At a Slight Angle to the Universe: The University in a Digitized, Commercialized Age

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The Romanes Lecture for 2000
Delivered before the University of Oxford
on October 17, 2000

Produced and Printed by
Princeton University Press
Princeton, New Jersey

Published by Princeton University Press, 41 William Street,
Princeton, New Jersey 08540
In the United Kingdom: Princeton University Press
3 Market Place, Woodstock, Oxfordshire 0X20 1SY

This book has been composed in ITC Garamond by Princeton Editorial Associates, Inc., Scottsdale, Arizona, and Roosevelt, New Jersey

Printed on acid-free paper

www.pup.princeton.edu

Printed in the United States of America

1 2 3 4 5 6 7 8 9 10

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It would be a great privilege for anyone—and it is an especially great privilege for a sometime academic from across the sea—to give the Romanes Lecture. To be joined, in even a small way, to such a distinguished list of predecessors, going back to Gladstone and including many scholars whose writings I have long admired, is a most humbling experience. Adlai Stevenson once remarked that "flattery is all right—if you don't inhale" (a phrase since made memorable by another American with Oxford connections).

I am grateful to David H. Bayley, John D'Arms, Ira Fuchs, Sarah Levin, Pat McPherson, Thomas Nygren, Roger Schonfeld, James Shulman, Dennis Sullivan, Michele Warman, and Harriet Zuckerman for helpful comments and suggestions.

Definitions and Themes

The title I have chosen for this lecture, "At a Slight Angle to the Universe," is taken from E. M. Forster's description of the Greek poet Cavafy. I will return to the title at the end of the talk, when it will be clearer, I think, why I have chosen it. My purpose today is to consider the implications for the university of two powerful, intersecting forces: the revolution in information technology that is so pervasive (on which I will concentrate), and the associated, but distinct, increase in reliance on the market to solve problems of all kinds.

Let me begin by proposing working definitions of our key concepts that may help to clarify why "digitization" and "commercialization" are inevitably linked and why, together, they propel the university into a new world. It is useful to remember that, despite all the hyperbole, *things*, even in this new age, will continue to be *things*. As Professor Negroponte of MIT has put it, "If you make cashmere sweaters or Chinese food, it will be a long time before we can convert them to bits."[1] But universities are not known for their steamed dumplings. Rather, they have long been concerned with intangibles: ideas, concepts, and knowledge. Their "products" draw upon information and are packaged as information—which, unlike dumplings, can be broken down into the digital equivalent of atoms. When this is done, the life of the university changes in profound ways: students and faculty are now

[1]Nicholas Negroponte, *Being Digital* (New York: Alfred A. Knopf, 1995), p. 12.

surrounded by e-mail, Web sites, electronic archives, search engines, voice and image transmission, and the wonders of Internet2. So, for the purposes of this talk, I use "digitization" to mean the electronic assembling, disassembling, and transmitting of the basic elements of intellectual capital. These include words, sounds, pictures, and data. The ability to take these sources apart, send them easily over distances, and reconstruct them renders the walls around universities far more porous.

Once those walls are pierced in this way—that is to say, once both the basic materials and the fruits of the work of academic institutions are easily gathered and sent—the very currency of the university becomes dramatically more accessible, and these institutions find themselves drawn increasingly into the realm of commerce. New economic possibilities abound—especially in an age when the market is king and everything (or nearly everything) seems to have a price and to be for sale. As Thomas Friedman writes in his recent book on globalization, "Ideologically speaking, there is no more mint chocolate chip. There is no more strawberry swirl, and there is no more lemon-lime. Today there is only free-market vanilla. . . . In the end, if you want higher standards of living in a world without walls, the free market is the only alternative left."[2]

Innumerable manifestations of the broadening reach of market mechanisms are seen on many campuses, certainly in the United States. The universities themselves have become highly sophisticated in collecting large streams of revenue

[2]Thomas Friedman, *The Lexus and the Olive Tree* (London: HarperCollins, 1999), p. 86.

from the licensing of patent rights; faculty increasingly expect to be paid extra not only for developing patentable inventions but also for helping to create e-commerce "products"; many graduate students want to be regarded as paid employees and to affiliate with old-style industrial unions like the United Auto Workers; and students seem to require the promise of compensation (in such exotic forms as chances to win mountain bikes) to cooperate with survey research.[3] I suspect that it would be easy to add examples drawn from the United Kingdom.

By "commercialization," thought about in this context, I mean the changing way in which the wares of the academy are transferred from one person (or one entity) to another—not solely through interactions in cloistered realms devoted to the free exchange of ideas, but also in settings where ideas and information are bought and sold like wooly goats and port wine. "Commercialization," in this setting, has at least a mild connotation of impurity. The selling of autos is not regarded as "commercialization"; that transaction is, and always has been, "commercial." Places or products that are "commercialized" are those—at least to my ear—that have not always been subject to the dictates of the market and, some

[3]Karen W. Arenson, "Columbia Sets Pace in Profiting Off Research," *New York Times*, August 2, 2000, p. B1; and Dan Carnevale and Jeffrey R. Young, "Who Owns On-Line Courses? Colleges and Professors Start to Sort It Out," *Chronicle of Higher Education*, December 17, 1999, p. A45. See also Catherine R. Stimson's insightful article on the NYU graduate student situation ("A Dean's Skepticism about a Graduate-Student Union," *Chronicle of Higher Education*, May 5, 2000, online edition). Information on rewards necessary to elicit cooperation with survey research is taken from personal correspondence with Professor Michael Nettles of the University of Michigan. One alumni survey listed a trip to Paris as a prize.

would argue, ought not to be. Let us remember that there is a deep ambivalence in the relationship between the university and the market—there always has been and always will be. *Scientia gratia Scientiae* may be the mantra for certain individuals and for certain fields at certain times, but institutions that depend on external support have never been that pure. What digitization does is accelerate the possibilities and the pace of commercial trafficking. When both new techniques and digitized content can pass so easily through walls as beautiful as those around us, the possibilities for transforming *intellectual* capital into *capital* capital provoke a most challenging set of questions.

A principal theme of this lecture is that universities are not businesses (though they have many businesslike aspects). They are highly unusual institutions with missions and attributes unlike those of any other entity in either the for-profit or the not-for-profit world. Society depends on them to do much more than produce "products" at a fair price. In keeping with most other economists, I love the market (it is, as it were, "our baby"). But I also know the limits of markets as definers of values and allocators of resources, and one of my greatest concerns is that, either inadvertently or by design, universities will be so bemused by market opportunities that they will lose sight of, or downplay, their most essential purposes. These include educating students broadly so that they may lead productive lives in a civilized society; serving as engines of opportunity and social mobility; creating new knowledge of every kind, including work that either has no immediate

market value or may even threaten some commercial end;encouraging and protecting the thoughtful critic and the dissenting voice; and defending cultural, moral, and intellectual values that no one can "price" very well.

