Research & Teaching: Lasting Union or House Divided?

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As a design innovation, the modern university is an institution that unites the advancement of knowledge through research with its dissemination through teaching. Its inception in Germany in the first decade of the nineteenth century inspired an American adaptation that merged the German version with the English undergraduate college to produce a new bundle that would be emulated the world over. The historical view reveals cycles of sustaining innovation in which academic entrepreneurs supplemented the research-teaching synthesis with institutions devoted to one task or the other. Despite these disruptive efforts and continuing evidence of inefficiency, however, the original institutional hybrid remains the dominant model. This essay argues that the university's persistence is best understood as fulfilling a deeper need in American political culture.

"The existence of the university . . . is a metaphysical necessity."

—Jacob Burckhardt[1]

At a meeting of the Association of American Universities in 1906, David Starr Jordan, president of the still-young Stanford University, expressed reservations about the excessive emphasis on teaching at his own institution and others. In response to Jordan's comments, from the elite Northeast schools to the Midwest, president after president rose to criticize the inefficiencies of the American higher-education system: namely, the best researchers were not the best instructors, instructors weren't afforded the time to pursue research, and neither priority was adequately fulfilled. Yet despite their apparent frustration, no one proposed divorcing research and teaching. Quite the contrary: they advocated passionately to stay the course toward the aspirational union.

Founded in 1810 in Berlin, the modern research university combined the dissemination of knowledge through teaching with its advancement through research. This design innovation inspired an American adaptation that merged the German version with the English undergraduate college to produce a hybrid that would be emulated the world over – including most recently in China, as the work

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of William Kirby and others in this volume shows.[2] But it was never preordained that elite American higher education would end up this way. In fact, just a few decades after the first American universities were founded, there were simultaneous cries that they were entrenched *and* inefficient – criticisms that have persisted largely unabated to this day.[3]

The historical view reveals cycles of discontent in which institutional innovations both within and outside the university aimed to address the schools' inefficiencies, often by devoting themselves exclusively to one task or the other – teaching or research. Despite the critics and opposition, the combination of research and teaching continues as the dominant organizing principle, which has ensured that these distinct tasks remain awkwardly conjoined while their corresponding value systems, functions, and needs are not easily reconciled. It is understandable, then, that a disruptor would presume that the university is like a narrow-gauge railroad: an antiquated design that an earlier era standardized for reasons that no longer apply, which we cannot escape due to what historical sociologists call "path dependence."[4] However, no sooner are these tasks pulled asunder, whether by research institutes or coding bootcamps, do innovators – sometimes even the very same ones – recombine the tasks anew. In this essay, I argue that the long history of the university is one of sustaining innovation through various combinatorial innovations. Moreover, I suggest that the institutional design of the university may best be understood not as obsolete technology, but rather as embodying a deeper cultural need or "Chesterton's fence," of which we may not be entirely aware.[5]

The university model that combined the dissemination and the advancement of knowledge was best articulated by German linguist, diplomat, and education civil servant Wilhelm von Humboldt. Humboldt's "academic revolution" transformed the extra-institutional scholarly world of the previous era into a state-based "great new institution . . . destined to make history in Germany."[6] In Humboldt's formulation, the modern university became a place that was awarded *Einsamkeit* (freedom from distraction) for *Wissenschaft* (science and scholarship). As Humboldt himself acknowledged, this was a departure from the "lower levels of education [that] present closed and settled bodies of knowledge"; but "at the higher level," Humboldt explained, "both teacher and student have their justification in the common pursuit of knowledge."[7]

Among the many paradoxes in this original conceptualization, referred to by historians as the "Humboldt ideal," was the tension between research and teaching.[8] Historian Sylvia Paletschek has shown how this ideal was, in fact, fashioned over a century later when the university's monopoly over research was threatened.[9] Building on this interpretation, I have presented this arrangement as more transactional, better viewed as a series of compromises than a lofty ideal. The re-

sult was the first academic social contract: scholars were afforded autonomy and patronage to pursue research in exchange for providing services to the state, usually, but not always, in the form of teaching.[10]

In Humboldt's urtext, the university straddles the world of ideas and that of institutions. The Hegelian synthesis of research and teaching reflected this duality, an internal contradiction that was heightened in its ambivalent union in America. The antebellum American colleges combined elements of British collegiate traditions with their near exclusive focus on received knowledge, capped by a moral philosophy course. To be sure, a handful of geologists and botanists laid the foundation for university-based science, but as theologian John Henry Newman observed, *other* institutions, including royal academies and member societies, were charged with knowledge advancement. Newman offered blunt if tautological reasoning: "If its object were scientific and philosophical discovery, I do not see why a University should have students."[11]

Yet over the course of the nineteenth century, nearly ten thousand American students helped forge this connection between research and teaching that would distinguish the university from its institutional antecedents. The American sojourners, as is well known, departed for German universities interested in bolstering their studies in theology, medicine, and chemistry, and returned with books, scientific instruments, and new credentials. Many aspired to be not only leaders in their discipline, but also organizers of knowledge. Among the most common alma maters of American university presidents in this era were Leipzig and Göttingen, underscoring how transatlantic exchange powered the motor of institutional innovation.

