, although there are many loyal and able faculty members who regard information as a means whose end is knowledge and knowledge as a means whose purpose is understanding, they are not characteristic of all those who serve within our universities. In too many cases, knowledge is depersonalized, scholarship is self-referential and tolerance is confined largely to current orthodoxy. What is lost in this is the fact that we can have true community only to the extent that we are willing to

cherish the importance of the individual, and especially the individual student. The community, for all its methodological power, is after all made up of individuals.

More than a century ago John Henry Newman offered the antidote to the depersonalized university. “The university,” he declared, “is not a foundry, or a mint, or a treadmill . . . but an *alma mater*, knowing her children one-by-one.” One-by-one, person-by-person, student by student: that is the basis for educational success. It is also the basis of a free society, and the secret of a great university. Universities will remain great only to the extent they are great student universities, as well as great centers for individual learning, discovery and outreach.

This list of topics leaves unaddressed several of great importance, among them future financial support for universities and the future of the academic profession. But without broad agreement on the future role of higher education, there can be no agreement on sources of financial support. It is the debate on role, and the related discussions of scale and scope, which should drive the discussion of methods, means, and finance. That is a public discussion that deserves urgent attention, and it is the responsibility of the universities to ensure its place on the public agenda.

Universities are one of the glories of the past millennium, one of the treasures of human vision and creativity. Arising from humankind's highest aspirations, they have made a unique and growing contribution to enlarging human understanding and advancing the human condition. In a new millennium where population continues to

outstrip resources, where natural disaster compounds human mismanagement, where ancient animosities fuel new hatred and terror, where hunger, poverty and misuse still blight the lives of one quarter of our fellows, the challenge to universities will now be greater still. Their products -- experienced shared, considered and analyzed: knowledge created, refined and applied: and skills perfected, focussed and humanely used -- are the essential, but frail, tools by which we fashion our collective future well-being. These skills are not given. Each must be cultivated. None is free-standing. Each requires community. None is self-sustaining. Each depends on support.

It is these three vital commodities -- shared experience, demonstrable knowledge and humanely used skills -- which are the business of the university: at once both its means and its products. Our successors in the new millennium will look back on a planet and a people whose condition will largely reflect how responsibly, intelligently and humanely we, the members of the universities, have cultivated them today.

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