CHAPTER 8

The Liberal Arts and the University: Lessons for China in the History of Undergraduate Education in the USA and at the University of California

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Abstract In this chapter, University of California (UC) Berkeley Chancellor Nicholas B. Dirks traces the origins of undergraduate education in the USA and at the UC, reviewing the liberal arts tradition in the context of the system of public higher education that developed in the USA. Through this chapter, Dirks argues that US public higher education and its blend of liberal learning in tension with pre-professional training has been immensely important to the nation, and is worth not only preserving, but also enhancing and strengthening, given its contributions to economic growth, innovation, socioeconomic mobility, civic engagement, and cultural vitality. He ends by articulating the growing importance of a liberal education to preparing students around the world for the challenges of life in the twenty-first century.

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Introduction

How does higher education benefit society? How does it benefit students? What should be taught in college? What should a university look like? Who should attend it? Who should fund it? Who should govern it? The answers to such fundamental questions have never been fixed, but examining the continuing evolution of those answers is essential to both understanding contemporary conceptions of the university and to proposing future structures and needs.

This chapter examines these questions, and how they have been addressed over time, by tracing the origins of undergraduate education in the USA and at the University of California (UC), and reviewing the liberal arts tradition in the context of the system of public higher education that developed in the USA. Through this historical sketch, I hope to show that—contrary to claims that colleges and universities are "the slowest-changing institutions in American life,"—our educational institutions have indeed been remade many times over in response to shifting social, economic, and cultural currents (Delbanco 2014, p. 22). Adapting to and meeting changing societal needs, indeed, has allowed the system of higher education that emerged in the USA to be continually relevant and to contribute prodigiously to economic growth, innovation, socioeconomic mobility, civic engagement, and cultural vitality in our nation.

China and other countries now moving from "elite" to mass higher education can learn much from American public higher education, its interweaving and tiered systems, and its unique blend of liberal learning in concert (and occasional tension) with pre-professional training. That said, ours is by no means a perfect model, and indeed there are areas that our system has neither settled for good nor even, in some instances, begun to address in serious ways. Most pressing among these is sufficient adaptation to globalization. Top American universities all have substantial numbers of foreign students, offer a growing number of courses in a wide range of international subjects, support a broad spectrum of study abroad programs, and collaborate in an expanding array of research with foreign partners. But we have only started to come to terms with the volume and velocity of global connections, and have not gone nearly far enough in altering our content and methods to support students in a deeply interdependent world.

When planet-wide problems do not recognize either national borders or the boundaries that have traditionally separated academic disciplines, universities must adapt. Any burgeoning university system, too, should take advantage of the opportunity to build around this critical aspect of modern life.

Before turning to such contemporary issues, however, let us first examine the past of undergraduate education in the West.

Classical and Religious Education

Like much of Western society, our systems of higher learning have roots in the classical thought of ancient Greece. What we think of as formal education is largely based in the structured, systematic study of a body of knowledge as promoted by the great classical philosophers Socrates, Plato, and especially Aristotle. Those thinkers were concerned with fundamental questions about existence and human nature—What is being? What is truth? What is wisdom? What is virtue? What is good?—and their followers developed a method of studying those questions that took the form of seven essential topic areas, divided into two categories: the trivium, consisting of the verbal arts of logic, grammar, and rhetoric; and the quadrivium, consisting of the numerical arts of mathematics, geometry, music, and astronomy.

Beyond serving as a basis for metaphysical inquiry, these areas—the original "liberal" (meaning, "worthy of a free person") arts—were the subjects considered essential for citizens in ancient Greece in order to take an active part in civic life. At the time, this meant participating in public debate on the issues of the day, defending oneself in court, serving on juries, and serving the state through military service.

These seven subject areas provided a basic structure for intellectual life in early medieval universities as they emerged in the eleventh through thirteenth centuries. The university itself began as a congregation of people—the word *universitas* means simply a number of persons united into one body—not a physical place. Initially, meetings of the *universitas* took place where space was available, and did not have dedicated facilities unless a funder, often the church, provided one.