One such American returnee from Germany, Daniel Coit Gilman became in 1876 the founding president of the Johns Hopkins University. Admirers later anointed Hopkins "Göttingen at Baltimore," suggesting a straightforward "influence" of the German model in America that belies a messier story of institutional diffusion through adaptation that I have elsewhere called competitive emulation.[12] In fact, Gilman hybridized elements of the German model with the needs of his local constituents and new patrons. The institutional bricolage, the modern research university, with its emphasis on both research and teaching, turned out to be what historian Hugh Hawkins once called "both its glory and its shame."[13]

Gilman's hybrid rapidly ascended as a model for further emulation both among early adopters in America, notably Stanford University (1885) and University of Chicago (1890), as well as further afield. American academic entrepreneurs may have overemphasized their special relationship with Germany to foster their prestige and political centrality. The French, British, and Japanese were also embroiled in these mimetic entanglements that produced privately funded scientific institutes in Nice, the nonsectarian UCL in London, and medical and juridical advancements in Meiji-era Tokyo. As historian Richard Evans has written, echoing

Edward Shills's modernization theory, every self-respective state soon needed a university.[14]

Due largely to the reputation of Johns Hopkins, America now had a formidable higher-education system with which the German incumbent needed to contend. As a result, by around 1900, knowledge exchange accelerated in the other direction. Hopkins emerged as a symbol of both American global aspirations in research and the threat that ambition posed to the project of learning for its own sake. Harvard philosopher William James worried in 1903 about a PhD octopus. With due respect to Mr. James, the apt metaphor was not the octopus, but the centaur: with the body of a bachelor's degree and the head of a doctorate, it would devour academia.

Writing at the height of massification, sociologists Christopher Jencks and David Riesman bemoaned how the university killed the college, a trope that endures today.[15] But the story is more complicated. Gilman overcame his initial lack of enthusiasm for undergraduates to support their education, resulting in a university that upheld the holistic mission among its faculty. The archives reveal that the "first generation" of Hopkins faculty cared deeply about teaching and shaped the now standard seminar and methods for undergraduate education.[16] Such first-rate scholars as the astronomer Simon Newcomb even contributed to pedagogy of the "lower level" secondary schools. Anticipating a key feature of organizational theory, Gilman drew on the ambiguity of the university's dual mission and made both teaching and research feel like the favored one.

That is not to say that it was always a happy marriage. The rising star and physicist Henry Rowland, whom Gilman had lured from Rensselaer Polytechnic Institute, ignored students and, according to education scholar Charles C. Bishop, had to be compelled to lecture.[17] Gilman accepted that some professors simply weren't cut out to teach but could be "very capable of giving aid to those who are already strong enough to walk alone," and abetted an internal separation that disconnected the graduate from the undergraduate faculty.[18]

Enthusiasm for this new institutional arrangement persisted in the last decade of the nineteenth century, then, alongside increasing skepticism about its fit for America. Historian Roger Geiger describes how this decade was characterized by experimentation to alleviate the tensions that uniting research and teaching generated, experimentation that I would emphasize was largely internal. In 1889, Harvard's long-serving president Charles Eliot introduced the concept of a sabbatical as a recruiting strategy while President Charles Van Hise created research professorships to retain talent at the University of Wisconsin in Madison. It was precisely these uneven perks that prompted Jordan to caution against the advent of an academic caste system.