If these venerable institutions become too market-driven, and come to be regarded in too instrumental a way (by themselves as well as by others), they could lose the distinctive "angle to the universe" that they need to retain if they are to function at their best. This does not mean, however, that they can or should turn away from their new opportunities. The key, as I will argue throughout this lecture, is to define and defend the right "middle ground," even as we recognize that, as Isaiah Berlin said in an earlier Romanes Lecture, it is "a notoriously exposed, dangerous, and ungrateful position."[4]

The Growing Importance of the University— And Attendant Pressures on It to "Perform"

Before discussing both the opportunities and the dangers before us, let me pause and remind us, ever so briefly, of why we are playing for such high stakes in debating the role of the university in a digitized and commercialized age. I can be very brief because the basic points are so well understood. In essence, the revolution in information technology and the un-

[4]Isaiah Berlin, "Fathers and Children: Turgenev and the Liberal Predicament," Romanes Lecture, reprinted in three parts in the *New York Review of Books*, October 18, November 1, and November 15, 1973; quote appears in Part III, November 15, 1973, p. 9.

forgiving nature of today's international competition combine to enhance the value of well-functioning educational systems. Statesmen and politicians everywhere understand that individuals and countries that fall off the "learning curve" (or that operate below its higher reaches) will pay a steep price.

I need do no more than reference the substantial body of literature that documents the purely economic returns to investments in higher education.[5] It is easy to understand intuitively that human capital will be more highly valued in an information-intensive world than in a world dependent in greater degree on manual labor and inherited capital. Seen in this light, universities are perceived—correctly—as societal assets of immense value. They will be heavily responsible, for better or worse, for how well societies make material provision for their citizens.

[5]Such returns are reflected, albeit imperfectly, in pay differentials associated with different levels of educational attainment, calculations of private and societal returns, and estimates of the spillover benefits of investments in both education and research. Some of the major works in this field include Gary S. Becker, *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education,* 3rd ed. (Chicago: University of Chicago Press, 1993); Richard Brundell, Lorraine Dearden, Alissa Goodman, and Howard Reed, "Higher Education, Employment and Earnings in Britain" (London: Institute for Fiscal Studies, 1997); Edward F. Denison, *Accounting for United States Economic Growth, 1929–1969* (Washington, D.C.: Brookings Institution Press, 1974); Richard B. Freeman and Lawrence F. Katz, "Introduction and Summary," in *Differences and Changes in Wage Structure,* Richard B. Freeman and Lawrence F. Katz, eds. (Chicago: University of Chicago Press, 1995), pp. 1–24; Claudia Goldin and Lawrence F. Katz, "The Returns to Skill in the United States across the Twentieth Century," Working Paper 7126 (Cambridge, Mass.: National Bureau of Economic Research, 1999); Susan Harkness and Stephen Machin, "Graduate Earnings in Britain, 1974–95," Research Report 95 (London: Department for Education and Employment, 1999); John Schmitt, "The Changing Structure of Male Earnings in Britain, 1974–1988," in *Differences and Changes in Wage Structure,* Richard B. Freeman and Lawrence F. Katz, eds. (Chicago: University of Chicago Press, 1995), pp. 177–204; and James Steel and Colin Sausman, "Report 7: The Contribution of Graduates to the Economy: Rates of Return," Report to the National Committee of Inquiry into Higher Education, headed by Sir Ron Dearing, 1997, www.leeds.au.uk/educol/ncihe/report7/htm.

But this is not the only reason that they matter so much. In last year's Romanes Lecture, Mr. Blair gave equal attention to the *social* case for investments in education. He emphasized what he called "the price of missed opportunities"—for individuals as well as for society.[6] Even those of us sheltered in New York are aware of subsequent discussions in this country about admissions policies at a certain well-regarded British university—a topic I will avoid altogether except to note how sad it is when discussions of serious subjects appear to depend so heavily on argument by anecdote and incomplete information. In any event, large numbers of us will surely agree that in a digitized and commercialized age it is even more important than it was before that access to the most prized educational opportunities be made available to individuals of ability and ambition from every background. How best to pursue equal opportunity in ways that strengthen, not weaken, colleges and universities is a huge subject all its own that I cannot pursue today, except to note that whenever anything increases in value we naturally care more about who gets it.

New Opportunities for Scholarship and Teaching in a Digital Age

Universities must pay careful attention to digitization for the simple reason that it will provide innumerable new opportuni-

[6]Tony Blair, "The Learning Habit," Romanes Lecture, delivered December 2, 1999, esp. pp. 3 and 7.

ties to improve and extend teaching and research, and it is these opportunities, some of which I will now outline, that have to be balanced against the associated temptations and risks, many of which have a commercial dimension. Web sites and e-mail addresses have become the stuff of daily life, both inside and outside the academy. A cartoon that I have in my office depicts a woman explaining to another woman why she has a patch on each arm: "The patch on the right is for cigarettes; the one on the left is for e-mail."[7] Many walls created by distance, time zones, and the need to work directly with physical objects have been breached, and there is much more to come as new technologies emerge and the costs of hardware, software, and connectivity continue to fall. A colleague speaks of the impending arrival of "omni-connectivity," by which he means the ability to access information *at any time, from anywhere.*[8]

But what kinds of scholarly resources will there be for scholars to access? Hanna Gray, president emeritus of the University of Chicago, has observed that in many respects the electronic content produced by digitization projects often closely resembles the real objects (the "hard copies") from which it was created—much as the first printed books were intended to look as much as possible like the handwritten manuscripts produced in monasteries.[9] But this is, as Profes-

[7]*New York Magazine,* July 19, 1999, p. 32.

[8]Comment by Ira Fuchs, vice president for research in information technology at The Andrew W. Mellon Foundation, unpublished paper prepared for the trustees of the Foundation.

[9]Professor Gray is the Harry Pratt Judson Distinguished Service Professor of History and president emeritus of the University of Chicago, as well as chairman of the board of trustees

sor Gray noted, surely too limited a vision, and I want next to describe just one example of the many new kinds of specialized scholarly resources that can be built with digital technologies (apart from "courseware" and distance learning projects, which I will discuss later). My example is the JSTOR collection of scholarly journals, an electronic archive whose history I know well because the Mellon Foundation initiated its development and I continue to serve as chairman of the not-for-profit entity that is responsible for it. Focusing on the lessons learned from this one project has the advantage of making concrete a number of points that have broad applicability, and I will return to the JSTOR example several times in this lecture.

