Jonathan R. Cole

Balancing Acts: Dilemmas of Choice Facing Research Universities

P ROGNOSTICATIONS OF THE DECLINE of American higher education, and particularly of our research universities, are not infrequent. Analyses of the "current crisis" by critics and friends surface only somewhat less frequently than the seven year locust.[1] The list of diseases and etiologies leading to the imminent decline of these institutions is long and includes such familiar items as: claims of administrative waste, fraud, and abuse, and of the corruption of fundamental academic values and standards; a retreat from the undergraduate classroom; the perversion of the academic reward system; the end of meritocracy; the triumph of corporate, bureaucratic models of governance over the more congenial ecclesiastical style of shared decision-making through consensus formation; the ceding by faculty of academic authority and responsibility for producing a rigorous and sound curriculum that defines the shape and scope of the educated person; the erosion of public trust; and among many more, the absence of visionary academic leaders who can articulate the mission of research universities, who can write the brief for them, and who can argue the case persuasively before critical attentive audiences—in short, the lamentable absence of the voices that represented the academy from the time of Eliot and Hutchins to Conant and on down until only a generation or two ago. Yet, none of these perceived problems is particularly new.[2]

Simultaneously, many shrewd, knowledgeable veterans of higher education point out that the American research university continues to be the jewel in the higher education crown, that it remains the

Jonathan R. Cole is Quetelet Professor of Social Science and Provost of Columbia University.

1

envy of the world, the set of universities with the highest prestige and distinction in the nation, the institutions that hold the most sought after positions for talented faculty and students, the continuing producer of more Nobel Prize quality science than any other type of educational or research institution in the world, and one of the few remaining American "industries" with a favorable balance of trade. None of these defenses has been recently copyrighted.

What is new in the current debates about the state of research universities? The problems in generic form are not particularly new. They have existed above or below the surface over an extended period of time quite simply because they are linked fundamentally to the basic social and organizational structure of research universities. When these complex social systems experience disequilibrium, the problems surface. They tend to become open to substantial discourse only periodically—usually when the economies of research universities are constrained or when the conflicts within the university echo broad and fundamental conflicts within American society. But when they do surface anew, they are more often than not brought forward by a new set of critics who are unfamiliar with the history of research universities and the earlier appearances of these problems. In short, problems of governance, leadership, the foci of faculty and student attention, and the relationship of universities to external social systems of government, industry, and the general culture always exist. Nonetheless, our concerns today with the state of research universities do reveal some important new substantive variations on older themes. These new variations are the foci of this issue of *Dædalus*.

The contemporary problems involve dilemmas of choice that have become more pressing over the past several decades. I want to outline a number of these dilemmas and suggest that while the research university as an institution is not about to disappear or to lose its fundamental character and basic strengths, those universities that successfully deal with the dilemmas of choice will have important strategic advantages over their peers in the decades to come. Before discussing a number of these dilemmas, I want to indicate how patterns of growth and change in higher education over the past fifty years have created tensions within the academy and between the academy and some of its traditional partners who support research.

PATTERNS OF GROWTH AND CHANGE

We tend today to think of the major research universities—Berkeley, Chicago, Columbia, Harvard, Stanford—much as we did in the past. In important respects, there are great similarities in the pasts and presents of these universities, perhaps most notably in their basic commitment to teaching and research at a very high level of excellence. They are, after all, elite institutions whose reputations have been largely intact for the better part of the century.

Moreover, there has been relatively little change over the past half century in the number of schools within the universities or in their basic organizational structure.[3] But in ways that are not entirely appreciated, the Harvard or Columbia of today is a very different institution from what it was in 1945. The fundamental difference is in its size and complexity and in its responses to the exponential rate of growth of knowledge. Research universities, our principal incubators of new discoveries and ideas, reflect the pattern of exponential growth first described by the historian and sociologist of science Derek J. de Solla Price.[4]

While Columbia, for example, is in many ways the same university that Nicholas Murray Butler left behind in the academic year 1944–1945 (his last as president), it is in basic ways an entirely different enterprise.

Even in 1944, Columbia was concerned about a balanced budget: it faced a $1.6 million deficit, which it adroitly turned into a $65,000 surplus by June of 1945. This was all on an operating budget that totaled about $11 million. Today, still struggling to balance our books, Columbia will have an operating budget in 1993–1994 that is estimated to be roughly $1.1 billion—a budget 100 times greater than at the point of Butler's departure. Even a cursory glance at the intervening decades reveals dramatic growth in the University's expenses, signaling growth in the number and size of academic programs: from $57 million in 1959–1960 to $170 million in 1969–1970, to $317 million by 1979–1980, to about $800 million in 1989–1990. We have witnessed at Columbia more than a doubling in budgetary size about every ten years, with our annual expenses increasing at a compound rate of close to 10 percent for the past forty-five years.[5] Even allowing for the substantial inflation in portions of that period, this is an enormous rate of

real growth. The same pattern of growth has been sustained by most of the other major research universities.[6]

Patterns of budgetary growth simply reflect patterns of expanding research and teaching opportunities. These changes are the underlying causes of the dilemmas I will consider. Change has come as a consequence of the salience of relatively new concerns of these universities about such matters as equal access to education (which has led to need blind/full need admissions and financial aid policies), affirmative action, and greatly increased support services for students. The positive results of the civil rights movement have led to increased diversity of the university population, and with increased diversity have come new conflicts over the curriculum, university hiring and promotion policies, and admissions and financial aid standards and practices at university colleges. Now that research universities reflect more closely the socioeconomic composition of the larger society, it is inevitable that they will experience more conflicts that were avoided when they had too little of a good thing.

The increased dependence of research universities on federal government financing of research and student financial aid has changed academic and financial relationships within universities. This has led to the enormous growth of health science divisions at research universities, has altered the relative size of health science compared with the arts and sciences and other professional schools, and has produced uncertainty about the future of scientific research at universities dependent on continued government support.

Add to these changes the growth of claims for new scholarly disciplines, the expanded number of Ph.D. programs competing for resources, the emergence of philosophical relativism, the increasing imbalance between research and teaching, and the transformation produced by the information revolution. When this is mixed in with a set of externally imposed constraints caused by a national economy that is not expanding at a rate comparable to that experienced in the 1980s, you have the conditions for dynamic change that will require research universities to confront many difficult dilemmas of choice. When resources contract even as the legitimate demands for sustaining academic excellence expand, universities will face dilemmas of choice, as they do now.

Dilemma One: Governance

How do research universities define their priorities? Who decides what to build, what to favor, what to contract, and what to eliminate? What gives the process legitimacy?

Of critical importance to the research university is the exponential growth of knowledge during the postwar period. Much of this growth was fueled by a massive increase in the federal government's investment in scientific research at the major universities. As knowledge expanded at this pace, there emerged a plethora of new claims for resources to fund new areas of knowledge. Even the great research universities began to experience a gap between the expanding knowledge base and the capacity to offer programs of high quality in *all* of these new areas—while also retaining excellence in the programs that had been sustained for generations.

During periods of rapid expansion in resources—which occurred to a substantial degree through the 1950s, 1960s, and 1980s—the research universities were able to live with the illusion that they could remain "full service universities" without having to make many difficult choices about which new areas of knowledge would take programmatic form and would be supported at a level needed to achieve true distinction; which currently supported areas would have to be phased out; and which areas of knowledge would go uncovered, left for others to develop, thus creating a true division of intellectual labor in higher education.[7]

It is rapidly becoming accepted that the 1990s will not allow for the expansion of the research university at the rate achieved in the 1980s and before. We have seen, accordingly, a spate of articles, generally authored by university or college presidents, former presidents, or those who make it their business to monitor the economics of higher education, that call for "doing more with less," or "growing through substitution" or "making difficult choices between competing goods." There is widespread recognition that it is no longer possible for research universities to afford excellence in all areas of knowledge, including those supported currently and those required to cover the most important areas of new knowledge. Most leaders of America's great research universities recognize that they have to make choices and that failure to do so bespeaks implicit choice in any event. Nonetheless, there has been

far more talk about the need to make critical choices than a willingness to engage directly the problems associated with choice: to make creative, strategic decisions, and then to implement them within a reasonable time.