The tensions of two different value systems began to show: a vertical one that offered rewards to the most exceptional researchers, and a horizontal one that

was focused on universal uplift. When the European-born physiologist Jacques Loeb departed Pennsylvania's Bryn Mawr College for the University of Chicago, he reflected on his colleagues' resentment that he should receive full pay for less teaching. "In a democracy today, there is as yet no room . . . for pure research."[19] The fate of the dualistic professor seemed tied to a deep tension in American political culture between elitism and democracy, a relationship that university presidents were increasingly hard-pressed to insist was "mutually helpful."[20]

The arrival of a third party – private money for research – sparked new fears and prospects for this delicate marriage. Despite internal improvements, by the first decade of the twentieth century, the modern university hadn't fully reconciled the competing goals of the specialization required for scholarship and the experience of student learning. On the eve of the one hundredth anniversary of the University of Berlin, it seemed that Humboldt's ur-institution that unified research and teaching was doomed. In America, pressures and opportunities of cost, productivity, and transatlantic competition led to the first of over a dozen institutions bearing Andrew Carnegie's name, the Carnegie Institution of Washington, D.C., resulting in a hybridization of research and teaching that left the university's status intact. Responding to these challenges in Germany, Kaiser Wilhelm II facilitated the creation of the Kaiser Wilhelm Society in the winter of 1910–1911. By the beginning of World War II, the Society would establish twenty-four Kaiser Wilhelm Institutes (now known as the Max Planck Institutes), extra-university institutions that emphasized scientific research and involved no traditional instruction. By divorcing research from teaching, this innovation led to the "dual-pillar system," a modern university that emphasized teaching and separate extra-university institutes dedicated to basic research.[21]

Among an emerging cadre of American philanthropists, Andrew Carnegie was unique insofar as he both theorized about the role of private money in civil society, most famously in his concept of the "gospel of wealth," as well as made good on his ideas. In 1901, he retired from business and endowed his first institution, the Carnegie Institution of Washington (CIW), with $10 million (or about $367 million today).[22] The philanthropist had thus far given money to endow student scholarships in Scotland, but as Arthur James Balfour, who was soon to be prime minister of the United Kingdom, advised Carnegie, "We ought to regard our universities not merely as places where the best kind of knowledge already attained is imparted, but as places where . . . the world's knowledge may be augmented."[23]

Carnegie's prioritization of research over teaching was evident to leading American educational reformers, but how it would be organized and who would control it remained an open question. One group wished for a supra-institutional research organization while another hoped for a new national university to improve America's "inferior position" in international science.[24] At the first CIW

board meeting in January 1902 with Gilman, who was freshly retired from Hopkins and endowed as CIW's first president, Carnegie dispelled this notion. He would not establish a national university that "might tend to weaken existing institutions," rather he would "discover the exceptional man" and "promote original research."[25]

Civil engineer and physicist Robert S. Woodward, who replaced Gilman as director within a year, was less agnostic. Having once called the CIW "a university without students," in an ironic reversal of Newman's ideal, Woodward betrayed a desire to disrupt the university's monopoly over research. He directed the CIW to build large research departments that drew on existing government scientific bureaus, including the Geological Survey and the Department of Agriculture, and lured professors-cum-grantees with the reprieve from teaching. President Ira Remsen, who succeeded Gilman at Hopkins, responded that Woodward was poaching his scientists. It seems unlikely that this strategy ultimately would have felled the university. As Geiger has rightly observed, Woodward's impact was limited by the government's niche scientific fields and the "exceptional" investigators who (in the natural sciences at least) were already firmly established in the university.[26] Despite Woodward's ambition to establish a scientific center in Washington, D.C., independent from and competitive with the university, the CIW remained dependent on the university network. The result was a hybrid extra-university institution that administered grants to autonomous individuals competing for funding, but did not offer classes or enroll students, leaving the pre-existing university system – and its prestige – intact.

Word of Carnegie's gospel spread fast. He was both lauded and caricatured in the British press, and translators quickly interpreted his works into German. German higher-education leadership was enchanted but skeptical since they enjoyed a different relationship between their state and education. The formidable minister responsible for higher education, Friedrich Althoff, together with top advisor and theologian Adolf von Harnack, agonized about what this growth of American higher-education philanthropy meant for "Germany's international standing in research" (*Weltgeltung deutscher Wissenschaft*).[27] The Prussian archives reveal endless anxious reports, briefs to the Kaiser, and the call for an office on Ministerial Academic Information (1904), all focused on higher-education developments abroad. The pattern was clear: from Washington to Paris, private money was altering the rules of the game.

Harnack's ambitious 1909 memo, which the Kaiser read with great interest, emphasized the dire state of German science and the threat it posed to the state and industry. The rapid advancement of the natural sciences meant the work could not be done by a single university professor and required funding beyond what universities could provide. Through a strategy styled the "Harnack Principle,"

institutes replete with assistants, funds, and equipment were awarded to "the personalities of the leading scholars," who, in turn, unburdened by teaching, were free to pursue their research.[28] Notwithstanding fears of what Germans called "clique and capital," the threat of international competition drove them to create a private-public partnership through the Kaiser Wilhelm Institutes to ensure their preeminence in research.[29] But Harnack – unlike Woodward – took pains to show that Humboldt had already envisioned supplemental research institutions in his original formulation. In other words, Harnack hybridized the Humboldtian university, with its twin tasks of research and teaching, with a pure research institution that had the potential to undermine it.