The JSTOR Collection of Scholarly Journals

JSTOR may be familiar to a number of you. It is a highly searchable electronic archive of journal literature that contains the full contents, back to inception, of over 120 leading scholarly journals in core fields of the arts and sciences—excluding only current issues.[10] The JSTOR archive contains high-resolution images (exact replicas) of more than six million pages of journal literature; additional content is being added

of the Mellon Foundation; she made this comment at a dinner for university presidents sponsored by the Hewlett and Mellon foundations.

[10]To protect the revenue that publishers derive from selling subscriptions to current issues, JSTOR does not provide access to the most recently published content. JSTOR employs a "moving wall" to separate current issues from the backfiles, with the "duration" of the moving wall dependent on the wishes of the publisher.

every day, and when the earliest issues of the *Transactions of the Royal Society* are digitized later this year, it will be possible to call up on your computer screen some of Newton's first published papers. Although the JSTOR system displays images, it also contains ASCII text files that are used to facilitate searching. Users can submit searches by author, title, or subject, or even by a descriptive phrase; locate relevant articles; and then print them out.[11] Thus JSTOR offers atypically convenient access to the content of a "library" that never reports that an item is "out" (since any number of users can read the same article simultaneously), that delivers articles directly to a person's desk (with no defaced pages), and that never closes.

These features explain why JSTOR has been received so enthusiastically by libraries and the wider scholarly community. Over 850 libraries in 40 countries (including Oxford and 53 others in the United Kingdom) have paid the site license fees required to obtain access to JSTOR. Usage continues to grow at a phenomenal rate—having more than tripled in the United Kingdom over the past twelve months. It is expected that more than 2.5 million articles will be printed from the database in the current calendar year. Usage has been heaviest, not surprisingly, at research-intensive universities such as Oxford (which now ranks among the top ten universities

[11]Just recently the *Economist* reported that Fred Shapiro, a scholar at the Yale Law School, had used JSTOR to identify a first usage of the phrase "software" that predated any previously known citation. "How Software Got Its Name," *The Economist,* June 3, 2000.

worldwide in terms of its usage of JSTOR). But in many ways the enthusiastic reception of the archive at less well-known places has been even more gratifying. JSTOR provides a small Appalachian college in the United States with the same access to journals such as *Science* and the *Renaissance Quarterly* as is enjoyed by graduate students at Manchester or Stanford. It closes in some degree the "digital divide" by allowing universities in countries such as Mexico, South Africa, Russia, and Greece to acquire a rich repository of journal literature without building space or hiring staff.

The implications for scholarship and teaching are profound. They range from simply making it easier for students to work with important articles to changing fundamentally the literature that faculty and students consult. One side benefit of JSTOR is that it allows us to track the usage made of the journal literature in its database—something that could never be done in a paper-only world. Of the 391,000 full-length journal articles in JSTOR in 1999, over two-thirds (69 percent) were viewed and nearly half (46 percent) were printed at least once in that year. Experience to date has demonstrated, convincingly, that older articles are valuable. The average age of the ten most frequently consulted articles in economics is more than fifteen years; the average age of the most frequently consulted articles in mathematics is more than thirty years. These findings are a useful rebuttal to the line of thought that equates anything electronic with a suspicion, if not a rejection, of old verities. The most basic scholarly con-

tribution of JSTOR may be its ability to "unlock" access to older journal literature.

Enhancing Course Content and Providing Distance Learning

Although information technology has had, and will have, manifold effects on how scholars do research (and I have not even mentioned applications in the field of science, such as the key role played by computer scientists and sophisticated software in the mapping of DNA, the imaging of art, or the greater ease with which scholars all over the world can collaborate), it will also have major effects on the *teaching functions* of colleges and universities. It is much too early to pass judgment on the wide variety of ways in which electronic technologies are being used to supplement as well as supplant the work done traditionally by the lecturer, but it is evident already that the importance of different technologies varies dramatically from discipline to discipline: animated graphs are particularly useful in fields such as economics and applied mathematics; virtual environments are especially helpful in studying organic systems in biology and medicine; and feedback applications are particularly effective in language teaching and in instruction in proof technique in logic courses.

One interesting research question, directly relevant to the earlier discussion of the implications of information technology for broadened access to educational opportunities, is whether being able to answer questions or participate in dis-

cussions via computer, in a more anonymous and less "social" way, is especially helpful to students who may be uncomfortable in traditional settings. I am reminded of another of my favorite cartoons (with which you may be familiar), one showing a large dog at a computer keyboard, looking down at a smaller dog at his feet; the large dog says, "On the Internet, nobody knows you're a dog."[12] A related question is whether the self-paced nature of much instruction of this kind is particularly valuable for disadvantaged students with weaker preparation.

Online enhancements of existing courses grade off naturally into what are sometimes called "cybercourses"—courses in which, according to one definition, "little or no instruction takes place in the traditional physical classroom."[13] As the popular press tells us every day, numerous colleges and universities, including "virtual universities," have established a wide variety of distance learning initiatives. Today 20 percent of students at the United Kingdom's Open University are said to be studying interactively.[14] Other universities, acting alone

[12]Peter Steiner, *The New Yorker,* July 5, 1993, p. 61. Anonymity apparently encourages increased participation not only by students from disadvantaged backgrounds but also by women. Marion Walton and Stella Clark observed that in an online writing course they taught at the University of Cape Town, women were more likely to contribute to discussions that took place online than those in the classroom. In fact in the online discussions, over 60 percent of the comments were made by women. Marion Walton and Stella Clark, in "Extending Interactivity: Academic Literacy in an Online Writing Environment," www.meg.uct.ac.za/saala.htm.

[13]Peter Navarro, "Economics in the Cyberclassroom," *Journal of Economic Perspectives,* Spring 2000, pp. 119–32. This article contains an extensive survey of experience with one hundred economics cybercourses at nearly fifty institutions and also contains a helpful list of references to other studies.

[14]See www.open.ac.uk/about and www.open.ac.uk/factsheets.NewTech.pdf, as well as Thomas K. Grose, "Distance Education the UK Way" *Prism-Online,* November 1999; and

or in concert, are establishing for-profit subsidiaries to deliver educational content of many kinds, including courses, to essentially all comers. One of the best known is Fathom.com, which was founded by Columbia University in collaboration with the London School of Economics and Political Science, Cambridge University Press, the British Library, the New York Public Library, and the Smithsonian Institution.[15] A Stanford-Princeton-Yale-Oxford alliance is focusing on delivering specially created course content to alumni and others.[16] Recently the Higher Education Funding Council announced the formation of an "eU" in Britain.[17]

This range of initiatives (and others too numerous to mention) is both promising and risky. But I am not one of those who believe that the residential university is an endangered species. Not at all. For as far ahead as any of us can see, there will be a demand—by which I mean not only a desire, but a desire backed up by the willingness to pay—for an education

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Grenville Rumble, *The Costs and Economics of Open and Distance Learning* (London: Kogan Page, 1997) for information on the costs and quality of the Open University.