The fundamental problem of choice at research universities has more to do with basic ambiguity over governance than with the ability to articulate alternatives. Who has the authority, beyond the formal authority registered in the statutes or the table of organization, to make such choices? Who has the power to "veto" the choices made? What are the processes by which the choices of the decisionmakers are legitimated within the university community? What is the role of faculty, students, administrative leaders, trustees, and alumni in making such choices? Traditional business organizations have little problem assigning responsibility for decisions, while universities have failed to do so. The structure of universities impedes decisions from being made, creates suspicion among schools and departments about the explicitness and fairness of criteria for dividing up scarce resources, and reduces the flexibility institutions require to respond imaginatively and reasonably to new academic needs and priorities.[8]

Of course, research universities are not, cannot, and should not be organized in imitation of corporations. The process of decision-making is going to take longer than in the hierarchical culture of the corporate world. The goal is not to imitate the business community, but to take some lessons from it (especially in the administrative and business side of research universities). We must recognize that the rhythms of the external world have changed and that these changes directly affect the internal life of universities. The faster pace and the rapid growth of the institution requires more rapid, year-round responses and initiatives. This new environment requires a clearer process of decision-making so that universities can make meaningful changes and adaptations in a timely way.

The problem that universities have in reaching difficult decisions is not simply a matter of speed, but of certain structural features that produce difficulty in reaching conclusions.[9] First, they tend to be organized around a "company of equals" pattern. Second, they rely heavily on peer judgments of academic quality, which has great value but is not noted for producing high levels of consensus or for unambiguous judgments. Third, there is a high level of motivated

unwillingness of any academic unit to criticize any other—at least when the stakes are as high as reductions in size or possible program elimination. Fourth, the pattern of economic commitments and rigidities associated with tenure can place a significant drag on movements to create changes in the composition of academic units and subunits. Finally, since most academic deans anticipate rejoining the faculty, they are reluctant to burn bridges behind them—a likely outcome if they make difficult decisions that cannot possibly please everyone.

Given these constraints, should such matters of choice be left principally, if not entirely, in the hands of the faculty? Can faculties with highly diverse and often competing interests lead each other to consensus? Is it the mark of outstanding academic leaders that they define priorities and build coalitions within the faculty to support a strategic plan for change—one that involves elimination of some programs and expansion of others? Will popular academic leaders lose their luster at the precise moment that they propose substantial cuts in some academic programs in order to focus resources on other areas of comparative strength? Should presidents and provosts of universities articulate the academic mission and vision for the university and then consult with the faculty about proposed changes?[10] What forms of consultation are appropriate for decisions involving reallocation of resources? To what extent should a limited number of active faculty be permitted to forestall proposed change? Answers to these questions are hardly self-evident since research universities do not have constitutions to govern this decision-making process and the "common law" at universities remains quite ambiguous about how and where decision-making authority resides.

It is, after all, one thing to say that universities will thrive if they have leaders who can build faculty coalitions supportive of difficult choices; it is another matter to articulate how that gets done. The difficulty derives, in part, from the strong value placed on faculty governance, when the vast majority of faculty focus appropriately on their teaching and research and know little if anything about the economics of the university.[11] It is also far easier to argue that there should be "competition" for resources among academic programs— followed by faculty discussion of the relative merits of these programs, which in turn would lead to faculty consensus on choices—

than to operationalize a structure for this competition and achieve faculty consensus. Admirable efforts at consensus building have been known to break down at the first mention of eliminating a department, reallocating faculty billets from one department to another, or reassigning laboratory space from one research program to another.

Efforts at making difficult choices have led to tense times at research universities. Many faculty tend to be opposed to any significant program change—any shift in academic priorities that is accompanied by shifting resource allocations—because they believe it is the slippery slope that could end with reconsideration of their own department's allocations. History will likely show that where substantial changes have occurred as a result of "choices," they have been unsystematic in their development, have involved small units and large expenditures of effort, and have been only tangentially related to any well-defined effort to shape the future direction of the university.

My recent experience at Columbia provides three exquisite, if not entirely admirable, examples. Over the past seven years, while there was substantial growth of academic programs at the university, two departments were closed— Geography and Linguistics—and the School of Library Service. Each of these fields is important, but was deemed not to be central to the future mission of the university. In the case of the School of Library Service, it took two years of intensive work by faculty and administrative committees, senate reviews, and responses to hundreds of individual and many group protests before the decision was implemented. That is the success story. It took seventeen years between the decision and the actual closing of the Linguistics Department; it took nearly as long to do the same with the Geography Department.

The closing of the School of Library Service is particularly instructive because of the implicit criteria of choice that the faculty and administration articulated in the process and debated at some length before the final decision was made. The fact that it was a small unit (four tenured faculty) probably contributed to the eventual outcome, but it was not a central factor. The framework for choice included the following elements: *1)* an effort to establish a balance between core activities of the University and those that are peripheral (if enriching) activities; *2)* academic priorities that juxta-

posed the cost of maintaining and enhancing a preeminent school against the resources required for higher priority arts and sciences needs and the necessity to invest in other new programs; *3)* an evaluation of whether the School was critical to the educational and research missions of *other* schools of the University; *4)* the opportunity costs associated with over 25,000 square feet of space (in a space-poor campus) that might otherwise be used for renovation and expansion of Columbia's main library; *5)* an evaluation of whether the School would move decisively into information science, a goal that had been set five years earlier; *6)* the possibility of students interested in traditional forms of library service obtaining a quality education in the discipline at other universities in the nation; and *7)* the impact on the University's larger reputation of closing a school in an area in which we had been pioneers.

These criteria were used, often without explicit articulation, throughout the discussion of the School's future. There was never any disagreement about the quality of the past contributions of the School or of several of its current programs. There was substantial disagreement, however, in evaluations on some of the criteria and the weight that individuals place on the various elements in the framework. In the end, the decision was not one that called for weighing dollars against academic purposes, but one which confronted academic priorities in weighing the merits of competing academic needs.

The resistance to closing such academic units highlights not only the disposition of faculty, students, staff, and loyal alumni to protect everyone's turf lest their own become vulnerable, but also the distorted conception of the "life cycle" of academic departments, specialties, institutes, and centers at research universities. We have a marvelous sense of fertilization; we are experts at gestation and early development; we know about maturation and full expansion; but we refuse to confront dying and death. The academic way of death is traditionally through atrophy at a Darwinian pace. We rarely consider the idea of a full life course— of what should be associated not only with a beginning but with an end. And this is so because we have neither the rules that permit for orderly governance of choice nor the conceptual frameworks to guide those choices. Moreover, without clear, agreed-upon criteria, many academic leaders, looking at the consequences of "boldness" among

some of their brethren, see, quite accurately, that making significant changes in the face of limited faculty opposition often leads to larger-scale faculty opposition, and potentially to a loss of personal authority and legitimacy.

Establishing informal criteria of choice in the case of the Library School constituted the beginning of a framework to guide difficult choices of this type.[12] The point is simply that discussions of choices would best be held within an agreed-upon framework of evaluation. In fact, we have only rare examples of faculties and their leaders engaged in thoughtful discussion of principles to guide choice. Research universities must consider what internal processes will increase the chances that choices will be viewed as legitimate by the university community.

If research universities can no longer cover all areas of knowledge, then each university will have to determine those areas in which it has comparative advantages in developing and maintaining true distinction. It will also have to judge which are the "core" areas of knowledge, the areas of such importance to the future of knowledge that any great research university, to be defined as such, will have to demonstrate excellence in them.

Finally, research universities will have to develop mechanisms that will enable them, despite their substantial fixed costs, to gain greater control over the resources needed to support new areas of knowledge.[13] Perhaps the greatest limit on flexibility is the tendency to allocate "permanent" tenure billets to departments. Mechanisms need to be developed at many universities for redistributing faculty lines and for developing full resource models for departments that treat resources as more fungible assets that can be distributed to support faculty, student fellowships, scientific facilities, and support services of academic departments.

