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SUPPOSE WE THOUGHT OF FREE INQUIRY AS A SOCIAL MATTER, A PUBLIC good. We might ask not only whether individual scholars are free from illegitimate, especially external, censorship or attempts to control their work. We might ask also how much the university as an institution contributes to overall freedom of inquiry.

To answer the second question would require assessing (among other things) how well universities educate students to be participants in free inquiry, how well researchers communicate their work to raise the quality of public discourse, and whether the results of scientific inquiry are made freely available to advance further inquiry or are controlled as private property. It would require asking whether the specific structures and practices through which we organize academic work—from disciplinary departments to evaluation procedures to publication systems—do more to facilitate or obstruct free inquiry.

This article will fall short of answering all these questions, but I hope it will put them on the agenda. I will present them in the context of three successive transformations: The late-nineteenth and early-twentieth-century reorganization of universities by disciplines devoted to the production of new knowledge made the value of free inquiry central. The dramatic twentieth-century increase in scale opened higher education to millions of new students, but also challenged the internal integration of universities, increased hierarchy among univer-

sities, and changed both their funding sources and the kinds of external pressures under which they operated. In each of these transformations the United States was a leader in terms of both influence and timing. Expansion has slowed in the United States but continues internationally. The shift of momentum toward more growth in other settings and a more international field of higher education and research institutions is part of a third transformation. Still taking shape, and overlapping the spread of the second transformation, this third transformation includes not only internationalization and expansion but increasing marketization of higher education, more organization of research as an economic investment strategy (with an emphasis on technology-oriented science), disproportionate growth in applied and professional training, and proportionate decline in the older liberal arts fields and the model of undergraduate education centered on them. This current transformation is once again shifting the constraints and conditions under which students and faculty can take up the project of free inquiry, and the extent to which increasing and improving the free thought of citizens is recognized and funded as a public mission of the university. Appreciating the impact of these transformations is also basic to projects of renewing the university and free inquiry today.

BACKGROUND

Though older roots were important, the institution of the university—the model, not just specific examples—was remade between the late eighteenth and early twentieth centuries, especially in Europe and America. At the center of the transformation was the integration of education with research.[1] This meant first of all an affirmation of the value of new knowledge—as distinct from the accumulated and canonized knowledge of the past. New subjects were recognized—not least the sciences and social sciences—and the notion of "discovery" exerted an increasing influence over the pursuit of knowledge in all fields.

The emphasis on new knowledge was linked to an emphasis on free inquiry. This built on an understanding of knowledge formation forged in the context of struggles against tests of religious orthodoxy

and extended in the development of modern science.[2] While academics claimed rights of free speech—and administrators, trustees, and legislators contested these claims—the idea of academic freedom focused also on the intellectual importance of freedom to pursue better knowledge without being constrained by established doctrines. Kant's account of the conflict between the faculties was written in this context, not just as a disciplinary defense of philosophy against the "higher faculties" of theology, law, and medicine but as an argument for the centrality of free thought rather than state control or the domination of a purely technical reason (Kant 1979 [1798]). While in the short run Kant was denied the right to teach about religion, over the longer term even the Prussian state recognized free inquiry as a condition of good advice from professors it viewed as a distinctive class of civil servants.

Over the course of the nineteenth century (with different national timelines), the idea of free inquiry was embedded in new institutional formations. Fields of inquiry—both lines of research and subjects of teaching—were reorganized to yield the new academic disciplines. Structured into departments with control over hiring and evaluation, these became dominant in the organization of arts and sciences faculties. Transformed into research fields dedicated to the production of new knowledge these gained a new status in comparison to professional instruction. Researchers formed disciplinary societies of their own, matching those of the "learned professions" but with more purely academic membership. These helped to organize scholarly communication and the mutual review and critique of colleagues, which in turn underwrote the rejection of direct administrative control, intervention by trustees, and external assessment.[3]

This specification of academic freedom developed especially in the early-twentieth-century United States and was articulated notably by John Dewey, for whom it reflected a pragmatic understanding of science. The development of disciplines and institutions like peer review was not initially understood to reduce the value of nurturing a scholarly community integrating disparate fields, nor of open public communication. But scale and the centrality of departments to academic

power and reproduction shifted the emphasis toward internal communication with disciplines. Academic publishing—particularly journals - grew on largely disciplinary bases. And of course as disciplines—in the double sense of the word—evaluated quality they also instituted biases and sometimes restricted innovation.[4]

As researchers had to be free to follow the evidence, so students were freed from set curricula. It is at this point that Harvard introduced the idea of the "free elective." Even more dramatically, German students were allowed to rove not just among fields but also among teachers and even universities in their search for knowledge. In the German system, this freedom was counterbalanced by an examination system. In the United States, undergraduate majors developed in reflection of disciplines and Ph.D. programs to organize the inquiry freed from the classical curriculum.

The institutional model thus included the creation of new knowledge through research, the organization of knowledge by disciplines, training at advanced as well as introductory levels, and freedom of intellectual inquiry for both students and professors. But growth in universities was not driven just by commitment to this intellectual model. It was driven also by the economic centrality of the production of knowledge and the education of more skilled managers and professionals. It was driven by the growth of the state, which posed its own demands for both knowledge and educated civil servants. It was driven by the flourishing of civil society and expansion of participatory institutions—both because these demanded educated leaders and because they encouraged seeing education as the right of citizens. And so the university system was transformed by growth. Demand came from students and their families, inspired by the pursuit of social mobility and also hopes for personal development. Demand was further inspired by desire for new technologies that expand human capabilities.