From medieval times through the Enlightenment, Christianity was integrally connected to Western universities, including all of those established in America before the revolution. Members of the clergy taught classes, and the small number of students who attended colleges predominantly sought positions as ministers later in life. Religious study ruled much of student life: chapel was held each morning and evening, and prayer and the study of scripture were major components of an education.

While a curricular focus on the classical liberal arts began in this era, it was also framed by an early tension between reconciling the thoughts of antiquity, especially ideas related to understanding the natural world and our place in it, and those of the church.

Early theologians had posited that the world was composed of ideas in the mind of the divine, which man could only "know" in an imperfect, mortal sense. But later ones, notably Thomas Aquinas, believed that knowledge and understanding of these ideas and their purposes could be deduced systematically through logical means. While students benefited from memorization and recitation of scripture, then, they could come to greater spiritual understanding through the study of the laws of nature, laws that were both divine and logical. This purpose of education was made explicit in universities' missions; at its founding in 1636, for instance, Harvard's original student handbook stated, "the main end of the student's life and studies is to *know* God and Jesus Christ."

Such logical analyses were an essential part of learning, but the other two components of education in early universities were the mastery of languages—Latin for instruction, Greek to read the New Testament, and Hebrew to read and translate the Psalms and the Old Testament—as well as formal scholastic debate about religion and the moral subject.

While retaining significant ties to the church, universities began to shift their priorities during the Enlightenment. Education came to be seen as key to the development of "gentlemen"—men who had inner virtue and outward manners; who understood honor, generosity, independence, and fidelity. Professions such as medicine and law could exist outside of college, so an education was sought after for personal, not professional, betterment. At the same time, education began to be seen as a requirement for the functioning of the polity and civil society, especially for a new nation.

Higher Education at the Dawn of the Republic

Immersed as they were in classical history and thought, the founders of the USA assumed that the survival of republics hinged on their citizens' abilities to put the public good—*res publica*—above personal interests. At the dawn of the republic, universities developed a new institutional focus and altered curricula designed to forge citizens who would strengthen the burgeoning nation as engaged and responsible participants in a democracy.

At the time of the American Revolution, all but one of the nine colleges then in existence in North America supported independence from Britain.

The colleges were hubs of sedition, providing intellectual training to young leaders of the Revolution and converting the ambivalent into supporters of independence (Tucker 1979, p. 18). Significantly, revolutionary fervor caused a spike of interest in history, governance, political theory, and law. While the proportion of graduates entering the church dropped from one third in the 1760s to one fifth in the 1790s, graduates who became lawyers jumped from 13% to 30% (Geiger 2014, p. 145). Latin writings detailing the fall of the Roman Republic and the beginning of the Empire were increasingly taught; and classic works evaluating systems of government or focused on civic morality—such as Cicero's orations, Caesar's Commentaries, and Tacitus' histories—took new precedence as well (Robson 1985, p. 166). The political lessons seemed clear: as Yale President Ezra Stiles noted in 1777, "it is scarcely possible to enslave a republic where the body of the people are civilians, well instructed in their laws, rights, and liberties."[1]

Most political leaders at this time did not consider it possible to educate everyone, but many did see value in producing what Thomas Jefferson called the "natural aristocracy" of learning and talent not tied to social class. Envisioning universities as essential to turning America into a true meritocracy—and in backlash against class-conscious European society—Jefferson developed the first notion of university education as a means of achieving social mobility. In founding the University of Virginia in 1819, he created the first publicly supported college, dedicated to educating leaders in practical affairs and public service rather than for either the pulpit or the professions. It was the first university without a religious affiliation to be established in the USA.

Scientific and Practical Education

After the Revolutionary War, as American society became more industrial, new practical and vocational interests also altered the curricular focus of universities. Navigation, engineering, and mechanics were added to religious and moral training. The study of classical languages began to give way to modern languages such as French and German.

Since Newton, basic science had a secure place in the American curriculum, with physics and astronomy held in particularly high regard. Developments in the industrial era, though—the railroad boom and an attendant need for civil engineers, for example, and the 1840 publication of Justus von Liebig's *Organic Chemistry in its Application to Agriculture*

and Physiology, identifying the roles of nitrogen and minerals in plants and explaining the mechanism behind fertilizers—provided displays of scientific knowledge tangibly serving economic interests.