What, then, is in order? It is time that these universities articulate a division of primary responsibility and authority in decision-making. It has often been repeated that the university *is* the faculty. But in the contemporary world of universities, faculty governance must be shared in an effective way with administrative leaders. Administrative leaders are drawn almost always from the faculty and do not renounce their faculty citizenship when assuming the office of president, provost, or chancellor. The false dichotomy between the faculty and administration ought to be replaced by a more sociolog-

ically appropriate view that some members of the faculty change their roles and their role obligations during their tenure as administrators. As administrative leaders, their interests may no longer be entirely consistent with the interest of their "home" department or school, but they continue to embody the core values and interests of the faculty. Nonetheless, primary control and responsibility for curricular decisions, faculty appointments, and promotions should reside, as they do now, in the active teaching and research faculty. The development of academic priorities should be a collaborative enterprise, with the faculty working with academic leaders. The academic vision and institutional priorities should be articulated by the university's president, provost, and deans—with the president as the voice of the university. The business of translating goals into achievements must be delegated to the executive arm of the university, backed explicitly by the trustees.

Difficult decisions will be better understood within the community if they are consistent with a well-defined, visible set of academic priorities for the university. But ultimately, there must be clear, final authority over the allocation of resources and the changing foci of attention at the university that is vested in its academic leaders. Consultation with faculty, students, and alumni about the bases for choices is essential, but there cannot be inordinate delays in decisions to mollify everyone. Academic leaders should present the faculty and students with clear explanations for their decisions. And, once the choices have been made, there ought to be open reporting of the outcomes that will permit the university community to evaluate the academic and financial consequences of the actions taken.

Dilemma Two: Who Owns the Null?

Research universities are facing a set of challenges and choices of a wholly different kind from those associated with the allocation of scarce resources. One of these is represented by a significant attack on the prevailing organizational axioms, or presuppositions, on which research universities have been built. A second is represented by a fundamental challenge to what John Searle calls "the Western Rationalistic Tradition" in his essay in this volume of *Dædalus*. This attack is leveled against the presuppositions of rationality, of objectivity, of truth, of "there being a there out there," among other

basic epistemological and metaphysical presuppositions that have guided discourse throughout most of Western history, and certainly since the seventeenth century. These challenges to the university's organizational principles and to its philosophical presuppositions are interrelated. They involve conflicting views of the basic principles and what is required to prove that one or another organizational principle is right or wrong.

I shall call this conflict, which involves fundamental choices, "a conflict over who owns the null."[14] As users of statistical analysis will know, hypothesis testing involves setting up a "null hypothesis" and trying to overturn it. The null hypothesis states the hypothesis of zero difference or equality. This can be contrasted with the research hypothesis which involves a statement of expected differences. For example, suppose that I believe that science treats women unfairly in hiring, promotions, salaries, and peer recognition. That belief can be framed as my research hypothesis. To test that hypothesis, I set up the null hypothesis: science treats women fairly, that is, there are no differences in these forms of recognition between men and women. As a researcher, in order to "prove" that there is unfair treatment, I try to overturn the null by collecting sufficient evidence to demonstrate that the null hypothesis of equality must be rejected, that it is not true. I can use various tests, but generally in order to make the research hypothesis credible, I must minimally show that the pattern of difference between men and women would not have occurred by chance more often than five out of one hundred times.

As any empirical social scientist can attest, it is extremely difficult to accumulate enough acceptable evidence to reject, or overturn, the null hypothesis, given the limited power of social science theory and our inability to identify adequate methods and techniques that can be applied to complex social situations. Therefore, whoever controls, or "owns," the definition of the null is apt to preserve it against attacks based on existing evidence. The formulation of the null also determines who bears the burden of proof. It makes a great deal of difference if the null hypothesis is: "University X is a meritocratic institution without racism," rather than "University X is fundamentally a racist institution." Since overturning the null is difficult, the individual or group that "owns" it has a good chance of controlling the conclusion reached. This is particularly true be-

cause owning the null gives the owner control over the standards and practices in establishing "truth." It gives the owner the power to establish the methodology that is acceptable in trying to overturn the null—and that is what can make it doubly hard to overturn.

Consider first the challenge to the basic core values of the research university: meritocracy, rationality, organized skepticism, which enjoins members of the community to test ideas against appropriate evidence, and an open society which supports a free marketplace of ideas. Universities have been organized particularly around the value of meritocracy, which defines and requires the use of universalistic rather than particularistic standards of judgment. This value holds that the admission of students, the hiring and promotion of faculty, and the allocation of other forms of rewards and recognition will be based upon the quality of performance, not on the personal, ascribed characteristics of the individual. To be sure, universities have too often not fully approximated this ideal, but the value has been deeply ingrained in the institution and its self-definition.[15] Those who have governed the elite research universities and who have taught at them strongly believed in these core values. They have thus far controlled the definition of the null hypothesis.

At colleges and research universities, there is a substantial political drama unfolding over who owns the null—who gets to define the "truth" that must be falsified. Interestingly, the current attack on the existing "null" comes from both the cultural Right and the Left. From the Left, in its crudest form, comes the attack that the research universities as institutions are basically repressive, corrupt, racist, sexist, homophobic, biased in favor of Western cultural history and its literary forms, particularistic and nonmeritocratic, and are organized to perpetuate these values. Part of this attack is associated with aspects of "political correctness": efforts to limit "offensive," hurtful speech on campus through the introduction of speech codes; to review teaching and course materials for their content; and to review the content of presentations in the classroom for their offensive character.

Somewhat more subtle are the claims that a reward system that depends upon peer-reviewed publications and peer-reviewed assessments of quality undermines opportunities for "outsiders" to become "insiders." Under the prevailing system, the defender of the

old order (read "old null") purports to make evaluations and decisions about admissions, appointments, and tenure without regard for the personal characteristics of individuals. In fact, the claim is made that these personal characteristics have always been relevant, but not acknowledged, and should now be made an explicit part of the decision-making process. These personal characteristics are relevant in at least two ways—even if *all parties* to the transaction are entirely unaware of their relevance. First, the person or group that owns the null cannot help judging the world from that point of view; and second, there are intrinsic differences between the way in which men and women, blacks or whites, do their work and, accordingly, in the criteria by which their work should be judged.

The attack on the existing presuppositions from the cultural Right assumes that the transfer of control of the null has been all but completed. The presumption is that the cultural Left has won, that the leaders of research universities have capitulated and officially endorsed various forms of limitations on free speech, have supported the creation of academic programs for political rather than substantive reasons, have adopted quota systems in admissions, financial aid, and academic appointments (or at least have adopted a set of different standards that are applied to groups rather than individuals), and have failed to defend faculty and students against unfounded, stigmatizing attacks. Faculty now live with great apprehension that they can be labeled a "racist" or a "sexist" without substantial support from their colleagues or university leaders and the burden of proof now lies with faculty to demonstrate that such allegations are false. Universities are attacked for capitulating to pressure from the Left to increase diversity and multiculturalism, for adopting the principles of group justice while abandoning the concept of individual opportunities without guaranteed outcomes. It is further claimed that entitlement has replaced meritocracy and opportunity as the governing principle in university decision-making.

Whether and how to formulate the null hypothesis is not a trivial decision. On the one hand, if we hold to the presupposition that the university is meritocratic, and that the university defines what "meritocratic" means, the burden of proof remains on those who believe otherwise. If, on the other hand, the null is framed as: "the

university is fundamentally racist, sexist, and homophobic," then the burden of proof lies with those who want to prove that this is not the case. Since disproving the null is difficult, the ownership of the null corresponds to a set of important consequences in the formation of university policy.

