The Innovative University

CHANGING THE DNA OF HIGHER EDUCATION FROM THE INSIDE OUT

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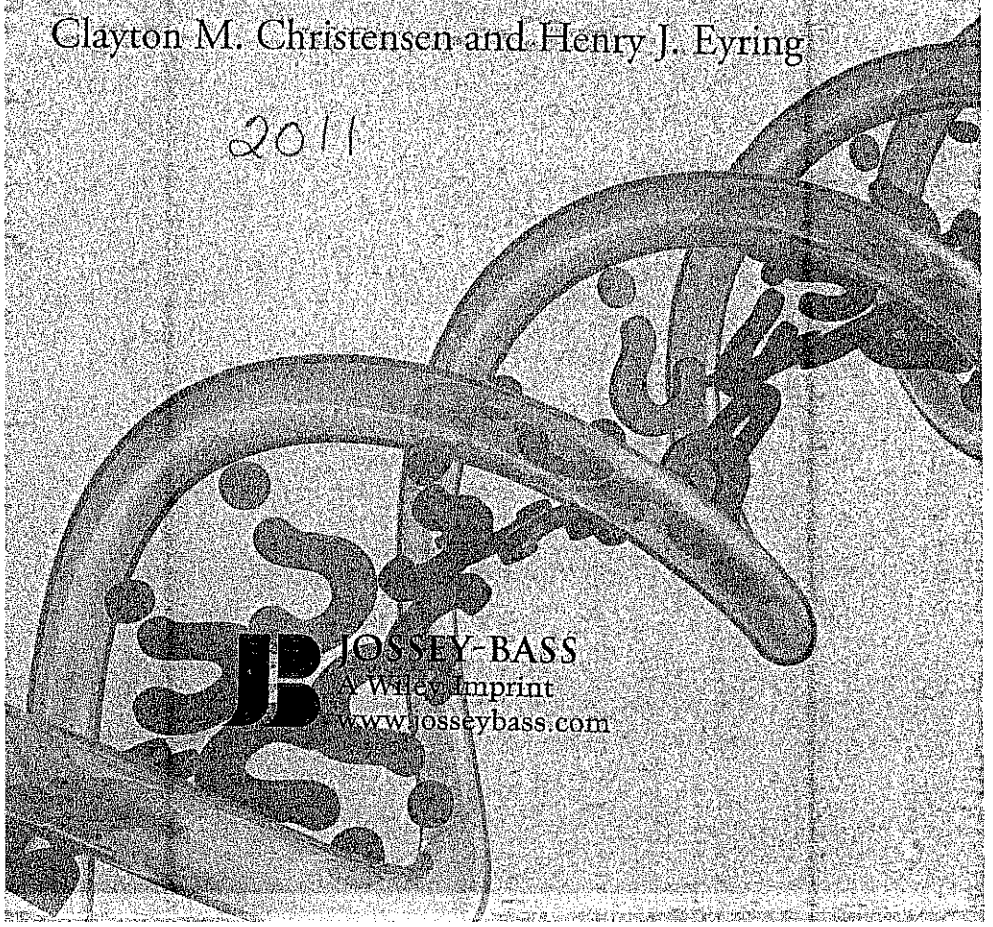

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Chapter 7

The Drive for Excellence

The DNA of Harvard University was not entirely set by the time A. Lawrence Lowell gave up its helm in the early 1930s. Charles Eliot had established the institutional structure, which mingled graduate students with undergraduates. He had also broadened the curriculum to include all academic subjects. By reordering the college, Lowell brought much needed rationality to the university's broad choice of students and subjects. There was, though, still the matter of scholarly excellence, to which neither Eliot nor Lowell had given much attention. It was left to Lowell's successor to do that.

Appointed in 1933, James Bryant Conant was the first world-renowned scholar to lead Harvard. Already decorated for his research in organic chemistry, he was recognized during his presidency with the Priestley Medal. Had he not left the laboratory to lead Harvard, he might have contended for a Nobel Prize.[1]

Even more than Eliot and Lowell, Conant owed his success to generous academic mentors. His scientific career began with a gifted and dedicated high school teacher, at Roxbury Latin School, who recommended him to the Harvard chemistry department. Among the most significant of Conant's mentors there was Charles Loring Jackson, America's first and most prominent organic chemist. Like so many other leading-edge chemists, Jackson had studied and conducted research in Germany. He shared the benefits of that training with Conant, along with connections that allowed him to take a German

tour of his own. That experience led to a tremendously productive period of laboratory research and the opportunity to serve as chair of the chemistry department, his only administrative experience before being tapped to lead Harvard.

Unlike his distinguished predecessors Eliot and Lowell, Conant was a first-generation Harvard man. His ancestors on both sides were early New Englanders, but his family lacked ties to the Boston aristocracy.[2] His father was an engraver whose work in copper etching provided his first contact with chemistry.[3] The contrast between self-made Conant and his privileged predecessor Lowell came starkly into focus as the two discussed the transfer of office. When Conant asked what salary he would draw as president, Lowell replied that he did not know, as he had always donated his compensation back to the university.[4] Conant, to his chagrin, felt compelled to haggle for more than the $20,000 initially offered.[5]

His up-by-the-bootstraps, outsider's perspective may have helped Conant see that while Lowell had been revitalizing Harvard College, the university had lost some of its academic luster.[6] Lowell's emphasis on the college, though invaluable, had not been equaled by his investment in scholarship, the established coin of the realm in higher education. Thus, while Harvard had reasserted its educational leadership and grown tremendously in physical and financial resources, it was no longer preeminent in many fields of scholarship. As Samuel Eliot Morison observed, "In certain departments of knowledge, a chair in Harvard University was no longer recognized as an academic first prize."[7]

Conant worried that the university was contributing less than it should to the welfare of the country and the world, in a time of desperate economic and political need. During the Roaring Twenties, it had been natural

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to focus on campus investments such as the house system and other building projects. But the times had changed dramatically, and the university's capacity to serve practical societal ends lagged that of some of its peer institutions. Conant thought Harvard could do more, particularly in the physical and social sciences.