As recognition spread that universities could offer practical education benefitting the economy, some pre-revolutionary era colleges were accused of failing to be—in the words of Amherst College's 1827 charter—"sufficiently modern and comprehensive, to meet the exigencies of the age and the country" (Packard 1827).

Critiques like these led to a curriculum review at Yale after the college's trustees advocated dropping the study of "dead ideas and languages." President Jeremiah Day responded by noting how the curriculum in fact had evolved to include such new areas as trigonometry, surveying, and mineralogy, but also that the purpose of college was "not to finish a preparation for business, but to impart that various and general knowledge which will improve, and elevate, and adorn any occupation." Day's belief that college should "lay the foundation of a superior education" through "the discipline and furniture of the mind; expanding its powers and storing it with knowledge" served as a mandate for the liberal arts, and his so-called Yale Reports of 1828 lasted in influence through much of the nineteenth century, and in some respect to the present day, even when the specific curricular recommendations they contained were most disputed (Yale College 1828).

The new conceptions of the university introduced in the early to mid-nineteenth century were often added to existing ones. Indeed, the university as a means to produce skilled labor and expand human knowledge accepted the basic tenets of traditional liberal study, if in the context of some debate over what kind of knowledge might be useful, even granting the foundational need for a moral sensibility. This notion that colleges could both turn out more useful citizens and generate useful knowledge was the basic idea framing the development of a national system of public colleges, the land grant universities.[2]

Justin Smith Morrill and the Land Grant Act

On July 2, 1862, President Lincoln signed the Land Grant Act, giving states 30,000 acres of federal land for each of their Congressional representatives and senators, to be used to establish an endowment supporting:

At least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the

mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes on the several pursuits and professions in life (First Morrill Act 1862).

Authored by Vermont representative Justin Smith Morrill, the Land Grant Act was not groundbreaking in theory—land grants had been already used to support education in the 1787 Northwest Ordinance, practical education was a stated priority for many universities, and agricultural colleges were even then operating in Ohio, Michigan, and elsewhere. What broke new ground, however, was the scale of the new act, enabled by Morrill's political acumen and the specific formula he adopted. Choosing to weight a state's grant by its number of Congressmen (and thus state population) made the idea attractive to skeptical Easterners, and requiring that proceeds be used only as endowment induced states to make a permanent commitment to their colleges.

In all, sixty-nine colleges were established or expanded through the act—including, in 1868, the University of California. In envisioning a comprehensive system of colleges for the industrial class—the "thousand willing and expecting to work their way through the world by the sweat of their brow" (Missouri State Board 1866)—Morrill elevated the practical vocations of agriculture and mechanics to the same social standing as the liberal arts and sciences, while ensuring that any citizen could have access to both.

Research and Specialization

In the late nineteenth century, Henry Tappan, the first president of the University of Michigan, articulated the idea of the university as a place devoted not only to conveying existing knowledge, but also rooted in discovering new knowledge. He defined universities as:

> Cyclopedias of education: where, in libraries, cabinets, apparatus, and professors, provision is made for studying every branch of knowledge in full, for carrying forward all scientific investigation; where study may be extended without limit; where the mind may be cultivated… in the lofty enthusiasm of growing knowledge and ripening scholarship. (Tappan 1851, p. 68)

At the turn of the nineteenth century and increasingly throughout the twentieth, the vision of the comprehensive university based in research activity for the advancement of knowledge was seen as foundational for

public as well as private universities, led in particular by Michigan, Johns Hopkins, Chicago, and Columbia. Building off of a new German model of the university developed by Wilhelm von Humboldt, American institutions began to invite students into the process of the discovery of knowledge, "encouraging productive thinking" rather than the "regurgitation of knowledge" (Röhrs 1987, p. 20).