Because it is difficult to prove or disprove complex phenomena like discrimination or racism, especially when the conflict is in part over the methods of proof, it is not surprising that the conflict takes on an ad hominem character. Assertions and counterassertions substitute for evidence, in part because the methods of establishing facts are at the heart of the dispute. In Neil J. Smelser's essay in this issue of *Dædalus*, Smelser suggests that academic leaders and faculty at research universities today have an easier time defending themselves against attacks from the Right than from the Left. He notes that universities are traditionally liberal institutions and leaders have had more experience defending against the cultural Right— and they feel more comfortable doing so. But liberal academic administrators and members of the faculty are ambivalent about defending themselves against attacks from the cultural Left, since they share a commitment to many of the goals associated with the Left, such as increased diversity on campus. Nonetheless, they have substantial difficulty with the means used to achieve those goals, and do not share the basic goal of redefining the null hypothesis. Thus, administrators and faculty leaders tread lightly in turning back assertions from the Left that are not supported by evidence. Smelser poses the dilemma faced by these leaders:

> Liberal academic administrators and faculty generally applaud and welcome "diversity" if it is carried out within the confines of meritocracy and the preservation of the values of the academy. When those values themselves come under attack, however, and when the attacks on them appear to be made in the context of antimeritocratic demands for entitlement, liberals are cast in an uncomfortable role, in which they experience a dissociation of—indeed a conflict between— meritocracy and egalitarianism. Their role now becomes one of a conservative elite, jealously guarding those values of universalism that were invented and best suited to challenge conservative elites.[16]

Ironically, liberal administrators feel reluctant to take a liberal stand for fear of not appearing liberal enough. A good example of this reluctance can be found in the recent debates over free speech

and speech codes on campus. The prevailing null is that the university campus should be a free marketplace of ideas, with no limits on speech except, perhaps, in those rare events when the physical safety of the community is at risk. But that position, which would be held by liberal advocates of first amendment protection, is under attack. The position to the Left suggests that the protection of disadvantaged groups and the creation of a civil society on campus call for some judicious limitation on speech when speech takes the form of hate speech or displays of "offensive" symbols, such as sexually explicit photographs, a Confederate flag, or a swastika on the outside of a dormitory wall or inside a student's room. This attack on the null is cautiously, and ambiguously, resisted— often because of apprehension that those who defend free speech will become its victims, a result of stigmatizing labels. The liberal administrator fails to use speech in defense of his position for fear of being labeled racist or sexist, and as a result suggests an absence of commitment to the null.

What makes the current dilemma particularly interesting at universities is that the conflict over who owns the null hypothesis is a struggle for political power between groups within departments, centers, student bodies, faculties, institutes, administrations, and professional associations, and is being influenced by the changing social and ideological composition of these groups. The ultimate "fate" of the null may not be the result of any single choice, but of a series of choices, each having only a limited effect on the final outcome. This is the way social change often comes about.

Control of the null is no less important in the contemporary debates over the content and methods of scholarly work within many of the humanities and social science disciplines. It is not clear that the debates are carried on in terms of standard criteria of scholarship — or should I say traditional forms of scholarly discourse—since in some sense the criteria themselves are the subject of the conflict.

With increasing frequency, scholars in the humanities and social sciences at research universities are extending the older attack on positivism, but often without much knowledge or understanding of the deep philosophical and sociological questions that are involved in the challenge. The challenge is for control of the content of scholarship, and in some cases basic intellectual control over the

core journals, the disciplines, and departments. In its current form, this challenge asserts that the fundamental tenets of Western philosophy, those on which modern science and social science have been built, are misguided. The challenge is to the basic concept of rationality. The constructivist argument is that there is no objective reality, that scientific knowledge—indeed all knowledge—is subjective and socially constructed, and that facts cannot exist independently of the attributes of their producer.[17]

Many of the critics of rationality, reality, objectivity, and the correspondence theory of truth associate that epistemology and metaphysic with a repressive social organization of the research universities—if not larger communities. The critics and their followers have multiple objectives. For some members of the professoriate who have thought deeply on these issues, it is to overturn the cognitive null because they believe that the older Western metaphysic and epistemology is wrong or no longer has positive heuristic value. For some within the professoriate and student body, it is to further a political agenda that has little to do with philosophy or scholarship. In some departments at research universities, the critique of the principles of reality, rationality, and objectivity has become the "politically correct" position and those scholars who fail to accept the critique are apt to find promotion and peer recognition increasingly difficult to acquire. It is not clear that members of university communities are fully aware of the implications of the attack on the cognitive null. In the meantime, scholarship at universities is changing without many members of the scholarly community coming to grips with the implications of these trends. For better or worse, control of the null is being relinquished in many departments at research universities without a serious discussion of the consequences of the transformation for scholarship and the training of students.

The unwitting abandonment of ownership of the null involves verbal transactions that are interesting enough to have attracted the attention of playwright David Mamet.[18] His play, *Oleanna*, shows us three meetings between John, a professor, and Carol, his student, in which the ownership of the null passes progressively from his hands to hers. At their first meeting, Carol has come to see him because she has written an unsatisfactory paper and is failing his course. Carol is, as she states early on, from a lower social and

economic class than the faculty and many of the other students. She has worked hard and sacrificed to come to college and is diligent and earnest. She finds that despite her hard work she does not understand most of what transpires in her classes: her determination to succeed makes her aggressive about her failure to understand. Mamet's audience laughs when John, in an attempt to show Carol that her paper is gibberish, reads it aloud: "'I think that the ideas contained in this work express the author's feelings in a way that he intended, based on his results.'" John then asks her, "What can that mean? Do you see?" Mamet's audience are also people who own the null and although they may find John a bit pompous, they share with him the judgment that Carol's words do not mean anything. Carol, although she does not understand why her words lack meaning to John, believes entirely in John's evaluation of her work and in the absolute and eternal correctness of the ideals and standards which give him the right to judge. John owns the null, the power to define the vocabulary and syntax of the classroom, to define the kinds of logic and reasoning that are legitimate, to define who will receive a college degree and go on to reap the social and financial rewards it confers and who will not. John is clearly the beneficiary of this system: he has just received word he will be granted tenure and he is preparing to buy a house for his wife and child.

Mamet begins the first interview by giving John an innocently pompous speech which gives nothing away to Carol but which shows the audience the way in which the routine speech of academic daily life contains within itself the seeds of its own destruction. Carol asks, "What is a 'term of art'?" John's answer is innocently filled with academic terms of art:

> What is a "term of art"? It seems to mean a *term*, which has come, through its use, to mean something *more specific* than the words would, to someone *not acquainted* with them. . .indicate. That, I believe, is what a "term of art" would mean.[19]

His definition of a "term of art" reveals to the audience if not to Carol that language is not a universally clear medium. At the same time, his use of the rhetorical question, the conditional tense, and the insincerely self-deprecating "seems to mean" and "I believe" which reveal him as an academic insider to the audience are taken

literally by Carol who asks, "You don't know what it means?" The literalness of Carol's response confirms that she is not privy to these academic terms of art. The stock diffidence, self-examination, and self-deprecation of academic speech of which John is a master and which mark him as an insider will turn out to belie real diffidence, real introspection, and real self-deprecation. The desire to *sound* open-minded and thoughtful does indeed reveal an ambivalent and fatal desire to be open-minded.

In words that should be uncomfortably familiar to everyone in academics, John goes on in the remainder of their first meeting to give away both his ownership and his claim to ownership of the null. In the face of Carol's persistence and lack of understanding, John attempts to mollify her and end the endless interview by means of a series of partially hypocritical, partially truthful statements of self-deprecation. First, John tries to put Carol off by insincerely suggesting to her that she is very bright but angry. Then he almost saves himself by beginning to suggest to Carol that her failure is her own fault. When Carol protests, he does not finish his thought. Almost immediately, John makes one more pass at upholding his standards and then he flounders:

John: What do you want me to do? We are two people, all right?
        Both of whom have subscribed to. . .

Carol: No, no. . .

John: . . .certain arbitrary. . .[20]

He reminds Carol that she is failing according to criteria to which she subscribed in a disinterested manner before she could know the outcomes of her subscription, but then in a moment of honesty, doubt, and weakness, he characterizes these standards as "arbitrary." Contrary to John's intentions, this only upsets Carol further and she presses on, insisting that there are standards that he must teach her, that she must understand. Finally, John succumbs to Carol, to his own self-doubt, to the complexity of the issue, and to open-minded diffidence and self-scrutiny which his discipline has held up to him as good. He suggests to Carol that she did not understand his book because "perhaps it's not well written. . .," that the distinction between teacher and student is an "Artificial *Stricture*," that the tests which students take in school and in

college are "nonsense," designed "for idiots. . .*by* idiots. . .," that he would not employ the people on his tenure committee to wax his car, that she will get an "A" in his course because they will "break the rules" and "start over," and that they can do this because "What is the Class but you and me?" Carol is, of course, shocked. She has been told that there is absolute meaning in the world and in words and that her professors will teach her to understand. She has been told, as John says, and holds it as "an article of faith, that higher education is an unassailable good." In this interview, John has revealed something that he does not entirely believe—that he owns the null by power rather than by right. The possibility that this is true will transform both of them and redefine the entire discourse of the world of the play.