[15]More recent additions to the group of collaborators are the University of Chicago, RAND, the American Film Institute, and the Woods Hole Oceanographic Institution.

[16]Sarah Carr, "Princeton, Stanford and Yale Plan Alliance to Offer Online Courses to Alumni," *Chronicle of Higher Education*, March 17, 2000, p. A47; and Sarah Carr, "U of Oxford to Join Princeton, Stanford and Yale in a Distance-Education Venture," *Chronicle of Higher Education*, September 25, 2000, online edition. Most recently the consortium has announced the selection of Herbert Allison as the CEO of the enterprise, which is now called the "University Alliance for Life-Long Learning." The four participating universities have announced that they will invest $12 million in the alliance, which expects to offer short (noncredit) courses by the end of 2001. If the experiment works, the alliance will offer courses to a broader public, perhaps in a for-profit mode. See Charles Forelle and Michael Horn, "Universities Commit $12M to E-Learning," *Yale Daily News*, September 29, 2000, online edition.

[17]Jim Kelly, "UK Universities Plan Online Global College," *Financial Times*, October 10, 2000, p. 11.

at both undergraduate and graduate levels that continues to emphasize the informal as well as formal modes of learning that are possible in a collegiate setting. Properly conceived, information technology will enhance, but not replace, traditional modes of teaching and learning. It will also permit the delivery of educational content to a wider variety of others interested in subjects that lend themselves to distance learning—at home and at odd hours.

Commercial Opportunities: The Case for Market Involvement by Universities

Incorporating the motivations of for-profit entities into the institutional fabric of not-for-profit educational institutions is inevitably controversial, and most academics may be more inclined to see the negative side of the argument than the positive side. But whatever one's intuitive feelings, it is useful to recognize four advantages of a commercial approach.

The first and most obvious point is implicit in much of what has already been said. Both for-profit offshoots and alliances with for-profit entities such as Pearson and UNext.com may address real financial needs by generating flexible funds that can be used at the discretion of the institution to support its core educational and research purposes. To quote Alan Gilbert, chairman of Universitas 21 and vice chancellor of the University of Melbourne in Australia, "What we want to do is to preserve our universities as the best campus-based institu-

tions in the world where we can continue to offer philosophy and classics and things like that which are hard to pay for in commercial terms, but which you can do if you are well-resourced."[18]

It is hard, however, to assess the potential. John Chambers, CEO and chairman of Cisco Systems, has put forth this claim: "Education over the Internet is going to be so big it is going to make e-mail usage look like a rounding error."[19] His optimism may or may not prove to be well founded. All of these ventures are in such early stages of development that no one can know with confidence how much revenue they can generate. An experienced business executive, Elton White, regularly asks, "But will the dog eat the dog food?" We just don't know, and any number of high hopes could be disappointed.

There is, however, a great deal to be said for seeking to diversify the revenue sources of universities if this can be done in a responsible way. Being overly dependent on government funding or on any single source is problematic from every standpoint: experience in the United States suggests that it is easier to generate large revenue streams from many tributaries—including student fees, industry support, endowments, and current donations—than it is from any single source. (This is one of the main points I tried to make nearly

[18]Quoted in Zell Miller, "10 Crucial Things the Next President Should Do for Colleges," *Chronicle of Higher Education*, July 14, 2000, p. B4.

[19]Quoted in Thomas L. Friedman, "Next, It's Education," *New York Times*, November 17, 1999, pp. A25.

forty years ago when I was a visitor at the London School of Economics and wrote several papers for the Robbins Commission.)[20] Moreover, diverse sources of funding can protect institutional autonomy by giving institutions greater freedom to decide for themselves what fees they should charge and what salaries they should pay, as well as which students they should admit, what research they should pursue, and what curricula they should offer. In the British context, Alan Ryan, warden of New College, has put the matter this way: "It is essential to bring the marketplace further into the academy. This means allowing colleges and universities to pay faculty what they can afford, and to charge students what they will pay."[21]

A second advantage of commercialization, and one that is often overlooked, has to do with the location and management of risk. A for-profit mode of organization provides a mechanism for raising the capital that is essential to launch projects that require considerable start-up funding—and to do so without putting so many of the core resources of the university at risk. Fathom.com received an initial infusion of funds from its principal academic sponsor, Columbia University, but it is committed to raising the bulk of its working capital from outside investors. If the enterprise fails, Columbia will lose

[20]William G. Bowen, "University Finance," in *Economic Aspects of Education: Three Essays* (Princeton, N.J.: Department of Economics, Princeton University, 1964), pp. 41–79. Similar arguments have been made frequently in the United Kingdom; see, for example, "Funding Higher Education" in *Higher Education for the 21st Century,* Department for Education and Employment, www.dfee.gov.uk/highed/funding.htm; and "Who Should Pay for Higher Education?" Chapter 18 in report of the National Committee of Inquiry into Higher Education headed by Sir Ron Dearing, 1997, www.leeds.ac.uk/educol/ncihe.

[21]Alan Ryan, "The American Way," *Prospect*, August–September 1999, online edition.

much less money than it would have had it made the entire initial investment itself. Similarly, for-profit investors can save a project that might otherwise die of financial starvation. The co-founders of Africana.com, Harvard University professors Henry Louis Gates, Jr., and Anthony Appiah, have just sold their Web site to Time Warner, Inc., because of their need for long-term financing. In Gates's phraseology, "The revenue model was slow to develop."[22]

Third, market incentives can encourage faculty and others inside the academy—sometimes regarded as too hidebound, insular, and aloof—to be more responsive to the needs of the larger society. Similarly there is an advantage in being able to look at market comparisons in assessing whether a given service is being provided efficiently. Market tests offer a useful objectivity.

Fourth, well-developed Internet market mechanisms may enable faculty members to reach far wider audiences than would have been possible otherwise. This was a principal reason given by Columbia for the creation of Fathom.com. As its president, George Rupp, put it, "We want to make sure that our core intellectual capital is not picked off by outside for-profit vendors. But for that, we have to be able to say to our faculty that we will devise ways they can communicate with a wider audience, which many of them would like."[23]

[22]Quoted in David D. Kirkpatrick, "Co-Founders of Africana.com Sell Venture to Time Warner," *New York Times*, September 7, 2000, p. C2.

[23]Quoted in Karen W. Arenson, "Columbia to Put Learning Online for Profit," *New York Times*, April 3, 2000, p. B3.

Lessons Learned and Warning Flags

I come now to the proverbial other side of the coin: lessons learned to date and warning flags that can be ignored only at one's peril. First on my list is the need to cope with *the rapid pace of technological change*. I am told that computing power continues to follow Moore's law and to double every eighteen months. Video, voice, text, and multimedia are converging in data transmission. Extremely high-speed networks, like the Abilene backbone of Internet2, are enabling new applications. Search techniques are becoming ever more sophisticated. Progress will continue to be made in designing multilingual interfaces. New tools will be developed for linking citations and online documents, for authenticating both electronic documents and users, and for managing intellectual property rights. No technology platform, no technical "fix," stays in place for long.