Both growth itself and these external bases for growth shifted the context for ideas of free inquiry as they produced a second transformation of universities. With different timelines in different countries, this centered on the boom years after World War II. Undergraduate

education came to be a mass standard in rich countries rather than the definition of an elite—and correspondingly elite definition became increasingly organized on the basis of hierarchical distinctions among universities more than the mere fact of higher education. Postgraduate education also began to matter more, especially in those professional fields that integrated training into a university structure.

In most of the world's rich and economically developed countries, the proportion of citizens attending college or university soared over the last hundred years. The United States led the way. In 1900 fewer than 3 percent of Americans had ever attended college, let alone graduated. Today more than 75 percent participate in some form of higher education. Before World War II there were about 1.5 million students in U.S. universities; there are more than 18 million today. More than 1.5 million bachelors degrees are conferred annually; about half a million masters, with professional fields dominating the growth. As late as 1920, only 615 Ph.D.s were awarded in the United States. The number is over 60,000 annually today (U.S. Department of Education). Both the educational meaning and job market value of college degrees changed, as did the relationship of higher education to social class and social policy.

Demand may now be leveling off in Europe and America, but in much of the developing and middle-income world it is still growing rapidly. UNESCO estimates that between 2001 and 2008 the number of students in postsecondary courses increased by 51 million (Burnett 2009). By 2009 the participation rates were 71 percent in North America and Western Europe, 26 percent in the East Asia/Pacific region, 23 percent in the Arab states, 11 percent in South and Southwest Asia and 6 percent in Africa (UNESCO 2009). Potential demand far exceeds effective demand in most of the world. Moreover, demand should be understood not only in terms of the millions of people seeking university places, but in terms of the governments and private investors pouring billions of dollars into constructing new campuses and expanding existing institutions. If dreams of upward mobility motivate students and their families, dreams of economic development motivate governments and dreams of profit motivate private investors.

Mobility and development are long-standing motivations for investment in higher education and research. The importance of investment for profit is much greater today, and linked to a more general marketization of higher education and research that involves not only for-profit universities but also a reorganization of nonprofit and even ostensibly public ones in terms of "revenue centers." Revenues come from selling students the opportunity to earn degrees and investors intellectual property rights in scientific research. Government funding and private philanthropy commonly subsidize the cost to both students and would-be users of scientific research. They may also subsidize fields of inquiry that are not current priorities for the purchasers of intellectual property rights. They may support freeing academic inquiry from discipline of immediate market pressures, and they may support free inquiry as a public mission of universities manifested in the education of citizens and the provision of knowledge to inform public discussion. Indeed, if enough income is derived from the sale of intellectual property, and it is redirected, this may subsidize other agendas. So may student fees, if for example the prestige of universities is associated with their levels of free inquiry and teaching of fields not defined by immediate economic usefulness. The tendency, however, is toward a new conflict of the faculties. Growth in universities is overwhelmingly concentrated in professional education and parts of scientific research. Big Science has grown dramatically; it is a central part of the costs and the external income of major research universities and a central driver of academic prestige rankings. It is organized largely separately from undergraduate education (where the teaching of science is important, but seldom undertaken by those with substantial research funding). More than half of the 60,000 Ph.D.s awarded annually in the United States are in the natural and physical sciences and engineering and a growing proportion are in professional schools (education and business account between them account for over 10,000). Humanities and social science fields as a group have declined slightly in absolute terms and a great deal in relative terms.

The field of higher education is thus fed today as it was throughout the postwar boom with individual and family aspirations, government plans, business interests, faculty desires for recognition, and administrative desires for order. There are hopes that can only be fulfilled by open access and status interests that can only be protected by exclusivity. So there are tensions.

In the United States as in a number of other rich countries, the trend for several decades has been to balance mass access and exclusivity by increasing hierarchy—making universities more different from each other in terms of both the operations they can sustain and the benefits they confer. The model of integrative liberal arts education is increasingly offered only at the elite end of the hierarchy. Moreover, difference has been organized largely along a single dimension rather than through a proliferation of different intellectual missions, institutional styles, and innovations in teaching.

Each of the three major transformations came with internal tensions and contradictions. The first sought to integrate teaching and research on the basis of strong ideas of free inquiry and new knowledge. But a new structure emerged that created constraints and contrary incentives of its own. The disciplines that emerged from the pursuit of knowledge became not only facilitators but also constraints in their turn. The second brought an enormous opening of universities to new entrants and a dramatic expansion of both research and professional education. But each was costly and expansions were organized, moreover, in ways that produced separate domains in universities, undermining their internal cohesion. Undergraduate education took on a "mass" character and intellectual integration was neglected. The third transformation reflects shifts in funding and purposes with an overall trend toward greater property relations in academic knowledge and greater steering of inquiry toward goals defined in terms of economic competition. While continuing the overall expansion of the field of higher education and thus in important senses opening opportunities, it is also organized as a pursuit of status distinctions that commit universities to emphasizing hierarchy as an end in itself. This is exem-

plified by selectivity of admissions as well as inequality of resources. At the same time, the pursuit of profit from private property rights in the results of scientific research commits universities to limits on the sharing of knowledge. Both undergraduate education and the integration of knowledge across fields tend to lose support.

THE RESEARCH UNIVERSITY SYSTEM

To a considerable extent, the third transformation can be seen as a hypertrophy of the research dimension of the research university system. Tensions are evident both in the growing distance between undergraduate education and the more research intensive parts of the university, and in the growing distance among fields receiving substantial external funding and others. Shifts and upheavals in financing are likely to exacerbate these tensions.