With World War I underway and a boycott of German science afoot, opportunities arose for would-be academic entrepreneurs to fill the vacuum. In the United Kingdom, Cambridge and Oxford finally began to offer the German PhD, having abandoned their previously entrenched idealism to the enticement of capturing foreign credential-seeking students. At the same time, in the United States, a window opened for those American reformers who wanted to devote more attention to one-on-one instruction that they felt had been overshadowed by the emphasis on credentials, specialization, and research. This camp had been represented at the turn of the century at Harvard by Irving Babbitt and Charles Norton, who railed against Eliot's free-elective system and professionalization. By the 1920s, this counterreformation assumed full force in the revival of the small college, soon called the "liberal arts," a term that over the course of the next three decades came to mean both a general educational curriculum that emphasized breadth and a pursuit that was centered on learning for its own sake.[30] Influenced by such figures as philosopher John Dewey, education entrepreneurs founded liberal arts colleges, including Bennington (1924) and Sarah Lawrence College (1926). Their strategy was to prioritize the neglected task of teaching.[31]

The scrappy start-up Black Mountain College, established in 1933, offers a good example of the possibilities and limits of challenging the dominant organizational paradigm. The college was founded by a classicist and education reformer by the name of John Andrew Rice, who was summarily dismissed by the president of Rollins College after a tense curriculum debate. Though his name would eventually be cleared by the American Association of University Professors, Rice did what any scorned academic innovator would do – he founded his own college. Rice took with him several colleagues, who resigned in protest, and with minimum underwriting and no trustees (or endowment), this motley crew set off for the Blue Ridge Mountains in North Carolina, the site for their venture.

Though Rice would make ample use of German and German-Jewish refugee scholars, the Black Mountaineers aspired to establish an educational institution that evaded the hierarchy and excessive focus on research embodied in the Ger-

man model. Dewey, on whose educational ideals of "mutual consultation and voluntary agreement" the college was based, called the experiment "a living example of democracy in action."[32] In the realm of curriculum, German refugee painter and art educator Josef Albers – who joined immediately on arriving to the states, communicating in English with the help of his wife and artist Anni Albers – helped Rice integrate democratic values into a new required drawing course (the only other required course was Rice's own on Plato). Albers devised a version of his Bauhaus preliminary course that was designed to break the bad habits of overly instructed students. Aspiring to "make open the eyes" of his students, Albers had the students make their own paintbrushes from chewed sticks and reconnect with the fundamentals of art as experience.[33]

The college became the manifestation of opposition to mainstream American academia. With its bare-bones endowment and loose administrative structure, which was held entirely in the hands of the faculty and possessed the action of a Quaker meeting, their experiment emphasized intellectual and aesthetic freedom to an extent that was unparalleled in American academia. But, perhaps for the same reason, it also couldn't last. In 1957, after a little more than a decade, the storied college closed, leaving only a mythical legacy that continues to this day.

If Black Mountain College represented a separation of the research-teaching hybrid that prioritized teaching, the Institute for Advanced Study (IAS), which education reformer Abraham Flexner announced in 1930 and opened in the spring of 1933, furthered that separation but with an eye toward research. Flexner's vision originated in the early 1920s, alongside several proposals for research-centric institutions that would avoid the influence of both industry and universities. Working for the Rockefeller Foundation's General Education Board, Flexner was dissatisfied with the direction that the American university had taken. He took aim at Chicago and Hopkins, which he argued had "yielded to the pressures of undergraduate education to an extent which stultified the graduate school," and advocated for Hopkins to divest itself of its undergraduate college.[34] Although his plan attracted the support of Hopkins president Frank J. Goodnow, not everyone at Hopkins looked upon it favorably and, short on money and faculty approval, Flexner's plan collapsed. Flexner went on to criticize the American university as an "educational department store containing a kindergarten at one end and Nobel Prize winners . . . at the other."[35]

In a joke too good to be true, a literal department-store heiress would be Flexner's savior. Caroline Bamberger Fuld and her brother Louis Bamberger had just sold their department store to Macy & Co. two weeks before the crash for some $25 million. Seeking to identify "the most beneficial use to which their fortunes could be put," and inspired by their father's interest in medicine, they sent their representatives to seek advice from Flexner. Flexner persuaded them that "progress might be greatly assisted by the outright creation of a school or institute of

higher learning, a university in the post-graduate sense of the word . . . a free society of scholars."[36]