Nonetheless, in spite of much experience with the recurring transformations of electronic technologies, even knowledgeable people sometimes "forget" the implications. It can be all too tempting to launch a new electronic resource without considering how it is to be maintained. That is a serious mistake. Any project that seeks sustainability must have continuing access to the technical capacity and budgetary resources needed to migrate from one platform to another. In this arena—and in this era—one-time investments are almost certain to be ephemeral. It is well to remember Fuchs's Law,

"The time to acquisition is longer than the time to obsolescence," or its corollary, "By the time you get what you ordered, you don't want it."[24]

A second, related, lesson is *the need to be realistic in thinking about costs* and to avoid the ever-present danger of believing that great things can be accomplished "on the cheap." All aspects of the process of creating and delivering electronic content are expensive—which is the main reason that issues of technology interact so directly with issues of cost. The faster the pace of change, the more expensive it is likely to be to keep up. It is not difficult to spend several hundred thousand dollars developing a multimedia course of high quality. Nor can the initial up-front costs be regarded as once-and-for-all expenditures, given constantly changing technology and the recurring need to update materials and modes of presentation.

What is more surprising, and even more important to keep in mind, is the high *variable* cost currently associated with the use of cyberteaching units. One careful observer offers this comparison: "A cyberprofessor trades the 'chains' of lecturing in a classroom for a predictable number of hours at a specific time and place for the more unpredictable 'freedom' of being accessible by e-mail and other technologies. . . . Many cyber-course instructors find themselves being drawn into an end-

[24]Attributed to Ira Fuchs, vice president for research in information technology at the Mellon Foundation.

less time drain."[25] Similarly a faculty report at the University of Illinois suggests that "sound online instruction is likely to cost more than traditional instruction" and that "the scenario of hundreds or thousands of students enrolling in a well-developed, essentially instructor-free online course does not appear realistic."[26] The demise of the California Virtual University is, as the *Chronicle of Higher Education* observed, "a sobering reminder of how hard it is to run a successful 'portal' for online education."[27]

For these and other reasons, all the talk of using technology to "save money by increasing productivity" has a hollow ring in the ears of the budget officer who has to pay for the salaries of a cadre of support staff, more and more equipment, and new software licenses—and who sees few offsetting savings. The experience to date of essentially every college or university official has been that technologically induced gains in "productivity" (defined as output divided by units of input) have almost always been realized in the form of better research, improved access to information, and so on (more output), rather than in the form of savings in inputs.

But this could change. Even though I am the co-creator of what has come to be known in the literature as "Baumol's

[25]Navarro, p. 129. On a single campus, at any rate, the economies of scale appear to be far smaller than is generally assumed; several studies have reported that "the marginal cost of servicing each additional student does not fall at anywhere near the same rate as with a traditional course"; Navarro, p. 128.

[26]"Teaching at an Internet Distance," report of a 1998–99 University of Illinois faculty seminar, December 7, 1999, www.vpaa.uillinois.edu/tid/report.

[27]Jeffrey R. Young, "Veteran of California Virtual U. Blames a Flawed Business Plan for Its Demise," *Chronicle of Higher Education,* May 12, 2000, online edition.

disease" or "Bowen's curse" (the notion that costs in service-intensive fields such as education and the performing arts inevitably rise faster than they do in the economy at large),[28] I am now persuaded that electronic technologies can lead to lower costs. There may be at least one "slumbering giant" who could awaken and change the situation quite dramatically—namely, the textbook publishing oligopoly. Textbook publishers have an incentive to invest in further technological development of courseware that should allow artificial intelligence, for example, to take over some of the more repetitive tasks that now require the time of staff and keep variable costs high.[29]

JSTOR is another, quite different, case in point. Although the jury may be out (and out for a long time) on the cost-effectiveness of many types of courseware, some of the electronic resources designed to facilitate scholarship and research can, in principle, lead to substantial system-wide savings. Needless to say, there were significant up-front costs

[28]William J. Baumol and William G. Bowen, *Performing Arts—The Economic Dilemma: A Study of Problems Common to Theater, Opera, Music and Dance* (New York: Twentieth Century Fund, 1966). The phrases "Baumol's disease" and "Bowen's curse" are used in the literature to refer to the phenomenon. See, for example, L. Deboer, "Is Rock 'n' Roll a Symptom of Baumol's Disease?" *Journal of Cultural Economics* 9 (2) (1985): 48–59; and Charles T. Clotfelter, *Buying the Best: Cost Escalation in Elite Higher Education* (Princeton, N.J.: Princeton University Press, 1996), p. 35.

[29]Navarro, pp. 125–26. The major publishers are investing heavily in the development of cybernet course content, as well as in the infrastructure that would be needed to deliver the content. As a result, it should become possible before too long for institutions to deliver electronic content that is well conceived and free of copyright problems. It is the large publishers that can achieve real economies of scale. More generally, a number of the factors that keep costs high today could turn out to be transitional. As styles of teaching and available technologies become better aligned, and as faculty become less inclined to mimic techniques carried over from an earlier day, costs are likely to fall. Many forms of teaching could become better and cheaper.

involved in creating JSTOR. There are also recurring costs associated with maintaining the database, adding content each year, keeping current with technological advances, and providing the needed infrastructure (including user services). Fortunately, however, not only does JSTOR improve dramatically the ability of scholars to find and use journal literature, it also offers the prospect of savings for library systems, even after taking account of the user fees that libraries pay.[30]

One important long-term benefit is the opportunity JSTOR offers libraries to economize on stack space. Those that already possess the hard copies of JSTOR journals have the option of moving them out of "prime real estate," which can then be used for other purposes. Going forward, the existence of JSTOR reduces the need to build new shelf space. Libraries that do not have the hard copies are able to gain access to this substantial corpus of literature for a tiny fraction of the costs that would have been involved in building space to house it—never mind acquiring it in the first place and paying staff to catalogue it. On a system-wide basis, these potential savings in capital costs are huge—roughly $140 million at present, according to one estimate, and growing steadily.[31]

[30]Libraries pay a one-time archive capital fee, which is intended to defray part of the capital cost of creating the roughly five million pages of digitized content that reside in the archive. Participating libraries also pay an annual access fee, which helps cover the running costs. For detailed pricing information see www.jstor.org/about.