At their second meeting, Carol has brought John up on charges of elitism, sexism, and sexual harassment. Carol has quoted him accurately to the committee, and he finds in their report his own words. As he realizes that he no longer controls the definition of the vocabulary, John begins to find it difficult to make sense—or to understand. On the contrary, Carol, whose speech has been rather minimal, begins to speak in longer, more sustained and impassioned phrases. Of the charges, she says:

> You think, you think you can deny that these things happened; or, if they *did*, if they *did*, that they meant what you *said* they meant. Don't you see? You drag me in here, you drag us, to listen to you "go on"; and "go on" about this, or that, or we don't "express" ourselves very well. We don't say what we mean. Don't we? Don't we? We *do* say what we mean. And you say that "I don't understand you. . . ."[21]

Now, the words and the charges mean what Carol says they mean and it is John who does not understand. When John tries to deny that he intended to harass or intimidate her, Carol eloquently tells him what his own words meant to her:

> How can you *deny it*, You did it to me. *Here*. You *did*. . .You *confess*. You love the Power. To *deviate*. To *invent*, to transgress. . .to *transgress* whatever norms have been established for us. And you think it's charming to "question" in yourself this taste to mock and destroy. But you should question it. Professor. And you pick those things which you feel *advance* you: publication, *tenure*, and the steps to get them you call "harmless rituals." And you perform those steps.

Although you say it is hypocrisy. But the aspirations of your students.
Of *hardworking students*, who come here, who *slave* to come here—
you have no idea what it cost me to come to this school—you *mock* us.[22]

At their third meeting, Carol, and her "group," has seized the
null not only within the university, but in the society at large: John
has been charged with rape, the statutory definition of which,
according to the authorities, matches his actions. The audience
knows that according to the statutes and definitions of the old null
John neither intended nor committed attempted rape. To prevent
their sympathies from going over to him and also to reveal the
weakness of his unexamined principles, Mamet has John try to take
refuge in his belief in "freedom of thought." Carol understands
perfectly that from her point of view "freedom of thought" is the
last refuge of professorial scoundrels:

> Then why do you question, for one moment, the committee's deci-
> sion refusing you tenure?. . .You believe in what *you call* freedom of
> thought. Then, fine. *You* believe in freedom-of-thought *and* a home,
> and, *and* prerogatives for your kid *and* tenure. And I'm going to tell
> you. You believe *not* in "freedom of thought," but in an elitist, in, in
> a protected hierarchy which rewards you. And for whom you are the
> clown. And you mock and exploit the system which pays your rent.
> You're wrong. I'm not wrong.[23]

Carol brings the point home both to John and to the audience that
"any atmosphere of free discussion is impossible" when one of the
discussants has power over the other. As long as there is a null,
someone will own it, and as long as someone owns the null, speech
can never be free. Mamet does not explore the implication that
without the null, or with a uniformly and universally-held null,
speech might be said to be free—except that it would be meaning-
less. Mamet does suggest that he sees no net gain or loss in the
transferring of the null we have just witnessed, simply a transfer of
power and a shift in terms.

Oleanna has created quite a bit of controversy and has been
disliked particularly by people who feel that the play portrays
Carol's feminist awakening unsympathetically. These audiences are,
in fact, people who believe in John's version of the null so strongly
that they cannot imagine it ever being justly changed. They, like

John, want to enlarge the ownership of the null without changing its content. History and Mamet both teach us that this is unlikely.

Why does the current struggle for ownership of the null pose a dilemma of choice for university faculty and administrators? Because our own ideal of free inquiry and our own pride of intellect requires us to acknowledge the ways in which universities are not meritocratic or open to free inquiry and speech. Simultaneously, many of us believe in the ideals of meritocracy, organized skepticism, rationality, objectivity, and truth and wish to preserve them. To agree that there have been violations of the basic principles does not require their abandonment. To agree, however, that such principles are unattainable ideals may perhaps reduce them to empty words which allow one group to exercise power over others. The dilemma that universities face is how to deal effectively with demonstrable abridgments of the principles of meritocracy, objectivity, and rationality without fatally undermining them. Unless it rests on these principles, control of the null at the university is simply another sort of political power and social coercion.

It is hardly a new idea that knowledge is in some measure situationally based. However, does accepting the fundamental idea that scientists and the sciences are affected by their social characteristics and location mean that we must abandon the idea that there is an objective reality that is being increasingly approximated with additional knowledge? If owners of the null acknowledge that knowledge is to some extent socially constructed, that there are limits to objectivity, must they give up the ideal of objectivity and the correspondence theory of truth?

When we examine social and intellectual changes in scholarly disciplines and in the character of the university itself, the seeds of the transformation may prove to be sowed by the groups that currently claim ownership of the null. Those who relinquish the null may contribute to their own loss because they see some "truth" in the criticism and because they are committed to rationality and objectivity. Ownership can change as an unanticipated consequence of a commitment to ideals that are under attack; ideals that will be abandoned. If leaders go further, as in Mamet's play, and agree that the basic principles are empty and that they represent nothing other than expressions of prevailing power relationships, the stage is set for the overturn of the null. The leaders of university admin-

istrations and departments are being challenged to defend the core principles on a philosophical and sociological basis. If they choose not to respond to the challenge, transformations or stability in the null is apt to hinge on the efficacy of local political maneuvering and tests of power.

Two propositions are worth considering. First, overturning the null comes easily when the owners are not deeply committed to the principles that underlie the ownership. Second, with the shift in ownership of the null comes a shift in control of moral authority. For these reasons, among others, the stakes of the challenge are high at the research universities.

Dilemma Three: Striking a Proper Balance between the Demands of Scientific and Scholarly Research and of Teaching

Research universities continue to face the dilemma of how to fulfill their dual mission of excellence in teaching as well as in research. Is it possible in the highly competitive world of research universities, where academic free agency flourishes, for universities to produce faculty members who are among the most distinguished in the world in terms of research productivity and who will devote sufficient time and energy to teaching, particularly of undergraduates?

The legitimacy of the research university is at stake in being able to demonstrate that the answer to this question is yes. The dilemma is how to maximize productivity on both fronts so that these universities can reinforce their claims to preeminence in research with those who support and evaluate it and demonstrate teaching excellence and commitment by senior faculty with a public that is beginning to demand it.

If academic leaders feel that there is currently an imbalance between the time allocated to research and to teaching, it is of their own making. The current state of affairs results from research universities being in a highly competitive environment where the goal is to be "the best" (among the top five to ten ranked departments or professional schools), and to be *perceived* as among the best. Such perceptions will not come from hiring and promoting those who have extraordinary track records as teachers without equivalent research records. To be recognized as the best, research universities try to monopolize the talent market. This is even more difficult today than fifty years ago, but that is the goal: to bring in

as many truly distinguished faculty as budgets and persuasion will permit—both younger and more established eminences, whose research publications are envied by others and who have won recognition from institutions that confer recognition and rewards for research achievements. That is the script for legitimating the strength of a department, a school, or a research university. It is the basis on which universities make claims for their unique quality and preeminence. It is how research universities gain legitimacy and increased resources in the competitive world of research funding and in the competition for the best students and faculty. It is the principal basis for their reputational standing and prestige. Moreover, it is the basis for prestige for individual members of faculties—even those who gain recognition not for their own achievements but through their association with a distinguished department or school. Thus, personal and institutional legitimacy is obtained predominantly through research achievements. That is what academic leaders have coveted as much, if not more, than the faculty. Indeed, to a significant degree, enhancing research excellence is a measure of an academic leader's performance in office.