Flexner was still drawn to the idea of research institutes, but the example of Germany suggested that he should proceed carefully. Although German education entrepreneur Althoff had "made it a point to relate research institutes to universities," Flexner knew that the development of the Kaiser Wilhelm Institutes had drained talent from the universities. Nonetheless, Flexner held onto the notion that his institute would avoid this dilemma by being "neither a current university, struggling with diverse tasks and many students, nor a research institute, devoted solely to the solution of problems. It may be pictured as a wedge inserted between the two."[37]

Today, the IAS continues to house exceptional research professors, albeit generally as a crowning achievement at the end of one's career or for a short sabbatical leave. As such, it is not a scalable model for reform. In this way, neither Black Mountain College nor IAS ultimately could undermine the system. Despite these innovations, the university that unites research and teaching persists, a development that has consequences, largely for the undervalued side of the house: teaching.

Unearthing the origins of the modern university's design, alongside parallel criticisms of it, offers lessons for the university's evolution. First, the historical perspective reveals why organizational choices are so challenging to assess. In the short term, Germany appears to have chosen well. The Kaiser Wilhelm Institutes certainly created conditions – with more funding, plentiful staff, and no teaching – that enabled scientific productivity and an impact that cannot be overstated. Nearly all the Nobel Prizes given to Germans in chemistry, physics, and medicine between 1901 and 1944 would go to Kaiser Wilhelm Institutes' affiliates, and, even more remarkably, their scientists won approximately one in seven of all Nobel Prizes in the sciences.[38]

Over time, however, decisions can appear to have different outcomes. The Germans' most consequential long-term organizational choice was to relieve its scientists from teaching to pursue pure research. In 1910, the University of Berlin's rector struggled to claim that the university still embodied the "unity of knowledge," much as universities today face the threat of such new sources of knowledge as Google Research and other corporate research labs.[39] Then and now, time, status, and salary differences threaten to make professors second-class citizens and demote their laboratories, leading to an exodus of research from the university. Nevertheless, as current research has shown, the Kaiser Wilhelm Institutes did not dismantle the German university system, as the University of Berlin rector feared. Nor have they reduced German universities' research output. One study has shown that countries with strong universities and no external research

institutes (even smaller ones like Belgium) fare better in terms of research productivity.[40] Another study has demonstrated that despite Germany's dual-pillar system, the university nevertheless produced a disproportionate share of research in recent years.[41] This storied marriage of research and teaching suggests an even greater institutional persistence: despite funding cuts and undervaluing of its research capacity, hybrids that unite research and teaching have prevailed as producers of research.

Over the last decade, challenges that began as external oppositions threatening to upend the research university have returned to join the incumbent universities in partnership. When "MOOC mania" was christened by *The New York Times* in 2012, the hype suggested that the end of the university was nigh.[42] Many commentators assumed that MOOCs would behave like disruptive innovations, luring students away from universities with low-cost online courses, but as I have written elsewhere with Matthew Rascoff, who leads Digital Education at Stanford, twelve years later, hundreds of institutions around the world, from Duke and the University of Michigan to top Latin American institutions, are using online learning to enhance learning opportunities for their own communities and aims.[43] And Minerva University, an online elite university that many originally presented as disruptive, has given way to a softer position, partnering with the universities it once hoped to displace.[44] None of the recent innovators who attempted to unbundle the university by excising teaching have fulfilled their revolutionary prophecies.

There is perhaps no better indication of the institutional persistence of the research university than the fact that the Max Planck Institutes, the institutional heirs of the Kaiser Wilhelm Institutes, have now begun to create new graduate programs like CS@maxplanck, a doctoral program for computer science – in effect, rebundling research and teaching. The Arc Institute, a research organization founded in 2021 that cited the Max Planck Institutes as a model, declared that it would overcome the inefficiencies of the university but nonetheless partner with Stanford University; the University of California, Berkeley; and the University of California, San Francisco. Meanwhile, latter-day Black Mountaineers including Duke Kunshan University, University College Freiburg, and Bard College Berlin, which claim to recenter undergraduate teaching and de-emphasize research, nevertheless recruit top-tier doctoral researcher faculty worldwide.