This development had significant impact on undergraduate education. As the research foci of the university expanded, the variety of classes and specialized areas of study increased greatly. The formation of academic societies and the hiring of specialist faculty led to a proliferation of fields of study: universities hired professors of Sanskrit, Arabic, and Chinese; they developed new fields in social science that evaluated concrete social issues including prison reform, poor relief, crime, and deviance. At the same time, the pillars of the traditional undergraduate education—curricular separation of individual colleges, fixed courses for the bachelor's degree, required Latin and Greek, routines structured around recitation—began to be replaced by curricula based on individual academic disciplines and increased student choice.

The idea of a specialized focus in a major, especially organized by academic discipline, only developed slowly during the nineteenth century. While the University of Virginia allowed students some freedom in shaping their studies early on, the first use of the distinction "major" related to undergraduate degrees was at Johns Hopkins in 1877, and was an innovation directly connected to the university's commitment to research in the German mode.

Not long afterwards, at Cornell and Harvard, new elective systems granted students the freedom to explore personalized courses of study. Traditionally, classes had been attached to class year and named for texts to be covered. President Charles Eliot of Harvard reorganized courses by department, number, and instructor, and opened them up to all qualified students regardless of their year, championing what in 1885 he called a "spontaneous diversity of choice" (Harvard University 1885).

In 1905, the UC followed suit, dividing the curriculum into a lower and upper division. UC created a framework for liberal study in the first two years of education, and increased specialization in the latter two, introducing the major as the organizing principle for these years. Since then, the idea that undergraduate learning should include general education as well as specialization—typically in the form of the major—has been a distinguishing feature of American higher education.

At the turn of the century, while academic study remained central to the university, the collegiate experience began to be viewed more holistically, encompassing as it did valuable nonacademic components in addition to a classroom experience, acknowledging too the role of college in mediating youth and adulthood. Inspired in part by Teddy Roosevelt's call for a "strenuous life," athletics, especially football, became important to cultivating the "whole man." Fraternities and sororities grew and acquired chapter houses, which had the effect of attracting alumni back to campuses after graduation. Residential housing, student newspapers, the YMCA, glee clubs, and many other activities rounded out the collegiate experience. UC inaugurated the idea of the residential college in the establishment of Bowles Hall in 1927, although other colleges, most notably Yale and Harvard, developed complete systems of residential colleges soon thereafter. Universities' new focus on organizing these elements of the life of collegians underscored the growing acceptance that the value of college was not limited to what was taught in classrooms by professors.

Organizing Mass Higher Education

During the first half of the twentieth century, the influence and importance of universities expanded not just for the elite but also for the growing middle class. The President's Commission on Higher Education stated in 1947 that "every American should be enabled and encouraged to carry his education, formal and informal, as far as his native capacities permit," (President's Commission on Higher Education, vol. 1, p. 101) and it was in this era that many Americans began to see the university as necessary for personal fulfillment, economic betterment, and social success. This promise of access to higher education as a universal right was made explicit in acts like the GI Bill of 1944,[3] which made clear to returning veterans that college was the path to rejoining society and to having a prosperous life.

For UC, as for some other public universities, this meant balancing excellence in instruction with a need to vastly increase capacity. Early in the twentieth century, as UC expanded enrollment, its faculty worked with public high schools to review curricula and set standards that would enable students to thrive at the college level. In 1907, the California legislature passed the nation's first bill to establish junior colleges as extensions of such high schools. Both students and businesses benefitted from the local, low-cost schools, which provided training for a growing white-collar labor force as well as the more advanced technical jobs in the blue-collar

sphere. This reflected continuing disagreement about whether to create undergraduate degrees that would be exclusively professional, how to use professional schools and degrees for undergraduates, and what the meaning, reach, and significance of the liberal arts should be for the general population. It also set the stage for what would become, after World War II, the multi-tier, functionally differentiated system of higher education institutions that was a cornerstone of the 1960 California Master Plan for Higher Education.[4]

The California Master Plan was spearheaded by then UC President Clark Kerr but devised by a survey team appointed by the UC Regents and the State Board of Education during the administration of Governor Pat Brown. The plan formalized an interworking system of postsecondary education that gave specific roles to the UC, to the descendants of California's normal colleges or teaching schools, and to the state's community colleges. It associated a general commitment to the liberal arts with the research work of the top tier of the university system, while accommodating and serving a rapidly increasing population in need of new skills and advanced training across a multitude of fields. Under the banner of the idea of meritocracy, it provided the basis for the public support of elite higher education—the foundation on which the UC campus in Berkeley could be the peer of Harvard and indeed any other world university, private or public.[5]