Thus, the dilemma is often incorrectly cast in terms of individual faculty members trying to avoid teaching while academic administrators seek to steer them back to the classroom. I know very few faculty who are not interested in teaching bright students and very few academic leaders who do not spend time recruiting scholars and scientists who are known for their research rather than for their teaching. In fact, academic leaders have consistently applied strong pressure and provided large incentives for faculty to pursue their research interests with almost singular devotion. And for good reason. This not only reinforces what most faculty find exciting and enjoy doing, and leads to a national and international reputation, but research excellence legitimates the university's claim to greatness. Greatness, as currently defined, depends almost exclusively on the quality and quantity of research produced by the faculty and on knowledge within important reference groups of that quality. Academic leaders recruit and support scientists and scholars who have made or are apt to make seminal discoveries—those who define fields and specialties.

The real puzzle is how to reshape a reward system, which has been created by the competition for quality and prestige in research

and which has upset the balance between teaching and research, so that the scales are rebalanced and research is unimpaired. Is it possible to achieve very high levels of commitment to and excellence in teaching among the most prominent scholars at research universities without damaging the quality of the research enterprise? What price needs to be paid and will the outcome prove worthwhile?

Some years ago, former Yale University president A. Bartlett Giamatti, in one of his lyrical essays about the "real world of the university," enjoined research universities to increase their commitment to teaching. "All the research we want to do, all the obligations we must carry as faculty are in some sense nurtured by and are versions of that first calling, which is to teach our students. We want always to do more, but we can never do less."[24] Many university presidents have followed Giamatti in calling for increased attention to teaching, and particularly to undergraduates. There is, of course, much virtue in these statements of mission. As lyrical and appealing as Giamatti's prose may be, his rhetoric fails to capture the structural tension that exists at research universities between these two dimensions of the mission, and the language surely fails to recognize fully the set of fundamental cross pressures and structurally induced ambivalences felt by many faculty who aim simultaneously to be "the best" in the laboratory and in the classroom. The cross pressures result from being encouraged to apply for and to obtain as many research grants as possible; to support expensive research programs and laboratories, including support for graduate and postdoctoral students; and to publish research that brings renown to the university, while being pushed to devote time to graduate and undergraduate classroom teaching at a level of commitment and performance equal to that displayed in running a research program. Not only do these normative prescriptions create substantial time-budget problems, but they often lead to uncertainty among faculty about how they are expected to spend their time. Under these stressful conditions, most faculty members look to the reward system for guidance. Until the reward system changes and the incentive structures shift, there will continue to be a preponderance of effort directed toward research.

It is not impossible to address this dilemma and to make an effort to rebalance the scales. Academic leaders can do more to shift the

balance through their actions than their rhetoric. Consider some of the things that could be done at research universities to gain greater support for undergraduate and graduate classroom teaching, and ultimately to place greater emphasis on the lasting contributions scholars can make through the achievements of their students. First, as former Harvard University president Derek Bok has suggested, research universities should not compete for faculty by negotiating reduced teaching loads or unusually generous paid leave arrangements.[25] During the 1980s, the bidding wars for academic stars often led renowned professors away from students. This created a "class" structure within the ranks of the professoriate; and reinforced the perceptions that classroom teaching was not prized. The legitimacy of these universities began to be undermined as the public became aware of escalating tuition costs coupled with the retreat from the classroom.

Second, research universities must try to create a culture that explicitly honors excellence in teaching as well as in research. We must not only insist on good teaching, but we must demonstrate that it will be rewarded. Again, Derek Bok, among others, has suggested that we create "teaching portfolios" that will not only be used in promotion and tenure decisions, but in helping young scholars become outstanding teachers.[26] We must not simply demand better teaching, as if the demand will be sufficient to create the supply of distinguished teachers. We should invest in programs that help young researchers become outstanding classroom teachers, and begin to develop better indices of the quality of their teaching performance—ones that measure different types of teaching in different types of settings.

Third, this desirable cultural change is more apt to happen if research university leaders insist that quality of research dominate quantity. Promotion and tenure decisions must focus on the best that a scholar or scientist is able to produce, not on the sheer volume. Limiting the number of publications that could be submitted for review by a candidate for tenure would reinforce the effort to limit output for its own sake. It might also permit greater concentration on teaching roles and the interaction between research and teaching.

Finally, we must clarify the problem itself. Complaints about undergraduate teaching at American universities have occurred reg-

ularly at least since Benjamin Franklin ridiculed the instruction offered to Harvard undergraduates in 1772. The problem today, as two hundred years ago, is not one of the quantity of teaching as much as of the content and the quality. The dilemmas associated with a rebalancing of the roles of teaching and research will not be solved even if we manage the difficult assignment of changing the reward system. It is not simply a matter of substituting full professors for advanced graduate students in undergraduate classrooms, or of faculty offering more courses. The absence of full professors from classrooms may be symptomatic of the problem, but it fails to confront the major issues of the quality of teaching, and the lack of coherence in the curriculum that we offer students—that is, unstructured curriculums that do not represent the books and materials that the faculty believes college students should engage, but a grab bag of courses that capitulate to market forces and current fashion. A serious examination of classroom teaching will undoubtedly reveal that some advanced graduate students are brilliant teachers who will become the great, full professor teachers of tomorrow, while some of the "giants" of today who are absent from the classroom were the poor teachers of the past. The problem is not really the professorial rank of instructors (although professors of all ranks should be active teachers of undergraduate and graduate students); it is the absence of institutional interest in understanding the bases for a productive advanced learning experience, and an unwillingness of many research universities to commit the resources necessary to improve teaching performance.

Until now, research universities have failed miserably in teaching young scholars and scientists about the art of teaching. We tend to scoff at pedagogy, are unwilling to take seriously the idea that young scholars can acquire skills as teachers, and we do not prepare them for one of their two fundamental roles as professors. This does not mean that universities foster poor teaching. They do not, but the quality of teaching that exists is a function of individual endowments and effort, largely made in isolation, and there is little being done to help young scholars become better teachers—and to have them consider new, nontraditional modes of acquiring and transmitting knowledge. We would never contemplate a similar approach to the research training of graduate students. This set of attitudes needs to be changed if we are to improve the quality of the

teaching offered to both undergraduate and graduate students at research universities.

The real challenge then for research universities is not to lower research standards in appointment, promotion, and tenure decisions in order to accommodate "better teaching," but to recognize and facilitate demonstrated quality in teaching performance among brilliant researchers. The message sent by academic leaders to the faculty must be unambiguous; the actions that follow must demonstrate that the words in the message are not empty. It would be a significant mistake, and unnecessary, for research universities to lower the threshold on research quality required for recognition and tenure. Research universities need to increase expectations and rewards for teaching excellence—and to require that all members of the permanent faculty demonstrate their capability as teachers. They need to systematically evaluate teaching performance in every hiring and promotion decision; they need to increase the visibility of extraordinary teaching in the university community; and they need to initiate programs that will help brilliant young scientists and scholars become outstanding teachers. The research university should become the place where it is once and for all demonstrated that it is a myth that excellence in research and teaching performance are fundamentally incompatible.

Dilemma Four: The Partnership between Research Universities and the Federal Government

How can the partnership between research universities and the federal government be redefined and new sources of research support be acquired without entering into Faustian bargains? The 1940s Vannevar Bush paradigm, which defined the partnership between the federal government and the research university, is rapidly changing.[27] It is ironic, of course, that this is the case since this partnership has resulted in American preeminence in science in the postwar period. When all is said and done about changes in the Bush paradigm, the federal government must and will continue to be the principal supporter of basic research in the nation and at universities. But it is not apt to invest on the same terms that existed during the period of extraordinary growth in knowledge over the past fifty years.

Consequently, research universities face increasingly important dilemmas about the support of basic science and technology. *1)* What role should the research universities play (indeed what role can they play) in modifying or replacing the older Bush paradigm with a new framework that maintains American preeminence in science and preserves the research university's role as the principal incubator of scientific ideas and talent? *2)* How can research universities retain commitments from the federal government while simultaneously developing new sources of research support that do not exacerbate existing tensions between the government and the universities? *3)* Can and should university scientists redefine their scientific goals and reorient themselves toward new types of scientific and technological problems that have the potential for short-term practical results? *4)* Can research universities adapt successfully to changing research conditions by increasing the number of inter-university collaborations and consortial research efforts? *5)* Can research universities increasingly collaborate with international partners without undermining national economic interests and American support for their research efforts? *6)* How can research universities develop new research relationships with the industrial and corporate world without entering into a Faustian bargain?