The process of integrating external challenges to the core institutional design of the university into incumbent institutions or hybrid ventures highlights its unique institutional evolution. The history suggests that compelling solutions to our current problems will not result from a great unbundling. Rather, we can expect a layering process of hybrid solutions combining and recombining themselves anew to introduce novelty to a rigid system in which isomorphism is the norm.

Yet those who claim the research-teaching system is insufficient are not entirely incorrect. In fact, the position of research and teaching at the root of the univer-

sity is the source of many pressing problems facing higher education today. One late-nineteenth-century solution was to rely on graduate fellows more heavily for support. A critic at the time dubbed this a "sweating system," and the precarious economics of simultaneously delivering high-quality teaching and research have only worsened.[45] We should mitigate the consequences of maintaining the hybrid and work to address the resulting costs, inefficiencies, and labor injustices.

To support the research-teaching synthesis, some have relied on the defense that undergraduates learn by participating in research. There is rather another factor at work: organizations persist not because they are efficient, but because they support a myth that is necessary to maintain their legitimacy. The preceding narrative demonstrates that the university reconciles a deep American tension between populism and elitism. The "exceptional man" doesn't sit easily with American democracy, yet Americans have consistently worried about the political, intellectual, and international consequences of not cultivating their talents. In this way, the research-teaching synthesis reconciles the dual mission to support the best and the brightest with the duty of universal uplift. We might reject this relationship as a corrupt myth, complicit in existing power structures. Yet as long as those who run institutions aspire both to produce research and to teach, we can maintain the hope that the values of community and individualism can be reconciled. In our era, intelligent education reformers like those in this volume are right to think not only about dismantling but how to make the union more than merely symbolic.

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ENDNOTES

[1] Gordon Craig, "Green Stamp or Structured Undergraduate Education?" *Dædalus* 103 (4) (Fall 1974): 143–147, citation on 146. Craig cites Werner Kaegi, *Jakob Burkhardt: Eine Biographie, V* (Basel, Switzerland and Stuttgart, Germany: Schwabe and Co. Verlag, 1973), 616.

[2] For the essays in this volume, see William C. Kirby, "Introduction: International Innovation & American Challenges," *Dædalus* 153 (2) (Spring 2024): 7–20, https://www.amacad.org/publication/introduction-international-innovation-american-challenges; Haiyan Gao & Yijun Gu, "Establishing a Research-Focused Liberal Arts College in

China: Duke Kunshan University," *Dædalus* 153 (2) (Spring 2024): 68–82, https://www.amacad.org/publication/establishing-research-focused-liberal-arts-college-china-duke-kunshan-university; Wen-hsin Yeh, "Chinese Universities on the Global Stage: Perspectives from the Recent Past," *Dædalus* 153 (2) (Spring 2024): 83–97, https://www.amacad.org/publication/chinese-universities-global-stage-perspectives-recent-past; and Mianheng Jiang, "The Liberal Arts in a Chinese Tech University: ShanghaiTech," *Dædalus* 153 (2) (Spring 2024): 98–105, https://www.amacad.org/publication/liberal-arts-chinese-tech-university-shanghaitech. For a narrative that expertly translates the German-American relationship into the next Sino-American chapter, see William C. Kirby, *Creating the Modern University from Germany to America to China* (Cambridge, Mass.: Harvard University Press, 2022).

[3] Beginning with the Truman Report, we can track a decadal cycle diagnosis of this central tension and a proposed solution to it. The President's Commission on Higher Education, *Higher Education for American Democracy: A Report* (New York, 1947), 16. One particularly entertaining report from the 1990s analyzed nearly sixty quantitative studies on the relationship between research and teaching, and offered a meta-analysis of their synthesis: "We must conclude that the common belief that research and teaching are inextricably entwined is an enduring myth. At best, research and teaching are very loosely coupled." After poring over dozens of regression models and statistical analyses, John Hattie and H.W. Marsh advance their bold policy claim, "We advocate that a desirable aim of a university would be to devise strategies to enhance the relationship between teaching and research, and all should be pleased when they increase the relationship positively beyond zero." "The Relationship between Research and Teaching: A Meta-Analysis," *Review of Educational Research* 66 (4) (1996): 507–542, here, 533.

[4] The classic example for standardizing on the wrong design has been the Qwerty keyboard. Although in recent years scholars have expressed reservations about that example, the concept persists. Paul A. David, "Clio and the Economics of QWERTY," *American Economic Review* 75 (1985): 332–337. See also James Mahoney, "Path Dependence in Historical Sociology," *Theory and Society* 29 (4) (2000): 507–548.

[5] G.K. Chesterton, *Collected Works* (San Francisco: Ignatius Press, 1990), 157.