The term "research university" implies a distinction from nonresearch universities. It thus highlights a tension in the institutional model. To many this makes little sense. They see the production of new knowledge through research as built into the very idea of a university. But in fact this is a relatively new and unequally distributed academic mission. It dates mainly from the nineteenth century. That it was not how Oxford and Cambridge conceived of their core mission is part of what led to the founding of universities in London and Manchester. Scots and German universities brought research to the forefront sooner, but in their cases too this was a reform of universities that predated the modern idea of an institution shaped centrally by the production of new knowledge.

Consider the definition of a university with which Cardinal Newman opens his legendary discourses on *The Idea of the University*: "it is a place of *teaching* universal *knowledge*." (The emphases are in the original.) Newman goes on to stress each term. The university is for knowledge of all sorts; it is not confined to religious training but teaches science and literature.[5] But the purpose he stresses is "the diffusion and extension of knowledge rather than the advancement. If its object were scientific and philosophical discovery, I do not see why a

University should have students."[6] Newman rejects the notion of free inquiry unifying teaching and research.

The creation of a kind of institution contrary to what Newman envisaged was under way even as he wrote. From the last third of the nineteenth century on, research grew steadily more important to the dominant conception of the university—especially but not only in the German and Anglo-Saxon parts of the world. The model of public research universities flourished remarkably in the twentieth century—in Germany, in Britain, in Canada, in the United States, and in varying degrees around the world. It was the most influential model for the development of universities (albeit always with local specifics) in China, in India, in Uganda, Kenya, and South Africa, in Mexico and in Chile. It was central to an enormous expansion of access to high-quality higher education, to amazing advances in research, and to a transformation in the relationship between universities and public constituencies ranging from schools to hospitals to social welfare institutions and agricultural extension. The integration of research and education in a single institution helped make this new sort of university more open—both to talent and to innovation.

But as we have noted, through the twentieth century the university field expanded dramatically. Struggles over the positioning of universities within this field now exert a considerable influence over the structure of inquiry and teaching within them. Even where individual institutions thrive, the model has lost focus. Balance among its component missions has proved hard to maintain amid shifts in funding, along with an incentive system largely disconnected from teaching and intensified competition tied to costly research.

Many universities have in effect become conglomerate corporations. Like the industrial conglomerates that went through a postboom shakeout starting in the 1970s—Gulf and Western or Ling-Temco-Vought—these universities may face a shakeout today. LTV ran an airline and rented cars, made stereo equipment and golf clubs, rolled steel and packed meat. Investors deserted it when they found the conglomerate holding company added little to the value or profit of the firms it

bought up, sometimes added costs, and often made mistakes because central managers did not understand all the different businesses they controlled. The analogy is not far-fetched when universities offer general education (and sometimes remedial education) to 18-year-olds of widely different abilities, specialized education to professional students in a range of technical fields, and research training to Ph.D. candidates—even while managing giant laboratories seeking to innovate in dozens of different fields; running hospitals, radio and television stations, housing facilities, publishing companies, and semi-professional sports teams; providing professors a base from which to run consulting businesses, providing extension services to agricultural producers, storing books in libraries and expanding electronic access to information. It is not that any of these is necessarily a bad thing for a university to do, nor that there is no reason to do several. But such a proliferation of purposes challenges universities to achieve organizational structures in which the connections among these components become real advantages, not just sources of confusion or complexity. Faced with complexity, many adopt centralized management approaches at odds with traditions of faculty self-governance (though the tension is not always openly acknowledged). Taking on so many different tasks challenges the capacity of universities to provide a clear account of their purposes—to themselves as well as to others.

The proliferation of roles and functions brought a proliferation of funding sources. Businesses came to operate as clients, in effect buying research or training services from the university. Big science involving massive capital investments was undertaken at the behest of governments—overwhelmingly in the United States and Europe.[7] Technoscience attracted a growing number of private investors. Professional schools were closely integrated with the professions for which they trained practitioners and often consulted or developed products. All of these grew at rates that far outstripped the humanities and social sciences (and indeed, the science fields as they were organized for undergraduate teaching). They came to command the majority of the budget of most of the world's leading universities. Even in the

humanities and social sciences, however, published research became the primary criterion of evaluation even though this was much less consistently tied to major external funding. Time spent teaching was limited in proportion to the research ambitions of the institution.

To be sure, the number of students was not equally limited. On the contrary, major research universities—especially state-funded public universities—admitted many more students. But class sizes expanded. Advising functions were shifted from professors to student services professionals. Through much of the postwar era, an implicit bargain guided university expansion. There would be more places for students seeking upward mobility (or at least to stay in the middle class). Professional schools would expand not just to provide additional training but also to help police the boundaries of professions and ensure their status and economic position. And faculty would pursue research that brought the university prestige and external funding. Producing this research shaped individual professors' labor market positions, bringing them offers from other universities, salary increases, honorary chairs and other benefits in a way that teaching and indeed "service" did not. This was a system that encouraged the production of new knowledge, though it may have exaggerated the importance of the ostensibly new over effective synthesis and mastery of what was already known. It was a system that allowed faculty members considerable autonomy, subject mainly to the scrutiny of their research fields, which acted as primary evaluators of what was legitimate or significant work. This was, in fact, central to the notion of academic freedom as it was institutionalized in the twentieth century—competent experts inside each field should pass judgment, not administrators, politicians, or economic benefactors.[8]

Expansion encouraged not only differentiation but also new hierarchies. Universities became less integrated. Gaps among fields in salaries and resources grew more pronounced as did the inequality among members of individual fields. A new class of casual academic laborers was created—sometimes mobilizing graduate students as teaching assistants, but often extending into a longer-term status as adjunct faculty.[9]

These trends were muted in most places until the 1970s and intensified thereafter. Those who produced prestige or generated new revenue streams were advantaged over others. How much autonomy faculty really had depended on the place of their institution in an increasingly competitive hierarchy. In fields where scholarship depended on resources, access also commonly depended on embedding in networks that reduced autonomy.