[31]The capital costs associated with housing the backfiles of the journals in JSTOR (assuming that a library has the full runs) are estimated to amount to roughly $175,000 in a typical case, and these costs will only increase over time as more content is added. There are at present over 800 participating libraries, which suggests a current system-wide saving of roughly $140 million. This figure was derived as follows. JSTOR estimates that there are 7,000 volumes in the current database. Jay Lucker, the former university librarian at

This kind of resource also offers potentially large savings in operating costs by eliminating the need to handle the paper copies of journals that can now be accessed electronically.[32] In the future, when JSTOR is linked to the electronic versions of current issues (as will surely happen), there will be further savings in cataloguing and processing costs. JSTOR also reduces the wear and tear on journals and the attendant costs of preservation and conservation.

These savings—which can exceed the fees charged to libraries by factors ranging from two to ten, depending on type of library—result directly from using information technology to centralize the storage function while simultaneously enhancing access to content. The economies of scale are extraordinary, since the core database only needs to be created

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MIT and a consultant to academic library construction projects, estimates that academic libraries cost on average $250 per square foot to build and that such libraries store 10 bound periodicals per square foot (personal communication with Sarah Levin). Dividing $250 per square foot by 10 volumes per square foot yields a cost per volume of $25 and multiplying by 7,000 volumes yields an overall cost of $175,000 to store the JSTOR collection in print. These numbers and this methodology are in keeping with those used in the literature in this field; see Malcolm Getz, "Storing Information in Academic Libraries," 1994, mimeo, Vanderbilt University; and Michael D. Cooper, "A Cost Comparison of Alternative Book Storage Strategies," *Library Quarterly* 59 (3) (1989): 239–60. It is important to note that in major university libraries it is not unusual to have two or three print copies of the JSTOR journals, as they are the core journals in their fields, and so the savings in these libraries could be double or triple the number stated.

[32]According to one estimate, a major library should expect to save roughly $20,000 per year and a small library something like $5,000 per year. The New York Public Library, which is a noncirculating closed-stack library, has estimated that it spends $1.94 to retrieve and reshelve a typical journal volume. Even if we cut this estimate in half in recognition of the unusually complex nature of this particular library, and use a figure of $1.00 per retrieval, the savings are substantial. The estimates in the text use the $1.00-per-retrieval figure and are based on crude counts of the number of times hard-copy JSTOR journals were taken from the shelves at the University of Michigan and at "test-site" college libraries *in the pre-JSTOR days.* This is the relevant reference point, not the much higher usage now being experienced through access to JSTOR.

once, and it is possible to grant access to additional sets of library patrons at modest incremental costs. It will of course take time for the habits of librarians and library users to change, but we are already seeing examples of how libraries can collaborate to store the hard copies of journals in inexpensive regional centers; some smaller libraries feel that they can discard the hard copies altogether, relying on larger research universities and entities like JSTOR to take responsibility for the archiving function.[33]

There is a broader point that deserves emphasis. In deciding whether a resource such as JSTOR is worth what it costs in their particular setting, institutions need to take account of *all* elements of the financial equation, including the long-term implications for building plans, capital costs, and maintenance. Not all librarians are inclined to think in such terms (sometimes making comments like "we have enough space now" or "somebody else is responsible for providing space and paying for maintenance and operating costs"); it is easy to think of JSTOR as merely another competitor for inclusion in a strained acquisitions budget. Fortunately the "access-

[33]A survey carried out in 1999 by JSTOR found that 20 percent of the respondents had already moved journals to remote storage and that an additional 24 percent have plans to do so. These numbers will continue to increase as libraries gain confidence in the archiving reliability of JSTOR. To cite one example of what libraries are doing, the librarian at Maryville College in Appalachia reports that she is completely withdrawing JSTOR backruns up to 1980. She is moving them into the basement and will then try to sell them for a year or so. In her words, "What we cannot sell by next year will go out the door. It will be hard to see these nicely bound volumes go (after first offering them to the faculty with the caveat that they can *not* donate them to the library on their retirement), but we do need the shelf space and I would not even want to ask for more space. Also, students do not touch the paper once the info is online; this is just a fact of life these days"; Chris Nugent of Maryville College, in an e-mail to Kristen Garlock of JSTOR.

only" benefits of JSTOR are so dramatic that many libraries have signed up on this basis alone—ignoring the long-term savings in capital and operating costs. But this is not the way decisions of this kind should be made. In a digital world, a broader institutional perspective needs to be applied to resource allocation decisions. This is a major organizational lesson taught by experience with JSTOR, and it will have even greater applicability when considering other applications of technology that are more diffuse and harder to tie to specific cost elements.

There is a third set of issues that permeates the electronic world and that can be every bit as vexing as failing to provide for rapid changes in technology or failing to analyze costs correctly. I am referring to *the handling of intellectual property rights.* Seemingly endless controversy can be associated with the ownership and licensing of rights in everything from electronic course content, to images of works of art, to software such as compression algorithms. A week does not go by without a report of some new lawsuit, and it is perilous indeed to assume that anyone can predict confidently what the courts will conclude in an arena that is fairly described as "unsettled" (to say the least).

Under particularly severe scrutiny at the moment are vendors of electronic databases containing material that appeared originally as hard copy.[34] In the world of art, it is tempting for

[34]In one noteworthy case, *Tasini v. New York Times, Inc.*, 206 F. 3d 161 (2nd Cir. 2000), six freelance writers sued the *New York Times*, Time Inc. Magazine Company, *Newsday*, the

museums and research libraries to seek a "safe harbor" by restricting electronic representations of their images to "thumbnails" that are of limited use to scholars. The most contentious suits of all have affected the copying and distribution of movies and popular music—which is, not surprisingly, where the economic stakes are highest.[35]

This is not a battle between good and evil. It is important, in my view, that an appropriate balance be found between the entirely legitimate interests of the owners of content and the need to find definitions of "fair use" and to craft licensing agreements that will not negate the educational benefits of electronic technologies. Experience in negotiating agreements with both journal publishers and entities such as the Dun-

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Atlantic Monthly, Mead Data Central Corporation, and University Microfilms International for taking articles previously published in periodicals and arranging for them to be reproduced and distributed in databases of digitized individual articles without permission and without the provision of additional compensation to the rights holders. The writers won, and, bolstered by the *Tasini* ruling, such suits are becoming more common. (As one colleague put it, we now live in a world of "search and sue!") As an outgrowth of the *Tasini* case, the National Writers Union (whose president is Jonathan Tasini, the lead plaintiff in the *Tasini* case) has established a Publication Rights Clearinghouse to facilitate and enforce the payment of royalties to freelance writers; see Felicity Barringer, "Online Agreement Near for Writers' Group," *New York Times*, August 3, 2000, p. C6; and http://www.nwu.org/prc/prchome.htm. In recognition of such legal challenges, *U.S. News and World Report* is reported to be pulling content from some microform editions, with disturbing consequences for libraries that thought they could rely on the availability of the content; see *Library Journal Academic News Wire*, August 29, 2000, online edition.