[6] Wilhelm von Humboldt to Caroline Dacheröden, August 18, 1809, in *Wilhelm und Caroline von Humboldt in Ihren Briefen* [Wilhelm and Caroline von Humboldt in Their Letters], ed. Anna von Sydow (Osnabrück, Germany: Zeller, 1968), 223. Also, the "academic revolution" is a term used by Randall Collins to describe this period. See Randall Collins, *The Sociology of Philosophies: A Global Theory of Intellectual Change* (Cambridge, Mass.: Harvard University Press, 1998), 644–645.

[7] Wilhelm von Humboldt, "On the Spirit and the Organisational Framework of Intellectual Institutions in Berlin," *Minerva* 8 (1970): 243.

[8] For a helpful exposition of the Humboldtian ideals, see Mitchell Ash, "Bachelor of What, Master of Whom? The Humboldt Myth and Historical Transformations of Higher Education in German-Speaking Europe and the U.S.," *European Journal of Education* 41 (2) (2006): 245–267.

[9] Sylvia Paletschek, "The Invention of Humboldt and the Impact of National Socialism: The German University Idea in the First Half of the Twentieth Century," in *Science in the Third Reich*, ed. Margit Szöllösi-Janze (Oxford: Berg, 2001), 37–58.

[10] Emily J. Levine and Mitchell L. Stevens, "Negotiating the Academic Social Contract," *Change: The Magazine of Higher Learning* 54 (1) (2022): 2–7. We also coedited the special issue, "Hard Bargains: Truman Commission Report at 75."

[11] For a more generous reading that places the history of the "idea" of the university earlier in the nineteenth century, see Adam Nelson, *Capital of Mind: The Idea of a Modern American University* (Chicago: University of Chicago Press, 2024); and John Henry Newman, *The Idea of the University,* ed. Frank Turner (New Haven, Conn.: Yale University Press, 1996), 3.

[12] For the phrase "competitive emulation," see Emily J. Levine, "Baltimore Teaches, Göttingen Learns," *American Historical Review* (2016): 780–823; and Emily J. Levine, *Allies and Rivals: German-American Exchange and the Rise of the Modern Research University* (Chicago: University of Chicago Press, 2021), 4. For transatlantic and especially German-American academic relations, see also Thomas Adam and Charlotte A. Lerg, "Diplomacy on Campus: The Political Dimensions of Academic Exchange in the North Atlantic," *Journal of Transatlantic Studies* 13 (4) (2015): 299–310; Philipp Löser and Christoph Strupp, eds., *Universität der Gelehrten – Universität der Experten: Adaptionen deutscher Wissenschaft in den USA des Neunzehnten Jahrhunderts* [University of Scholars–University of Experts: Adaptations of German Science in the Nineteenth Century USA] (Stuttgart: Steiner, 2005); Stefan Paulus, *Vorbild USA? Amerikanisierung von Universität und Wissenschaft in Westdeutschland 1945–1976* [The United States as a Role Model?: Americanization of Universities and Science in West Germany 1945–1976] (München: Oldenbourg, 2010); and Anja Werner, *The Transatlantic World of Higher Education* (New York: Berghahn, 2013).

[13] Hugh Hawkins, "University Identity: The Teaching and Research Functions," in *The Organization of Knowledge in Modern America, 1860–1920,* ed. Alexandra Oleson and John Voss (Baltimore: Johns Hopkins University Press, 1979), 285–312.

[14] On the diplomatic uses of emphasizing German academy supremacy, see Charlotte Lerg, *Universitätsdiplomatie: Wissenschaft und Prestige in den transatlantischen Beziehungen 1890-1920* [University Diplomacy: Science and Prestige in Transatlantic Relations] (Göttingen, Germany: Vandenhoeck & Ruprecht, 2019); Sylvia Paletschek, "Was heißt 'Weltgeltung deutscher Wissenschaft'? Modernisierungsleistungen und -defizite der Universitäten im Kaiserreich" [What Does "World Recognition of German Science" Mean? Modernization Achievements and Deficits of the Universities in the Empire], in *Gebrochene Wissenschaftskulturen: Universität und Politik im 20. Jahrhundert* [Broken Scientific Cultures: Universities and Politics in the Twentieth Century], ed. Michael Grüttner (Göttingen: Vandenhoeck & Ruprecht, 2010): 29–54; and Elisabeth Piller, "The Transatlantic Dynamics of European Cultural Diplomacy: Germany, France and the Battle for U.S. Affections in the 1920s," *Contemporary European History* 30 (2) (2021): 248–264. On the triangle of competition and cooperation among academics in Great Britain, America, and France, see Tomás Irish, *The University at War, 1914–25: Britain, France and the United States* (London: Palgrave Macmillan, 2015). And on entanglements that expanded to the trans-Pacific, especially Japan, see Erik Grimmer-Solem, *Learning Empire: Globalization and German Quest for World Status, 1875–1919* (Cambridge: Cambridge University Press, 2019); and Richard Evans, *The Pursuit of Power: Europe 1815–1914* (London: Penguin, 2016), 495.