To Kerr, the university had become a "prime instrument of national purpose." He argued that the knowledge produced at universities had become the main fuel for the growth of a nation, its military might, economic competitiveness, artistic excellence, societal contentedness, and political stability. In his classic book, *The Uses of the University (*1963*)*, he wrote that, "What the railroads did for the second half of the last century and the automobile for the first half of this century may be done for the second half of this century by the knowledge industry." (p. 63).

Though students accused him during the 1960s of championing the corporatization of the university, Kerr was describing a new reality about which he had great optimism but also abiding concerns. Although he believed that the university would lead the way to new economic possibilities, he was well aware that it risked becoming a knowledge "factory" whose neglect of students through large classes, the overuse of teaching assistants, and the selection of faculty members based on their research expertise alone could alienate the undergraduate student body.

Much has been done over the subsequent fifty years across the UC to address these concerns, from the establishment of the visionary college

systems in San Diego and Santa Cruz to the investment of huge resources on all of the UC campuses in student support, advising, housing, career counsel and planning, and perhaps most importantly, teaching. The Carnegie Foundation's 1998 Boyer Report,[6] in particular, prompted a nationwide discussion on how to better engage undergraduate students at major research universities, and led to the elevation of teaching in faculty advancement reviews and to the expansion of student involvement in faculty research. Other changes have further altered undergraduate education itself: Technology has and continues to change the way students learn, interact, and experience a modern liberal arts education, offering real and virtual learning environments that alter how they engage with peers, faculty, staff, and the university resources at their disposal. Inquiry-based learning, interdisciplinary opportunities, collaborative problem solving; the notions of global citizenry, ethics, and personal responsibilities; new models for mentoring—all of these, and more, form the foundation of an undergraduate education that is holistic in nature and also caters to the individual interests and abilities of students who come from increasingly diverse socioeconomic and ethnic backgrounds.

Nurturing the Future of Undergraduate Education

What emerges in this brief historical sketch is that undergraduate education is constantly evolving, becoming increasingly complex and sophisticated in a manner that reflects the growth in knowledge about teaching and learning, the needs and desires of society, and the history of faculty investment in the fundamental purposes of the bachelor's degree. Even in our current era of state disinvestment from public higher education, the UC Berkeley, is at the forefront of efforts to redefine and rearticulate the centrality of undergraduate education and the liberal arts tradition not just for our teaching mission, but for the other domains in which we excel, namely research and public service. Indeed, we are becoming more committed than ever before to supporting the student experience in and outside of the classroom, as we seek to prepare students for the growing challenges of life in the twenty-first century.

Today, students here and abroad face difficult and sometimes daunting prospects in an economy where traditional jobs are shrinking and changing at a faster pace than ever before (students graduating today face a vastly different horizon of employment than ever before, and will have an average

of at least six different kinds of jobs throughout their lives). This has led to some skepticism about the liberal arts, both as the term refers to majors in humanistic fields, and as general education for the purpose of a generic set of educational values. At Berkeley, we confront these debates by embracing change and innovation while also holding on to some traditions and values that have been for years a critical feature of the unique accomplishment that our university represents. We are committed to preparing our students to be able to reinvent themselves intellectually and professionally numerous times over the course of their lives. We believe that now more than ever, the liberal arts will play a critical role in the cultivation of this adaptive and creative capacity, even as we believe that in order to train future leaders, we must be especially attentive to critical thinking, general intellectual acuity, quantitative capacity, and civic preparedness.[7]

For China, where modern educational institutions developed out of deep interaction with institutions in the USA, Europe, and the Soviet Union, this recent history has profound relevance as well. China's emergence as one of the largest world economies only underscores the extent to which US debates about the liberal arts should influence the extraordinary investment the Chinese state is making in higher education. Not only is China experiencing rapid change in its workforce needs, it plays a critical role in world politics and as such must draw on appropriate Western models as it continues to assert a leadership role in the world.