Similar issues inform debates over the future of higher education in post-apartheid South Africa, over the reorganization and funding of UNAM in Mexico, over the role universities should play and how they should be funded in Britain, France, and throughout the European Union, over the rise of private universities in Turkey and elsewhere. The stakes of the discussion include the question of whether and how public research universities and critical intellectual life will thrive in developing countries. Will narrow job-training and economic development agendas dominate? Will there be access for the poor or marginalized (and if so, will this be confined to the bottom rung)? And will the education and research dimensions of the university remain integrated with each other?

That the issues are global should help us be clear that the causes are not just unfortunate decisions by individual university leaders or the specific crises of certain state economies. They are situated in and perhaps exacerbated by neoliberalism (which often appears to the rest of the world as the extension of an "American model").[10] But that is not the whole story. Indeed, academics sharply critical of neoliberalism—and often of the leadership of their local universities—are also complicit in the problems: misrecognizing situations of privilege for simple reflections of merit, questioning aspects of the issue but not analyzing the whole because it would require questioning situations in which they are relatively comfortable.

The centrality of the university and research sectors is evident not only in the world's richest countries and dominant powers but in countries contending for greater wealth and influence as Euro-American hegemony declines. It is evident in both the extent to which China

has made their advancement central to its development plans and the extent to which brain drain from Russian academia has undercut national economic development. It is evident in expansions of Indian higher education and also its differentiation with the rise of the Indian Institutes of Technology (and thus dramatic shifts in the kind of education received by new entrants into India's vaunted civil service—now more likely to have studied math and computer science and less likely to know history).

In fact, how much universities invest in research and how successful they are at it is not an either/or question. The relative weight given to teaching and research has been contested since the days of Cardinal Newman. Those who pursued the integration of research and teaching saw free inquiry as a common denominator. But now research is a defining element in an academic hierarchy. There are universities that offer Ph.D.s and those that do not. Universities with massive scientific laboratories and those without. Universities with "research libraries" and those without. Universities that limit faculty teaching loads to make time for research and those that do not. And if this is a distinction among the universities in rich countries, it is just as much a distinction among the leading universities of different countries. This is brought home by the international rankings that have become popular in recent years, from the *Times Higher Education Supplement* in London and Shanghai's Jiao Tong University. Both rank universities on research. They have no meaningful way of comparing their teaching or the public service their faculties render. They compare the prestige of research (with some bias in favor of the sciences and the English language).

The second transformation expanded student places but made integrating research and teaching much harder. A shakeout is now under way in rich countries that may further divide the integrative educational role of universities from specialized research. So far, new investments in developing countries seem to emphasize research and professional education. There are relatively clear models for the financing of expensive research so long as it is linked to potential near to medium term economic payoffs. What proportion of the costs are paid

by states and what by corporations varies but the primary goal does not. It is the production and appropriation of wealth. Free inquiry—and for that matter education—are at most a means to this end. There are also relatively clear models for the financing of professional education. These depend on variable combinations of support from profitable enterprises in the relevant professional fields, fees charged to students who pay them in anticipation of high professional salaries, and government support for certain public service fields.

The picture is more muddled with regard to the rest of the university, including arts, humanities, social sciences (to the extent they are organized outside of professional schools), and science insofar as it remains organized as part of the arts and sciences faculty, linked to teaching, and of relatively moderate scale. The big sources of revenue are governments, student fees, and philanthropy. It oversimplifies only a little to say that government funding is either declining or being steered toward Big Science and fields with relatively clearly envisioned payoffs in economic gains or ranking prestige. Student fees are rising almost everywhere after several decades of dramatic increase in the United States (Ehrenberg 2002). Philanthropy partially tracks overall levels of inequality in wealth, and thus flourished during the boom of the last two decades. It brought largely tax-free transfers to universities, very heavily skewed toward the more elite universities. These in some cases funded scholarships enabling less-rich students to get a costly education (and diversifying a social elite). In some cases they funded particular lines of research—making certain inquiries easier while increasing inequality within and among universities.

Of course, universities are not the only way to organize research. Universities were marginal to the Renaissance and the early years of scientific revolution when extra-academic institutions like Britain's Royal Society brought researchers together. Isaac Newton may have done much of his crucial work in Cambridge, but like many others he experienced the old university as a bastion of conservative and too often mediocre thinking. Science came on the heels of religious dissent to start a long process of renewal, often against notable resis-

tance. Universities were more significant to the eighteenth-century Enlightenment, particularly in Scotland, but this was still largely a project of individual writers with the benefit of aristocratic patronage and profits from new print publications. It is possible that we could see a renewal of "amateur" scholarship aided by the Internet. But this raises at least as many questions as hopes.

Since the nineteenth century, universities have been increasingly central to intellectual production and circulation. However, this new order is not irreversible. A basic question today is whether free inquiry may grow as readily outside universities as inside. There could be a return to more amateur science and intellectual life (aided by the Internet, especially in fields that are not hugely capital intensive or where data are routinely made public). Corporations could internalize more of the technoscience now based at universities (and are more likely to do so if subsidies are reduced).[11] Governments could decide to support independent laboratories and split research from teaching.