[35]For example, the Recording Industry Association of America sued Napster over the distribution of copyrighted music. On July 26, 2000, Judge Marilyn Hall Patel of the United States District Court for the Northern District of California issued a preliminary injunction against Napster and ordered the online music provider to stop the trade of copyrighted music; *A&M Records, Inc. v. Napster, Inc.*, Nos. C 99-5183 MHP and C 00-0074 MHP (N.D. Cal. July 26, 2000). Citing "substantial questions of first impression," on July 28, 2000, a panel of appellate judges granted an emergency stay of the District Court's injunction, thereby permitting Napster to continue operating pending a decision in the appeal of the preliminary injunction. Oral argument on the appeal was held on October 2, 2000, and an opinion is expected to be issued soon.

huang Research Institute in China convinces me that—when there is a shared set of objectives, trust, and mutual respect—it is possible to reconcile the multiple interests of participants. One lesson is the importance of confronting such questions directly and openly in the early stages of framing projects of this kind. Another lesson, of equal importance, is that terms such as "balancing" and "reconciling" are essential: ideological insistence on the preeminence of the rights of either the content owner or the user will lead nowhere.

Fourth and last on my list is the need to be concerned about the effects of market opportunities on *faculty incentives.*[36] If faculty can earn significant amounts of extra money by working on online projects of one kind or another, it is natural to wonder what the effects will be on the priorities they set for themselves. There is a risk that faculty, and many of the most outstanding faculty, will be distracted from their core functions of scholarship and classroom teaching. Such distractions may result from the responses of individual faculty members to the pull of the marketplace, but faculty may also be drawn away from their core pursuits with the tacit if not overt encouragement of their own universities. Issues of governance and potential conflicts of interest also arise when faculty members have personal stakes in activities affected by policies that they, along with their colleagues, are respon-

[36]Concern over the effects of outside funding of all kinds on university priorities is long-standing; see Eyal Press and Jennifer Washburn, "The Kept University," *Atlantic Monthly* 285 (3): 39–54.

sible for shaping. On the other hand, too pristine a posture by the university (attempting to deny faculty any opportunity to be involved in what some will see as "cutting-edge" opportunities to do new things *and* to make money) can lead faculty to seek such opportunities outside the university structure altogether.[37]

These issues may become even more vexing if electronic technologies lead to greater specialization and change the division of labor in universities. At present the functions of discovering knowledge, putting it into teachable form, distributing it to students, and then certifying their grasp of the material are usually tied together. Generally speaking there is one "price" for the bundle, with the price paid either by the student who pays tuition or by whatever private or public funders finance the university that is the home of this set of activities. But applications of electronic technologies may lead to an "unbundling" of these functions. Technically sophisticated intermediaries may take over responsibility for translating content created by traditional academics into electronic "courseware," which may then be distributed by still other intermediaries to a wide array of learners. Under this scenario, will separate charges be imposed at each step along the "knowledge chain"? How will faculty incentives be affected, and who will pay for the scholarship that started the process?

[37]Faculty may be tempted to protect their "ownership rights" by separating such work as completely as they can from their normal lives as professors. For a lengthy discussion of these issues see Scott Carlson, "When Professors Create Software, Do They Own It, or Do Their Colleagues?" *Chronicle of Higher Education*, July 21, 2000, online edition.

How "Businesslike" Should Universities Be?

A recurring theme of this talk is the need to seek a sensible "middle ground," an injunction that applies not only to specific issues such as how to balance competing ownership interests and how to structure faculty incentives but also more broadly when we ask the larger question, "How 'businesslike' should universities be?" Underlying the concerns expressed by many (including the use of marketplace language such as "brands," which has worrying symbolic overtones for some faculty[38]) is the fundamental risk of "mission drift." As economist Burton Weisbrod puts it, "When nonprofits' pursuit of revenue drives them to act like private firms, . . . there are dangers of goal displacement, as the social mission slips from sight. . . . Aggressive marketing and merchandising produce almost inevitable conflict, sometimes forcing organizations to choose between 'capitalist appetites' and . . . integrity."[39] While the not-for-profit entity must certainly pay attention to its own "bottom line" and operate efficiently, it has to keep its own mission firmly in mind. One highly experienced

[38]In the debate over the creation of a for-profit subsidiary at Cornell, Risa L. Lieberwitz, an associate professor in the School of Labor and Industrial Relations, was quoted as saying: "If we are starting to talk about Cornell as a brand name, then we are in trouble. I don't see what I do as a professor as promoting a brand name. We are talking about brands without the slightest bit of self-consciousness, and that is just jarring to me"; Sarah Carr, "Faculty Members Are Wary of Distance-Education Ventures," *Chronicle of Higher Education*, June 9, 2000, p. A41. Similarly, in announcing the sale of Africana.com, Professor Gates was quoted as saying "We didn't want a lot of cheap ads that would dilute *the brand* [my emphasis]"; Kirkpatrick, p. C2.

[39]Burton Weisbrod, ed., *To Profit or Not to Profit: Commercialization in the Non-Profit Sector* (Cambridge: Cambridge University Press, 1998), p. 304.

leader of both for-profit and not-for-profit entities, John C. Whitehead, offers this useful distinction: "A for-profit board has an obligation to *get out* of a bad business while a non-profit board may have an obligation to *stay in*, if it is to be true to its mission."[40]

A for-profit orientation can take a university in directions quite different from those that it would follow otherwise. A good example is the handling of student aid. A for-profit or "proprietary" educational institution will presumably offer financial aid (or "discounts" from its stated fees) if and only if such discounts end up improving the financial health of the organization by increasing marginal revenues more than marginal costs. A not-for-profit university, on the other hand, may see its mission as including an obligation to spend money on financial aid to attract the best students, whatever their means, or to increase diversity, even though such spending will be a drain on its resources.[41]

JSTOR offers a useful case history of the importance of adhering to a not-for-profit mindset. When JSTOR was first established, it was evident that there was more money to be made in providing electronic access to the current issues of

[40]Quoted in William G. Bowen, *Inside the Boardroom* (New York: Wiley, 1994), p. 23.

[41]In the for-profit educational world, discounting can be seen as a form of price discrimination, whereas student aid is an "investment" for educational institutions that could have recruited well-qualified students without such outlays; see David J. Breneman and William G. Bowen, "Student Aid: Price Discount or Educational Investment?" *Brookings Review* 11 (1) (Winter 1993): 28–31; and William G. Bowen, "The Student Aid/Tuition Nexus," in *Ever the Teacher* (Princeton, N.J.: Princeton University Press, 1988), pp. 538–43. The second reference shows how failure to distinguish for-profit from not-for-profit motivations can lead to entirely wrong conclusions about public policy—in this case the effect of changes in federal financial aid programs on tuition.

journals than to the backfiles. JSTOR targeted the digitization of the backfiles nonetheless because of the perceived importance to scholars, and to the library community, of both enhancing access to this "less commercial" part of journal literature and saving shelf space. Since it was contrarian (from a commercial perspective), this emphasis on the backfiles surprised many people. Early on, the head of one widely known commercial entity told me: "Mr. Bowen, no sane man would do what you propose." He may even have been right—from his perspective. Which is precisely the point.