As China's global footprint expands and as its higher educational system moves from elite to mass education, Chinese universities need to find effective ways to adjust their educational goals to cultivate a new generation of students who are creative, adaptive, and critical thinkers schooled in issues that range from morality and ethics to global challenges. A well-integrated interrelationship between liberal arts education on the one side, and specialized as well as professional education based in research on the other, is still the best proven method to propel Chinese universities into greater global prominence.

Some of these changes are already in evidence. For example, in 2004, Shanghai's Fudan University introduced a residential college structure, general education curriculum, and began to allow students to delay choosing a major until their second year. In 2009, Guangzhou's Sun Yat-sen University started experimenting with a liberal arts college for top students to study the Chinese classics, Greek and Latin, and the social sciences. Zhejiang University, Peking University's Yuanpei College, Tsinghua University, Southern University of Science and Technology, and Xingwei

College, among others, have introduced similar elements. This will only continue as regions that need to end dependence on manufacturing and build their future role in a knowledge-based economy invest in educating students who can best perform in that economy.

As they enter a period of change, Chinese universities have an opportunity, too, to invest in creating universities better designed to meet the needs of a global age. American institutions have over the course of a century assembled study abroad programs, exchanges, branch campuses, and other systems to extend their reach and influence internationally and to transmit to students "worldly knowledge"—that is, knowledge shaped by a broad set of cultural and national histories and conditions, with the potential to create more productive dialogue and collaboration on the kinds of fundamental global issues that will become increasingly critical in the years ahead.

Each of these systems has been useful, but each has limitations as well. Most recently, Berkeley has begun to develop a mutualist vision of the globalized university rooted in an assessment of the inexorable direction of the global future, which is increasingly knitted together around not just a single global research enterprise, but also the changing social and economic role of a preeminent research university. In contrast to the "high modernist" vision of the state university as a machine whose output would be knowledge workers contributing to the state economy, our recently announced Berkeley Global Campus—an internationally focused research and teaching hub being developed several miles from our main campus in partnership with other top global universities and private partners—represents the first-class research university as a focal point for enabling the state and its citizens to engage the world, connecting Berkeley scholars and local industry with researchers and innovators worldwide, and drawing human and financial capital from across the globe into the state. Rather than the cloistered space envisioned by the traditional inward-looking campuses, the Berkeley Global Campus will be a site for the flow of ideas, information, money, technology, and people moving not only between Berkeley and foreign universities, but also between the private and public sectors.

By acknowledging the irreversible force of global trends, the extent to which no local challenge is disconnected from global issues, and the powerful role that universities can play, we seek to establish a new kind of global presence that is in concert with our public mission. Any new conception of higher learning in China should, I believe, have similar elements embedded within it from the start.

With all this in mind, Western conceptions of liberal learning will no doubt be in some tension with China's current political system. The idea of connecting students to the world, exposing them to a broad education, and developing their skills in critical inquiry, while important for the economy, will also result in a more imaginative, creative, and doubtless questioning student body and citizenry. This will most likely produce conflicts with constraints on political freedom and academic freedom, while enhancing the quality of political debate in the larger context of an increasingly interactive, and interdependent, global marketplace.

A successful undergraduate education today is based in the foundational ideals and values of liberal learning as it has been articulated over the decades, while also evolving in adaptive ways to the demands of our time. Berkeley is seeking to ensure that it is a knowledge "community" rather than a "factory," that an undergraduate degree at Berkeley combines the best of what is available in liberal arts colleges with the resources of a great research university, offering courses that teach basic competencies while offering an almost unimaginable range of opportunities for specialization, exposure to research and professional fields, as well as chances to work with some of the best faculty in the world. Echoing Yale President Day in his Yale Reports, Berkeley takes on the obligation to cultivate intellectual curiosity, that is, not just to train our basic intellectual capacities to evaluate different ways of understanding and interpreting the world, but also to stimulate students to search relentlessly for new ways and approaches to acquire and advance knowledge. This does not mean teaching students a fixed curriculum, certainly in the manner advanced by Robert Maynard Hutchins at the University of Chicago in the mid-twentieth century,[8] but it does mean assuming the need for some fixed critical capacities. The faculty teach undergraduates not just so that they learn, but also so that they learn how to learn, whether on their own or in formal study. Increasingly, this means learning data numeracy as well as cultural literacy, worldly understanding as well as civic values, new skills for a rapidly changing world along with traditional values, habits, and dispositions.