The dilemmas facing research universities are nothing less than how to sustain the world's most creative science and technology enterprise without the rate of increases in federal support that would appear to be needed to do so. But these dilemmas are not simply about obtaining new research resources. They are about the types of changes that the university scientific community will have to undergo and the bargains it will have to strike in the effort to preserve and expand the research enterprise while ensuring its continued quality. The drama in the situation lies in the nature of the bargains: what is being given up, at what cost, to achieve what goals?

Within the past five years, it has become increasingly clear that the rate of increase in government investments in science and technology, which has been doubling every decade or so, and which marked most of the postwar period, will no longer be sustained. Given the nation's economic problems and the current efforts at deficit reduction, real growth during the 1990s is apt to diminish. Moreover, the increased cost of conducting pioneering scientific

research will increase, intensifying still further the existing competition for federal dollars among research universities.

Unfortunately, the reduced rate of investment in science has exacerbated tensions between Congress and the research universities. The points of view in these recent debates between Congress and the research community have been extensively covered in the media. In the end, leaders of the research universities fear that the recent polemics and congressional actions have further undermined the special status that research universities have enjoyed in American society over the past half century: higher education has become just one more competitor for a piece of the federal budget.

In the post-Cold War era, the military rationale for government investments in science (which was in fact more central to the Bush paradigm than most observers acknowledge) will have to be replaced by a new rationale—one that builds on the social and economic benefits for the continued investments in American science and technology. As I have noted, there can be no substitute for federal support of science if American leadership in science and technology is to be maintained. But there are possibilities for new sources of substantial, supplemental capital that could fuel the next phase of scientific advance by releasing creative scientific energy that thus far has remained fettered.

One such source of financial and human capital can be found in a closer partnership between the federal government, American industry, and the research university—with the American public as potential beneficiaries. The building blocks for that partnership are, in fact, already in place. They have been developed as a direct consequence of the prescient Dole-Bayh Bill of 1981, which authorized universities to hold the patent and licensing rights to discoveries that were produced with federal funding. A new, expanding partnership with the industrial and corporate world holds great promise for new sources of capital that can produce important scientific and technological discoveries, but entering into that new partnership is fraught with its own dilemmas and difficult choices.

Recognizing the potential for support of biomedical and other scientific activities, university leaders have developed new offices of science and technology that examine research discoveries for their potential practical applications. While these offices are only in their blueprint phase of development, the patents and licenses that result

from their work are linking the university research community with biotechnology incubator companies and with more established firms, as well as with new computer software businesses. Some universities are developing new high-technology "parks" that are introducing new industries into urban centers desperately in need of economic development. The income from the patents and licenses is bringing substantial new resources to the universities that can be used for internal reinvestments in their scientific and engineering activities. This new capital allows universities to seed innovative, high-risk, high-payoff programs; to invest in novel ideas that cannot initially obtain government funding. These investments can, however, be leveraged into research programs that are highly attractive in the longer run to government funding agencies.

The resources that could be made available for investments in new scientific efforts at the research universities are not trivial. At Columbia, for example, annual revenues from patents and licenses have risen from roughly $4 million to $24 million over the past five years. Other major research universities have experienced similar growth. It is noteworthy that this represents the annual return on an endowment of about $480 million, given a 5 percent spending rule. Moreover, it is widely believed that we are seeing just the tip of the iceberg. Over the next decade, we could see these figures grow to as much as $75 million a year.

But there is a potentially darker side to these bright possibilities. What price, if any, will have to be paid for these new partnerships, and therefore, what balancing acts must be considered by research universities? Consider six problems that already exist for those that have taken the lead in developing these new relationships.

First, industrial support has, of course, its own uncertainties. Motivated more by the bottom line than universities, businesses that invest in university-based research can and will make rapid decisions to cut support when and if they feel it lacks profitability. Reducing dependence on federal grants and contracts through partnerships with industry has its own set of built-in uncertainties that can affect university capital investments as well as hiring and promotion decisions. Second, universities will have to balance investments in high economic payoff research against sustained effort in more basic and intellectually challenging research. It is not, in fact, known whether or not these efforts truly compete with each other,

or whether the efforts are additive or complementary. Third, research universities will have to examine increasingly the allocation of effort by the faculty when some patentable, but less significant, research may lead to large personal gains for the faculty. There is a real possibility that the normative code of scientific research will be modified as a result of the terms of the new partnership with industry. In the past, individual scientists sought recognition for their discoveries but eschewed direct economic gain. That has now changed. Many scientists with extraordinary capabilities are now direct beneficiaries of the patents and licenses produced by universities. This is a matter of university policy. An increasing number of university faculty members are stakeholders in incubator biotechnology or computer software companies. Indeed, many universities are becoming holders of equity in these new companies. These new relationships between economics and science pose a set of dilemmas for universities that are just beginning to be addressed. In fact, the possible changes in the normative structure of science is related to a fourth problem: universities must balance their dedication to a neutral position regarding the outcome of scientific experiments against their efforts to support the entrepreneurial efforts of their talented faculty. This may not seem like a thorny issue, but anyone who has served recently on internal science and technology review committees can tell you that universities are increasingly facing ethical and moral issues that previously they rarely had to confront. Conflict of interest policies are being redrafted with an eye toward maintaining the norm of organized skepticism while reinforcing creative faculty research energies. Fifth, universities must deal with new problems regarding the training of their graduate students. They will have to be concerned about how scientists who stand to gain from patented discoveries mentor students. When there is a potential conflict, do faculty continue to steer students toward the most intellectually interesting and challenging projects rather than to those with the greatest potential for personal profit? Finally, research universities will have to examine closely how their commitment to open science is affected by their relationships with both foreign and domestic businesses. Each of these problems represents new policy questions and choices to be made by universities as they seek to fulfill their research mission.

Some observers of research universities foresee major structural changes over the next decade. They envision the end of the nineteenth-century Germanic model of departmental and school boundaries. I doubt that we will see these types of structural reorganizations, and we surely will not see them artificially imposed on the current structure of departments, centers, and interdepartmental research institutes. The best of the research universities will continue to be sources of national pride—an American institution that remains superior to its counterparts around the world. Nonetheless, by the turn of the century, we will probably return to many of the same problems and dilemmas that we have discussed in this volume. The themes will be the same; the variations will have changed. When we think about which research universities during the 1990s made significant gains in their relative quality and reputational standing, we will, I believe, focus on those that dealt effectively with the dilemmas of choice discussed in this volume.

ACKNOWLEDGMENT

ENDNOTES

[1]Among other works, see, Martin Anderson, *Impostors in the Temple: American Intellectuals Are Destroying Our Universities and Cheating Our Students* (Englewood Cliffs, N.J.: Simon & Schuster, 1992); Jacques Barzun, "We Need Leaders Who Can Make Our Institutions Companies of Scholars, Not Corporations with Employees and Customers," *Chronicle of Higher Education*, 20 March 1991; Allan Bloom, *The Closing of the American Mind* (Englewood Cliffs, N.J.: Simon & Schuster, 1987); Derek Bok, *Universities and the Future of America* (Durham, N.C.: Duke University Press, 1990); David Bromwich, *Politics by other Means: Higher Education and Group Thinking* (New Haven, Conn.: Yale University Press, 1992); Dinesh D'Souza, *Liberal Education: The Politics of Race and Sex on Campus* (New York: The Free Press, 1991); A. Bartlett Giamatti, *A Free and Ordered Space: The Real World of the University* (New York: W.W. Norton, 1988); Roger Kimball, *Tenured Radicals: How Politics Has Corrupted Our Higher Education* (New York: Harper and Row, 1989); Henry Rosovsky, *The University: An Owner's Manual* (New York: W.W. Norton, 1990); John Searle, "The Storm Over the University," *The New York Review of Books* XVII (19) (6 December 1990): 34 – 42; and Charles J. Sykes, *ProfScam: Professors and the Demise of Higher Education* (Washington, D.C.: Regnery Gateway, 1988).