Indeed, some countries have long invested more than others in specialized research institutions outside universities (like CNRS in France or the Academy of Sciences in Russia). Where Britain's Royal Society never became a primary source of employment for many researchers, these counterparts became more or less autonomous research organizations. They have always been staffed by university graduates and thus been parts of a more or less integrated system. But they imply a greater separation of research from teaching. To a considerable extent, the Russian Academy separated postgraduate research training from undergraduate education. In France, the Grandes Ecoles with their more professional mission and expectations of direct service to the state are also distinct from the universities, though part of a larger academic system. Indeed, these differences in structure contribute to differences in patterns of change today. In France there are pressures for CNRS staff to assume more teaching duties and an institution like Sciences Po can pursue profit in trying to integrate teaching and research more like a research university. But the future is unclear.

The research university did not stand alone. Rather, it was at the center of a larger academic system that included a variety of other components. Colleges and other institutions of higher education with less investment in research were part of this, and they were reshaped by the reorganization of knowledge that research universities pioneered and eventually by new expectations for professorial expertise. Learned societies were founded to correspond to the new academic disciplines—as, for example, the American Social Science Association, which was an organization of amateurs and professionals in fields from law to divinity as well as academics, gave way to disciplinary associations in economics, sociology, political science, history, and other fields (Haskell 1977). Both university presses and other academic publishers catered to the new knowledge producers and those who would read their work. Government ministries and private foundations could also be added to the mixture in varying degrees in different countries. Despite the variations, the academic system that had the research university at its center became an impressively global model.[12]

By the early to mid-twentieth century, this academic system dominated in the production of new knowledge, the circulation of knowledge by means from publications to conferences, and the training of knowledge workers (including those organized in professions). Universities became much larger and more of them were founded (both by states and private actors). In most of the Organization for Economic Cooperation and Development countries, the majority of the population received higher education and a rapidly growing percentage studied for postgraduate degrees. This expansion of higher education and research institutions was central to economic expansion both through invention of new products and processes and through training of workers. It was central to the growth and reproduction of the middle classes—and the promise of entry into the middle classes fueled popular pursuit of higher education). It helped anchor the public sphere of civil society in its debates about key social issues. And it was a source of government workers and one of the key steering mechanisms available to states to shape directions of devel-

opment—whether by spending massively on research for military purposes or for medicine.

Several sectors of modern economies are largely products of academic research and remain closely tied to it. These include not only obvious products of scientific research from plastics to computers but also the financial technologies that have for better or worse increasingly driven capitalist investment and accumulation in recent decades. Despite a prestige system honoring "pure science," academic research has always been shaped by funding from rich individuals, private businesses, and government agencies trying to address specific problems not merely to produce knowledge for its own sake (see Ziman 2000).

Research is evidently something the public wants from universities. The public generally, and those making decisions on behalf of public funders, want lifesaving medical discoveries and new technologies that stimulate economic growth. They may also want research into medical ethics and into the social effects of new technologies. Or for that matter into literature, patent law, and the economics of the environment. All these receive some level of state funding—though amounts are very unequal. They are tied, however, to very different ideas of how the public might benefit. Forced to prioritize, university leaders do make decisions, but they are seldom able to be articulate why a particular use of resources is in fact the best for the public. This is partly because most state funding comes in relatively inflexible forms—buildings and salaries and capitation payments for each enrolled student tied to the provision of more or less specific courses of study. Administrators are often drawn to prioritize additional income, and especially funds linked not to sustenance of the status quo but to new projects. The new projects often rest on the basis provided by the more stable state funding.[13]

Whatever the other merits of this research, it has a paradoxical relationship to free inquiry. It gains priority in the allocation of internal resources on the basis of the availability of external funding—even though that may not pay all the costs. Some faculty members claim the right to pursue such projects on the basis of freedom of inquiry.

Yet pursuing them may reduce the opportunities others have for their own free inquiries. Add to this the questions that arise with contracts for corporate sponsorship of scientific research in return for future rights. Individual scientists may invoke their academic freedom as entitlement to pursue such funding. Yet, the larger institution may have legitimate questions about the commitments made to receive it. These often include not only the right to benefit from future property rights in knowledge or innovation but also the right to block free communication of research results.

Changes in the university underwritten initially by ideas of free inquiry have thus brought a structural transformation in the ways and extent to which academic life can be considered a matter of free inquiry, and also in the ways and extent to which universities support free inquiry more generally as a public good. Obviously many professors enjoy considerable freedom—they can set their own research agendas and at least those at better-funded universities enjoy time to pursue these. Research has become more central, and the resources that support it have become much greater. But the extent to which this constitutes free inquiry has shifted with pressures for short-term productivity, the organization of research on the basis of private property rights and the pursuit of revenue, and intensified hierarchy and competition. While some professors enjoy great freedom, the research university system does not spread this widely and employs many others under much more precarious and demanding circumstances.

PUBLIC MISSION

The growth of universities in the modern era was shaped by many purposes—from ensuring that churches would have clergy, to helping sons (and eventually daughters) of the elite and middle classes find good jobs, to producing research that would benefit states and businesses. The funding to pursue these purposes came from churches, private benefactors, student fees, and increasingly, the state.

Private funders sometimes sought to control research agendas—either for immediate benefit or to head off criticism of capitalism

generally or particular labor practices. These efforts resulted in several prominent dismissals in the late nineteenth and early twentieth centuries. Along with efforts to enforce faculty support for World War I, these helped to drive the development of a distinctively American conception of academic freedom, articulated especially by the American Association of University Professors (see Hofstadter and Metzger 1955; Haskell 1996; and Post 2006). But many private funders were explicit in seeking to support a "spirit of free inquiry." The phrase figures in many university charters. That of Brown University is representative; the university is called "to serve the community, the nation and the world by discovering, communicating, and preserving knowledge and understanding in a spirit of free inquiry and by educating and preparing students to discharge the offices of life with usefulness and reputation."[14] The particular example, and many others, owe a good deal to the refusal of mandated religious belief in favor of individual exercise of conscience and reason.[15] Free inquiry was considered both intrinsically right—as the way to find truth—and also productive of useful knowledge.