As Berkeley builds a steadily proliferating architecture of academic offerings in our majors and specialized programs, it is working to maintain (and in some instances restore) a sense of common purpose in our undergraduate curriculum, as well as the importance of the extracurricular dimensions of college life (re-instating, for example, the importance of the residential college experience). Berkeley also seeks to balance the need to attain general knowledge with the need for students to have sufficient

training for their lives after graduation, either in graduate or professional study or in high-level careers. Berkeley seeks as well to balance courses and training in the foundational principles of discrete disciplines with a range of applications that have robust practical implications. It is not an easy task; faculty must build curricular paths, moving students from general to advanced and specialized knowledge, in ways that can accommodate both wildly uneven levels of high school or community college preparation and the increasing technical, scientific, and intellectual challenges of almost every field. Here the twin credo of access and excellence is built into the undergraduate mission of the university in fundamental ways, since the diversity of the student body demands excellence in our undergraduate programs, especially when students need additional attention and, in some instances, remediation for inadequate high school training.

Berkeley also intends to ensure that all of our undergraduates learn to appreciate, and engage in, research. Research is not only an activity that should be reserved for graduate students, postdocs, and faculty, but can be made available as a resource for undergraduates at least in their latter two years. Research imparts skills that are specific to specialized projects while also teaching how to pursue knowledge on one's own. Research teaches scientific methodologies, and provides guided experiences in the use of libraries, special collections, archives, internet resources, community-based engagements, laboratory research projects, performance art, among many other pursuits. Research teaches how to measure the reliability, provenance, and character of sources: how to respect the importance of evidence, while knowing how evidence has been and can be used to different ends, and sometimes with multiple purposes.

Berkeley can settle for no less than to ensure that our undergraduates remain the full beneficiaries of the best set of undergraduate experiences available anywhere, in the larger context of the leading public research university in the world. To be sure of a future even brighter than our past, however, will require an education adapted to the needs of the new century and enlivened by global participation and scope. This will mean an increased reliance on institutions of higher education not only within the immediate locale (or that are part of the UC system of universities) but also in parts of the world such as China. As China invests in its own institutions and continues to expand its commitment to teaching and research, we can only benefit, even as we aspire to support and help advance China's capacities to join with us in confronting the world's most pressing challenges—all of which are global, and none of which we can solve on our own.

Notes

1. A letter from Ezra Stiles to Eliphalet Williams, Dec. 3, 1777.
2. For more on the formation of land grant universities and their place in the modern American university system, Clark Kerr, *The Uses of the University*, (Harvard University Press, 1963), Chapter 1.
3. For background on this monumental piece of legislation and its impact, see Glenn C. Altschuler and Stuart M. Blumin *The GI Bill: A New Deal for Veterans* (Oxford University Press, 2009).
4. For an outline of the conditions leading up to the Master Plan and its early effects, see John Aubrey Douglass, *The California Idea and American Higher Education: 1850 to the 1960 Master Plan* (Stanford University Press, 2000).
5. See Nicholas Lemann, *The Big Test* (Farrar, Straus & Giroux, 1999), for a critical review of the idea of meritocracy in the context of the history of the University of California.
6. See Boyer Commission on Educating Undergraduates in the Research University, *Reinventing undergraduate education: A blueprint for America's research universities* (Carnegie Foundation, 1998).
7. For more on these sometimes competing and sometimes complementary ideas, see Nicholas Dirks, *Autobiography of an Archive: A Scholar's Passage to India* (Columbia University Press, 2015), p. 332; as well as Hanna Holborn Gray's 2009 Clark Kerr Lectures at the University of California, Berkeley.
8. For a study of Hutchins, his approach to general education, and his influence on the University of Chicago, see Mary Ann Dzuback, *Robert M. Hutchins: Portrait of an Educator* (University of Chicago Press, 1991).

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