[15] Christopher Jencks and David Riesman, *The Academic Revolution* (New York: Doubleday, 1968).

[16] Charles C. Bishop, "Teaching at Johns Hopkins: The First Generation," *History of Education Quarterly* 27 (4) (1987): 499–515.

[17] Ibid.

[18] Daniel Coit Gilman, "The Idea of the University," *North American Review* 133 (299) (1881): 353–367.

[19] Cited in Roger L. Geiger, *To Advance Knowledge: The Growth of American Research Universities, 1900–1940* (New York: Oxford University Press, 1986), 73.

[20] David Starr Jordan, "To What Extent Should the University Investigator Be Relieved from Teaching," *Science* 24 (605) (1906): 130.

[21] Jennifer Dusdal, Justin J. W. Powell, David P. Baker, et al., "University vs Research Institute? The Dual Pillars of German Science Production, 1950–2010," *Minerva* 58 (2020): 319–342.

[22] Carnegie's contemporary, Nelson Rockefeller also theorized, but his reflections focused more on the "business of philanthropy" rather than its moral purpose. See Aaron Hovarth and Walter W. Powell, "Seeing like a Philanthropist: From the Business of Benevolence to the Benevolence of Business," in *The Non-Profit Sector: A Research Handbook*, ed. Walter W. Powell and Patricia Bromley, 3rd ed. (Stanford, Calif.: Stanford University Press, 2020), 82.

[23] Burton J. Hendrick, *The Life of Andrew Carnegie, Volume* 2 (Garden City, N.Y.: Doubleday, Doran, 1932), 219.

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[25] Carnegie Institution of Washington, *The Carnegie Institution of Washington, D.C.: Founded by Andrew Carnegie* (Lancaster, Penn.: The New Era Printing Company, 1902), 14.

[26] Roger L. Geiger, "The Conditions of University Research, 1900–1920," *Higher Education Annual* (1984): 63.

[27] Paletschek, "Was heißt 'Weltgeltung deutscher Wissenschaft'?" [What Does "World Recognition of German Science" Mean?].

[28] See "Denkschrift von Harnack an den Kaiser" [Memorandum from Harnack to the Emporer], 1909, in *Fünfzig Jahre Kaiser-Wilhelm-Gesellschaft* [Fifty Years of the Kaiser Wilhelm Society], ed. Max-Planck-Gesellschaft [The Max Planck Society] (Göttingen, Germany: Generalverwaltung d. Max-Planck-Gesellschaft z. Förderung d. Wissenschaften [General Administration of the Max Planck Society, Promoting the Sciences], 1961), 80.

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[30] Laurence Veysey, "The Plural Worlds of the Humanities," in Oleson and Voss, eds., *The Organization of Knowledge in Modern America*, 51–106.

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and Abraham Flexner, "A Proposal to Establish an American University," memorandum, November 1922, Flexner Papers, Library of Congress.

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[40] Justin J. W. Powell and Jennifer Dusdal, "Science Production in Germany, France, Belgium, and Luxembourg: Comparing the Contributions of Research Universities and Institutes to Science, Technology, Engineering, Mathematics, and Health," *Minerva* 55 (2017): 413–434.

[41] Dusdal, Powell, Baker, et al., "University vs Research Institute?" 319.

[42] MOOC is short for Massive Open Online Course. See Laura Pappano, "The Year of the MOOC," *The New York Times*, November 2, 2012.

[43] Emily J. Levine and Matthew Rascoff, "Academic Innovation: the Obligation to Evolve," EdNext Blog, January 17, 2019, https://www.educationnext.org/academic-innovation-obligation-evolve.

[44] A different vision of Minerva is offered in this volume of *Dædalus*. See Teri A. Cannon and Stephen M. Kosslyn, "Minerva: The Intentional University," *Dædalus* 153 (2) (Spring 2024): 275–285, https://www.amacad.org/publication/minerva-intentional-university.

[45] Cited in Geiger, *To Advance Knowledge*, 76.