Subsequent decisions have also been different from those that would have been taken had JSTOR "gone public" and followed the for-profit path advocated by some. Let me cite two examples. In deciding which fields of knowledge to include in the database, JSTOR has attempted to determine where the needs of scholars are the greatest, not where there is the best chance of selling a product. Thus the JSTOR database includes fields like history, philosophy, and literature, whereas it does not yet include business. Then, in setting fees, a determined effort was made to encourage the participation of smaller and less wealthy institutions all over the world. The assistance of foundations has been instrumental in giving effect to these decisions, which have been motivated by objectives and values analogous to those that lead institutions to provide need-based financial aid.

To be clear, I am certainly not arguing that for-profit providers of one service or another are "bad"; JSTOR itself em-

ploys for-profit providers (such as vendors of scanning services) when they can provide the best value for money *in helping JSTOR achieve its purposes.* What is crucial is the objective being served and the mission of the enterprise setting the objective. This is no trivial point. In working with the providers of other forms of digitized content (in, for example, the art world), we have had to explain that it is important to retain the freedom to work with whatever agent—be it a for-profit or not-for-profit entity—can best distribute the archive in ways that are consistent with educational and cultural values.

It is also true that not-for-profit entities can sometimes act like their for-profit cousins. For example, we have encountered scholarly journals and occasionally learned societies that were interested primarily in shaping digitization projects to yield the maximum revenue for their organizations. This is understandable, since such entities are often hard-pressed to cover their own running costs and are always in search of new sources of funds. In this regard, they have something in common with universities! But there are larger interests to be served, and in shaping the digitized, commercialized world that is evolving, it is important to encourage not-for-profit entities, including universities and university presses, to take as all-encompassing a perspective as possible. A major role for foundations, in my view, is to promote broader orientations. Appropriately targeted subsidies can do a great deal to align interests. More generally, the revolution in information technology creates many new opportunities for productive col-

laborations, some of which will be missed if there is an excess of competitive zeal that is market-driven.

The Search for Balance: The Need to Remain "At a Slight Angle to the Universe"

There are no pat answers to the many questions I have raised in this lecture. The longer-term implications for universities of the paired forces of digitization and commercialization are poorly understood. This should not surprise us. Many of these developments are genuinely new; there is a dizzying array of "moving parts" (and fast-moving parts at that); and, finally, the intellectual framework and the empirical reference points needed to analyze many of the issues are underdeveloped, if they exist at all. In such circumstances, there is a natural temptation to "wing it"—to "do something" so as not to appear slow of foot—even though the likely consequences of the "something" are far from clear. But there are risks associated with just plunging ahead, especially since what we often like to call "experiments" are inordinately hard to reverse in academic settings. Having learned some lessons the hard way, I am a strong advocate of carrying out the same kind of systematic research in this area that we embrace so naturally in more traditional fields.

There is also a temporal perspective that must be honored. Universities are among our oldest institutions, and it would be most unfortunate if the time horizons common to

so much of commercial society came to dominate academic planning. Stock prices fluctuate wildly if companies miss quarterly earnings estimates by pennies. New ideas, on the other hand, germinate over long periods and almost always take longer to correct than they did to create.

Above all I hope we will remember that universities exist to serve purposes that transcend many of the concerns of the workaday world. The disinterested pursuit of learning, commitments to tolerance and social justice, the belief that learning is enhanced by studying with those who have different perspectives and come from different walks of life—these and other core elements of university life defy the logic of the marketplace and the auction block. To some people universities now seem more "for sale" than they have ever been. I hope this is not the case, since I am convinced that their value (including their value to those who would "buy" them) derives in large measure from the fact that they are *not* for sale.

Although universities can lose their way by yielding to some combination of complacency and temptation, they can also be pressured by external forces into adopting priorities that are too narrow or overly restrictive. There is a real danger that funders in both the United States and the United Kingdom (especially governmental entities) will expect universities to be so responsive to the market that larger and longer-term objectives will be sacrificed. The society at large needs to give universities the time, the "space," and the re-

sources that they need to work through new and complex issues in thoughtful and principled ways.

I return now, as I conclude, to Forster's famous description of Cavafy:

> They turn and see a Greek gentleman in a straw hat, standing absolutely motionless at a slight angle to the universe. . . . He may be prevailed upon to begin a sentence—an immense complicated yet shapely sentence, full of parentheses that never get mixed and of reservations that really do reserve; a sentence that moves with logic to its foreseen end, yet to an end that is always more vivid and thrilling than one foresaw. . . . It deals with the tricky behavior of Emperor Alexius Comnenus in 1096, or with olives, their possibilities and price . . . or the dialects of the interior of Asia Minor. . . . And despite its intellectual richness and human outlook, despite the matured charity of its judgments, one feels that it too stands at a slight angle to the universe; it is the sentence of a poet.[42]

[42]Here is a fuller excerpt from E. M. Forster's description of Cavafy: "They turn and see a Greek gentleman in a straw hat, standing absolutely motionless at a slight angle to the universe. . . . Yes, it is Mr. Cavafy, and he is going either from his flat to his office, or from his office to the flat. If the former, he vanishes when seen, with a slight gesture of despair. If the latter, he may be prevailed upon to begin a sentence—an immense complicated yet shapely sentence, full of parentheses that never get mixed and of reservations that really do reserve; a sentence that moves with logic to its foreseen end, yet to an end that is always more vivid and thrilling than one foresaw. Sometimes the sentence is finished in the street, sometimes the traffic murders it, sometimes it lasts into the flat. It deals with the tricky behavior of Emperor Alexius Comnenus in 1096, or with olives, their possibilities and price . . . or the dialects of the interior of Asia Minor. It is delivered with equal ease in Greek, English, or French. And despite its intellectual richness and human outlook, despite the matured charity of its judgments, one feels that it too stands at a slight angle to the universe; it is the sentence of a poet"; E. M. Forster, "The Poetry of C. P. Cavafy," in *Pharos and Pharillon* (New York: Alfred A. Knopf, 1961), pp. 91–92. I am indebted to my colleague and friend Edmund M. Keeley for this reference.

Faced with both new opportunities and new temptations, universities will need an effective combination of internal clarity concerning what matters most and the right kind of external support if they are to retain the perspective of the poet; if they are to continue to stand, with Cavafy, “at a slight angle to the universe.”