The primary rationale for growing state-funding was, of course, that universities would benefit the public good. The public good could be narrowly identified with state interests or understood more expansively. Church-supported universities and those financed by private benefactors also pursued what they saw as the public good. And in many cases, the public mission of these private universities was recognized and supported by tax exemptions or other subsidies from governments. So pursuing the public good was not just an obligation in return for state funding—it was part of the deeper mission of most universities.

During these two centuries of transformation, universities have grown more tightly connected to a wide variety of other social institutions. They serve labor markets, operate hospitals, and conduct research for government agencies and private businesses. But ironically, while this functional interdependence has grown, academic communications have become if anything more self-contained within their own circuits: academics write mainly for other academics within research special-

ties. Individual universities lost internal social and intellectual cohesion across fields even while the professoriate came to contain more of the intellectual attention of each member.

Public benefits could be construed in many ways. One of the most important was and remains simply a fairer, more open distribution of private benefits. If a college degree helps someone launch a career, there is a public interest in the allocation of such life chances. State funding for higher education often came with the clear intent of increasing the educational opportunities of individuals. But this did not preclude limits. In many settings, from Brazil to Turkey, publicly funded universities both expanded too slowly to accommodate demand and controlled admissions by use of examination systems that favored middle-class and elite students, indeed, even students who had attended private secondary schools. The recent development of private universities has in some cases served the public good of greater access to higher education (though whether it offers a better way of doing so than expanding the offerings of public universities is another question). This expansion of private universities has been underwritten largely by student fees, and one irony is the extent to which state funding goes to support the higher education of students from the established middle and upper classes while students from poorer or less established backgrounds must pay for the chance to pursue their aspirations. Of course, in varying degrees, wealthy benefactors have also backed such universities and sometimes offered financial support to poorer students.

As states expanded during the modern era, especially from the eigthteenth century onward, they required more civil servants and they required that these be educated. Universities were funded—and accorded special privileges like academic freedom—in order to meet this demand. This was clearly true of Prussian support for the University of Berlin, an influential pioneer in development of the modern institutional form of the research university. Indeed, professors themselves were civil servants of a sort, and it was expected that they would deploy their knowledge in advising the state as well as in teaching and publications (McClelland 1980). Hegel's *Philosophy of Right* makes clear that great

Berlin professors identified with this role, but it is equally clear that Hegel's philosophy was not merely advice to the Prussian government. Universities were also founded in European colonies, as for example the Universities of Bombay, Calcutta and Madras were founded in 1857 to help train an Anglo-Indian elite for government service. They reflect the growing importance of civil administration (including professional fields from medicine to architecture and accounting) complementing military power. But there was no contradiction between liberal arts and professional fields. The three pioneering Indian universities also taught English literature, reflecting but also expanding the role of English not just in administration but also in Indian civil and intellectual life.[16]

In the late-nineteenth-century United States, the federal government helped states establish or expand public universities by making "land grants" that provided them with free building sites. These universities focused significantly on bringing the benefits of research knowledge to wider parts of the population. They educated large numbers of students who could not be accommodated in the existing elite universities. They developed new areas of study oriented to practical affairs. And they pursued projects like agricultural extension programs that brought advice and assistance from university-based scientists to farmers in sometimes remote rural areas.

Similar purposes animate programs at universities throughout the world today. In varying proportions they combine the pursuit of economic development at the regional or national scale with the pursuit of more open access to career opportunities based on university training and credentials. Private universities have also sometimes been a goad to public institutions grown complacent or too closely tied to established constituencies.[17] There is no contradiction between providing individual students with learning from which they can benefit personally and providing a broader public with knowledge it can share. Indeed, the ideal of a research university has always included a mixture of private and public benefits.

But knowledge, many have suggested, is advanced distinctively well when recognized as a "public good." Here the technical term

from economics refers to goods that are "non-rivalrous."[18] Getting one's personal benefit from them does not require excluding others from similar benefits; indeed, in some cases public goods cannot be consumed effectively without making them widely available. If you want clean air, for example, you will probably find it most efficient to keep the shared public air supply clean rather than trying to carry a private oxygen tank everywhere you go. But it is always possible that people will be persuaded that a private approach is better. In many poor countries, for example, public water supplies are inadequate and both citizens and tourists who can afford it buy bottled water. More ironically, many residents of rich countries have been convinced that they should pay for privately marketed water rather than using public supplies that are often actually safer.

Knowledge is not diminished when known by more people (though certain economic benefits may be obtained by those able to keep valuable knowledge from others). There is contest over the extent to which knowledge "needs to be free" (as some open source advocates have it) or is an essentially public good (as some economists argue). Some see enforcing intellectual property rights as a crucial source of incentives to producers (or at least distributors) of knowledge. So publishers are jealous of copyrights and scientists, universities, and corporations are all jealous of patents.[19]

Yet there is also tension here with a fundamental norm of science—that scientists conduct their work in public ways. That is, is there a free and open debate among researchers that can drive forward critical inquiry, correct errors, and ensure that ideas gain support from their intellectual quality—mainly on the bases of logic and evidence—as distinct from their social bases, pedigrees, or institutional and political backing? As Robert K. Merton famously argued, "property rights in science are whittled down to a bare minimum by the rationale of the scientific ethic" (Merton 1973: 267-78 [1942: 273].