[2]See, for example, "American Higher Education: Toward an Uncertain Future," Volumes 1 and 2, *Dædalus* 103 (4) (Fall 1974) and 104 (1) (Winter 1975). Eliot and Conant were, of course, distinguished presidents of Harvard; Hutchins established the preeminence of the University of Chicago.

[3]I will not attempt to define "the research university" beyond the obvious: its core mission is both teaching and research in the form of contributions to new knowledge through original scientific and scholarly discoveries and interpretations. Such a broad definition takes us only so far. Clearly, even the universities classified as research universities by the Carnegie Commission differ in the number of their professional schools and in their coverage of liberal arts subjects. The question remains whether some components of the research university are essential to its identity while others are not.

[4]Derek J. de Solla Price, who charted exponential growth in science, noted, for example, that fully half of all the scientists who have lived since the seventeenth century are alive today, and that the intellectual half-life of the scientific literature is rapidly decreasing because of the exponential growth of those literatures. For example, in a specialty like high-energy particle physics, the half-life is a mere five years.

[5]During the same forty-five year period, gifts to the university have grown from $1.4 million in 1945 to over $120 million in 1989–1990; faculty size has grown less rapidly, from 362 full professors in 1945 to about 750 today. Perhaps the anomaly in the overall pattern is found in the growth in the student population. This has varied widely by school, with the college almost tripling in size, while the graduate faculty of arts and sciences has grown by less than 20 percent.

[6]While I do not have precisely parallel data, budget materials obtained for Harvard, for example, suggest a budget growth from about $217 million in 1972–1973 to $1.2 billion in 1991–1992; and growth from $174 million to $653 million between 1972–1992 at the University of Chicago. Faculty size and student populations have not grown nearly so rapidly at these universities.

[7]The problem of dealing with a gap between the bases of knowledge and the resources to cover an expanding area has been the subject of concern in earlier periods as well. It is noteworthy that a number of the great research universities, such as Princeton, MIT, and Cal Tech, never defined their mission in terms of "full service." Nonetheless, the great private and public research universities have tried, by and large, to sustain substantial, if not full, coverage.

[8]I have focused here almost entirely on choices involving academic programs. Although universities do not find it easy to reach agreement about administrative cuts, and they too often do not link these cuts with an ordering of academic priorities that require some services more than others, making administrative cuts is much easier than making hard choices about academic programs.

[9]Dr. Elinor Barber's comments were particularly helpful.

[10]In one of his first communications, President Richard Levin suggests one method, building on the work of a predecessor at Yale: "On July 1, 1978, A. Bartlett Giamatti issued the first memorandum of his Presidency: 'In order to repair what Milton called the ruin of our grand parents, I wish to announce that henceforth, as a matter of University policy, evil is abolished and paradise is restored. I trust all of us will do whatever possible to achieve this policy objective.' I have ap-

pointed a committee, chaired by the University Chaplain, to investigate why the Giamatti Proclamation failed to produce the intended result. I have asked the committee to study the feasibility of abolishing evil and to develop a strategic plan for the restoration of paradise. The committee will present its findings to the University Budget Committee, which will determine whether paradise can be restored without further cuts in academic programs and support services. Before any action is taken, I assure you that there will be opportunity for full discussion by the appropriate faculties, the Yale College Council, the Graduate and Professional Student Senate, the Association of Yale Alumni, Locals 34 and 35, and the New York Times. I expect to transmit recommendations to the Yale Corporation before the end of the millennium." E-mail communication from Richard Levin to members of the Yale community, 1 July 1993, 11:27 AM.

[11] The strong value placed on faculty governance today is often mistakenly believed to have originated with the inception of the research university. In fact, Edward Shils has argued that there has been a de facto shift in authority from presidents and trustees to faculties since the early part of this century. Before the turn of the century, presidents were autocrats with complete backing from their trustees. By 1940, the faculty had gained control over appointments, promotions, degree requirements, new courses of study, etc. See, W. Allen Wallis, "Unity in the University," *Dædalus* 104 (1) (Winter 1975): 72.

[12] A recent joint faculty and administration effort at Columbia attempted to identify some criteria that might be used in establishing academic priorities. Consider the nine criteria that we thought should be considered when making choices among "competing goods:" *1)* centrality of the field to the university's mission and goals; *2)* current state of the field, discipline, or specialty; *3)* current academic excellence of the field at the university—whether its organizational shape is department, school, institute, or center; *4)* projected vitality of the field over the next several decades; *5)* relevance and contribution of the field to the undergraduate curriculum and to the training of graduate and professional students; *6)* contribution to other fields, disciplines, and schools at the university; *7)* additional investment required to improve significantly the quality of the department, school, or organizational structure; *8)* sense in which work in the field meets important social needs; and *9)* reversibility of the required commitment, such that the investment can be terminated or redirected if it yields less advancement of knowledge than anticipated. A host of questions could be raised about any framework such as this. For instance, how do we define and determine "excellence" or the current or projected future state of a discipline? Who decides such matters? Plainly, this particular set of principles is not definitive; many others could be developed. The appropriateness of these or other values will vary, of course, at different universities. No one would be foolish enough to claim that we could, or should, strive at this time to develop an algorithm for choices.

[13] A high proportion of fixed costs are associated with commitments to tenured faculty and maintenance of a physical plant. While I emphasize here the lack of flexibility in resource allocation, there is some value in moving so slowly. Institutions are less apt to shift significant resources to currently fashionable cognitive areas that prove of little lasting educational value. This functional consequence of a dysfunctional structure should not be lost on us or minimized.

[14] I first encountered this usage of the null hypothesis concept in a review essay by Harrison White of Jonathan R. Cole, *Fair Science: Women in the Scientific Com-*

munity (New York: The Free Press, 1979), which appeared in the *American Sociological Review* 87 (4) (January 1982): 951–56.

[15]Limited opportunities for members of various religious, racial, and ethnic groups at research universities are well documented, along with limitations placed on women. Substantial changes have occurred in opportunities offered to minorities and women at these universities in the recent past.

[16]Neil J. Smelser, "The Politics of Ambivalence: Diversity in the Research Universities" *Dædalus* 122 (4) (Fall 1993): 40 – 41.

[17]Richard Rorty, among others, presents an alternative view to Searle's. See Rorty's, "Science as solidarity," in Richard Rorty, *Objectivity, Relativism, and Truth* (Cambridge: Cambridge University Press, 1991), 35–45. There is an extended debate on these issues in the recent literature in philosophy, history, and sociology of science. For an important presentation of the alternative positions, which suggests both the value and limitations to both the traditional positivist and recent social constructivist points of view, see Stephen Cole, *Making Science Between Nature and Society* (Cambridge, Mass.: Harvard University Press, 1992), chaps. 1–3. Cole stakes out a middle ground that has potential for theoretical and empirical elaboration.

[18]David Mamet, *Oleanna* (New York: Vintage Books, 1992). All quotations from the play are drawn from this edition. This discussion of Mamet's play and its relationship to ownership of the null has benefited from extensive discussion with Joanna Lewis Cole.

[19]Ibid., 3.

[20]Ibid., 10. The quotations in the following paragraph are drawn from Ibid., 10 –33.

[21]Ibid., 48 – 49.

[22]Ibid., 52.

[23]Ibid., 67– 68.

[24]A. Bartlett Giamatti, *A Free and Ordered Space*, 56 –57.

[25]Derek Bok, "The Improvement of Teaching," *Teachers College Record* 93 (2) (Winter 1991): 236 –51.

[26]A number of universities have begun a more systematic study of teaching performance and effectiveness. Among the more interesting recent efforts is one at Harvard University led by Richard J. Light. See the reports beginning in 1990 of *The Harvard Assessment Seminars*. Richard J. Light, "Explorations with Students and Faculty about Teaching, Learning, and Student Life," Cambridge, Mass.: Harvard University, Graduate School of Education and Kennedy School of Government, First Report 1990.

[27]Vannevar Bush, *Science—The Endless Frontier* (Washington, D.C.: National Science Foundation, 1960). The Report was first published in 1945 and transmitted to President Harry Truman. The Bush Report has probably been more heavily cited in the past several years than in its first forty years.