The public mission of universities is closely linked to the public character of their work. At the same time, public communication is an essential complement to free inquiry, providing mechanisms for both

error correction and the integration of particular research interests into larger fields of understanding. Science, for example, has long been understood to depend on publication—both of results and of the bases for those results. This enables it to work as an effective institution for both error correction and the stimulation of innovation. Absent considerable care, patents and proprietary interests may undermine scientific openness.

At the same time, scholarly communication has long depended on institutions that are now facing deep problems—university presses and scholarly journals. The troubles are mostly economic, related to growing costs and shrinking markets, but they also include issues like the difficulty finding reviewers with no financial interest to bias their judgment—especially in medical research, where pharmaceutical companies have nearly everyone on the payroll but also increasingly in other fields where research can affect markets so that the stakes are high. And then there is the question of how best to organize scientific and scholarly communication on the web. Here, too, clarity about mission, and especially about the question of whether the public interest matters, is vital to shaping the future.

Indeed, some would hold that universities themselves are models for and contributors to public debates on important public issues. It is not just that universities educate citizens, it is that in certain ways science has been one of the great models for the kind of behavior citizens need to practice for democracy or at least republican self-government to work.[20] That universities are home to student (and sometimes faculty) activism is arguably one of their positive public functions—and one to be appreciated independently of one's analysis or prioritization of any particular issue. This includes conservative activism. There is (perhaps ironically) no better example of the way in which free academic discourse can influence a broader public than the success followers of Friedrich von Hayek and Milton Friedman had in convincing many politicians and the public to abandon public approaches to nearly every possible public issue in favor of private property approaches.

Open, participatory discussion is vital to the ethos of science—and indeed of scholarship more generally (medieval universities were not democratic or scientific but they were marvelously disputatious). Modern universities became dramatically more productive of new knowledge than older ones from the late nineteenth century on not only by changing their syllabi and embracing technology but also by opening up discussion and debate and reducing the control a small number of senior faculty and administrators had over this intellectual life. It became easier to advance new intellectual agendas and to publish results that conflicted with established views.

As Charles Sanders Peirce wrote at the very time the modern research university was taking shape, this suggested a democratic-pragmatist way of thinking about authoritative knowledge in science—it was precisely the submission of findings to critical debate that ensured that authority would be based on the pursuit of truth rather than position or custom alone.[21] In a similar fashion, the French philosopher of science Gaston Bachelard described the development of knowledge as a process of error-correction rather than accumulated static truths.[22]

Part of the public mission of the research university is, quite simply, to be public. The university is a pivotal institution in modern societies. It matters a great deal whether it is oriented to fostering free inquiry, informing public discourse, and making the benefits of science publicly available. It matters for the public good, of course. But it matters also for universities because these compete in an ecology of other institutions. Universities have grown largely by accretion of functions and units and many are muddled about their core purposes. Amid financial pressures and in changing social contexts, it is important to think anew about the model of the university. We may reaffirm the package of ideals and the understanding of inquiry and education it reflects. Or we may emphasize tensions among those ideals or faults with that understanding and call for a changed model. Either way, we need to confront material changes in the actual structure and operation of universities.

CONCLUSION

Higher education has changed dramatically over the last 50 years and is changing sharply today. Questions about the mission of universities must be addressed, and not just in the abstract. It is important to look at how universities have been shaped—and buffeted—by shifts in their national, regional, and global contexts; by shifting finances and economic agendas, by nationalist projects and internationalist projects, by dreams of social mobility and business demands for expertise, by pressures to educate more students and pressures to deliver research for either economic purposes or prestige or both. The fate of free inquiry is caught up in institutional transformation, not just the presence or absence of external censorship.

The term "university" now labels a wide variety of specific structures. There are large universities and small. There are universities funded mainly by the state and universities that take no public money. Three widely accepted conventions define what should be called universities, but none is followed everywhere. First, universities attend to the whole universe of knowledge, approaching all or at least a very wide range of subjects, ideally in an integrative manner. The integrative ideal is widely neglected but most universities still aspire to breadth of coverage—though there are exceptions, especially when institutions specializing entirely in technical fields claim university status. Second, universities combine undergraduate with advanced postgraduate education. Offering masters, doctoral, or advanced professional degrees is a typical distinction of universities from colleges, though again, there are many institutions that designate themselves universities while offering only undergraduate degrees. Third, universities combine the functions of pursuing new knowledge through research, maintaining and enhancing existing knowledge through scholarship, and transmitting knowledge through teaching.

Still growing overall, despite local contractions, the university and research sectors around the globe are undergoing deep structural transformations. Getting a good grip on how universities can and

should respond to their current predicaments demands a clearer sense of mission. Simply trying to defend the status quo ante is hardly a strategy likely to make for stronger universities. The defense will not work and the status quo often deserves critique. The existing system is rife with unjustified inequalities, blockages to interdisciplinary collaboration and innovation, and misplaced incentives. At the same time, universities contribute enormously—if unevenly and not always efficiently—not only to their students and those who pursue profits based on their innovations but to local, national, and international publics. Some budget cuts and external pressures threaten those contributions.

The transformations also affect undergraduate teaching, which must compete with other demands on faculty time and which, except in a fairly small number of high-cost institutions, is organized on a mass basis. Moreover, the new curricula rooted in the interests of disciplinary departments have become nearly as rigid as the old curricula they replaced (and much less integrated). Student attention is often steered less toward free inquiry than toward acquiring credentials for alleged future economic benefit.

But faculty members in the humanities and social sciences are not innocent. Many have tacitly or even actively accepted models of the research university and academic mission that gave them certain privileges but now pose challenges. In particular, the humanities and social sciences have embraced disciplinary structures. They have emphasized specialized career training at least as much as they have defended an integrative (mainly undergraduate) educational mission. They have accepted reward systems emphasizing research publications and often lost sight of the importance of informing larger publics.

Different future patterns and developments of higher education and research are possible. Teaching and research can be more closely integrated or more separate. Technocratic agendas and achievements can dominate or be complemented by engagement with historical and cultural scholarship and critical understanding of social issues. The relationship between global intellectual prominence and national educa-

tional and research agendas can be close or distant. Academic research can be harnessed in varying degrees to agendas of national development or global integration. Each of these may be understood more in terms of a broad public or more in terms of private interests. These and other patterns of future development will shape what knowledge is produced, who controls it, how it is (or is not) shared with students and broader publics. They will also shape the distribution of wealth within and among countries, and the opportunities for upward mobility available to those less well off. They will shape the prospects for democracy, and with or without democracy, the prospects for effective state functioning and leadership.

No matter who pays, neither a public mission nor a robust emphasis on free inquiry will be automatic. They will have to be chosen.

NOTES

1. As Julie Reuben (1996) notes, another dimension of the change was the marginalization of moral inquiry and instruction.
2. The influence of the Reformation was felt not just in conflicts over what level of dissent could be allowed in universities, but in the very notion that individuals would undertake a search for truth in their spiritual lives, interpreting scripture for themselves, inquiring into the legitimacy of dogma, and trying to read anew the book of nature in search of the world's God-given order. See Robert K. Merton's classic investigation (1979 [1938]).
3. I have discussed some of this context in Calhoun (2009); see also the literature cited there.
4. Indeed, as early as the 1920s there were calls for interdisciplinary inquiry to head off intellectual fragmentation along lines of disciplinary specialization. The term itself made its first printed appearances in reports of the Social Science Research Council immediately after its 1923 founding. See "Report" (1931) and "Innovation, Practical Action, and Comprehensive Knowledge: Three Agendas for Interdisciplinary Social Sciences" in Calhoun and Rhoten (forthcoming).

5. By universality Newman means truth founded in the natural order, meeting the tests of reason and ever more extensive empirical investigation. He meant to exclude the merely contingent, not to grapple with the issues postmodern inquiry would raise with the idea of universality.
6. Newman, *The Idea of the University* (1996: 1). The book first appeared in 1873, though Newman began his series of lectures in 1852 and an earlier print version appeared in 1859.
7. See de Solla Price (1963), Galison and Hevly(1996), and much discussion since.
8. See the classic discussion in Hofstadter and Metzger (1955). Also Haskell (1996), Post (2006), and Calhoun (2009).
9. This particular pattern is American, but differences between more or less secure parts of the academic labor market were also pronounced elsewhere.
10. Simon Marginson and Imanol Odorika suggest that there are really two distinct issues the reinforce each other: a global ideology and American hegemony. "El central volumen de la fuerza" (The Hegemonic Global Pattern in the Reorganization of Elite Higher Education and Research) in Calhoun and Rhoten (2010).
11. Consider the arguments of Walter Powell and Jason Owen-Smith that many researchers experience academic laboratories as less attractive because of the constraints pressure to publish and win grants place of collegial exchange in free inquiry: "The New World of Knowledge Production in the Life Sciences" in Brint (2002: 107-32); and Owen-Smith and Powell, "Careers and Contradictions: Faculty Responses to the Transformation of Knowledge and Its Uses in the Life Sciences" in Vallas (2001: 19-40).
12. See Frank and Gabler (2006), which builds on the "world polity" perspective of John Meyer (e.g., Meyer, Ramirez, and Soysal [1992]: 128-49).
13. Much pursuit of external funding actually costs universities money, but it provides administrators (as well as leading researchers) with flexible resources. This makes even a money-losing operation para-

doxically attractive. See Geiger (2004). See also Newfield (2008) for an effort to track the relative costs of teaching intensive humanities departments and professional schools with substantial external research funding.

14. See Rueben's discussion of similar language in the early years of the University of Chicago (1996: 74).
15. For a somewhat celebratory account from the period of the first of the two transformations discussed here, see Dorchester (1889: 766ff).
16. The first vice chancellor of Calcutta University spoke of the role of English in what he understood as both a civilizing process and the formation of a foreign-oriented elite: "'We all know, that those who first undertook the task of transferring the treasures of Western learning, and Western science into the Oriental mind . . . had to choose between conveying instruction through the medium of English language, or through the medium of the Vernaculars. The first is a key which unlocks the whole treasure-house; but it is one, which only the few can acquire, and it leaves a foreign mark upon all to which it opens the door." Sir James William Colville, quoted in Battacharya (n.d.).
17. Private universities also sometimes provided relative protection for researchers when public universities became inhospitable, notably under Latin American dictatorships.
18. The classic statement is Samuelson (1954: 387-9). See also Stiglitz (1999).
19. See Yudoff (2009).
20. Polanyi (1962: 54-74). If Polanyi saw science as an ideal model for democracy, Yaron Ezrahi saw them as co-produced from the time of the seventeenth century; see Ezrahi (1990).
21. "Truth is that concordance of an abstract statement with the ideal limit towards which endless investigation would tend to bring scientific belief, which concordance the abstract statement may possess by virtue of the confession of its inaccuracy and one-sidedness, and this confession is an essential ingredient of truth" (Peirce, vol. 5: 565-573).

22. "Scientific thinking is essentially a rectification of knowledge" (Bachelard, 1934: 173).

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