Fortunately, the university's finances were relatively well ordered. Thanks to generous donors and wise budget officers, it had survived the worst of the Depression without cuts in salaries, staff, or services.[8] Costs had risen substantially during Lowell's tenure; he had not only doubled the university's physical footprint but also allowed the salary of the university's highest paid professors to more than double, from $5,500 in 1918 to $12,000 in 1930.[9] But Lowell's Harvard had also set records in philanthropic giving. In addition to the Harkness gift for the house system, which in the end totaled more than $13 million, a postwar fundraising campaign had netted a similar amount. In spite of the stock market crash, during Lowell's term the university's endowment grew from $20 million to $126 million.[10] Tuition revenues also rose: beginning in 1913, the price of a year at Harvard climbed in stages from $150 to $400.[11] The net effect was a balanced budget, even in the worst of economic downturns. Few other universities were so financially fortunate. Though the times dictated prudence, it was not unreasonable for Conant to hope to raise Harvard's scholarly standards and increase its social impact.

Conant's Meritocracy

He did so by the application of principles and procedures that collectively came to be called "meritocracy." The Harvard of Eliot and Lowell was, for all its strengths, clubby and inbred. New students and faculty tended to be drawn from the same narrow pools. In the case of the students, those pools were the elite private and public high schools of New England.[12] Faculty were too often from Harvard's own graduate programs. These sources produced more than their share of capable

candidates. But students from the elite New England secondary schools were as likely to have been admitted for reasons of family wealth and social standing as for intellectual capability. Likewise, personal connections gave Harvard graduate students the inside track to new faculty appointments. Conant saw the undesirable consequences of these non-merit-based structural preferences more clearly than had his immediate predecessors, both of whom were so supremely well connected that they may have been oblivious to them.

Selecting new students and faculty on the basis of demonstrated merit would not only raise the standard of performance at Harvard, Conant reasoned, it would also spread limited opportunities for educational advancement more broadly. He worried that, in a world of low growth and limited social mobility that seemed to be the new normal in those years of economic depression and political isolationism, it was incumbent on Harvard and the nation to improve "the selective machinery in our school system which should sort out those who can profit most by four years of college and a subsequent professional education."[13] Bringing the best students to Cambridge, Conant believed, would serve not only Harvard but also the country.

He wasn't without enticements for recruiting new professors. Under Lowell the faculty had received additional research funds, reduced teaching loads, and an occasional semester entirely free of teaching responsibility.[14] The introduction to the academic calendar of six weeks' worth of reading periods gave them additional time for scholarship. Conant added other perquisites, including the new position of University Professor, which entitled the scholar so designated to work across traditional departmental boundaries.

In attracting faculty Conant also had the benefit of Harvard's financial stability, a rare asset in the mid-1930s. Within a few years, he had hired a clutch of distinguished professors from around the world, especially out of economically and politically unstable Europe.[15] But the austerity of the time prevented the full realization of his dream to recruit the world's best scholars to Harvard. That would have to wait until the exigencies of the Great Depression and the war were past.

Up-or-Out Tenure

Conant was more immediately successful in raising the scholarship bar for Harvard's young faculty members. He did so via a system of up-or-out tenure. Rather than being able to stay indefinitely as untenured faculty members, newly hired assistant professors would have eight years to demonstrate their worthiness for tenure.[16] That demonstration would be made not just to committees internal to the university, but also to external reviewers, peers from a candidate's academic discipline.[17] This system of peer review fostered merit-based competition in tenure, undercutting the tendency toward faculty cronyism and inbreeding, thus benefiting the university. It also benefited the candidates. Thanks to unbiased peer review, the worthy prevailed. The eight-year time limit for a tenure decision prevented the university from stringing the others along.[18]

Conant's implementation of up-or-out tenure also solved a practical problem left by Lowell. With the creation of the house system, Lowell had significantly expanded the faculty through the hiring of tutors for the houses. By the mid-1930s many of these tutors had been around long enough to hold expectations of tenure. However, they lacked the scholarly star power that Conant wanted to maximize through the tenure system. They also represented a growing financial cost. As with innovations such as Eliot's elective system and Lowell's system distribution and concentration, Conant's up-or-out tenure had both long-term strategic and immediate tactical benefits.

There were, though, unintended casualties of the new tenure system. One partial casualty was faculty collegiality and commitment to the institution. An untenured faculty member was now more inclined to view his departmental peers as competitors and the needs of the community—including students—as secondary to the tenure goal. Over time, undergraduate students have been particularly affected by this change in university DNA. Conant made it clear that good teaching, a point of pride for Lowell, would not compensate for mediocre scholarship, by this time clearly defined as research and

publication.[19] However, his tenure system tended to skew the efforts of tenure-track faculty toward scholarship and away from teaching. With so much of the undergraduate teaching load carried by junior professors and graduate assistants with tenure aspirations, the research emphasis of the process inevitably drew attention away from the classrooms and study halls.[20] Lowell's beloved tutorials in particular suffered. By 1950, three out of four tutorials were staffed by graduate students; some departments had voted to eliminate them altogether.[21]

The new tenure system also widened the gulf between the haves and have-nots on the faculty. Many Harvard departments began to focus their searches for tenure candidates outside the university. The test of worthiness for a tenured position was recognition as being "the best" in one's field. In later years, Dean Henry Rosovsky of the Faculty of Arts and Sciences would describe the search process Conant instituted this way: "At Harvard we ask a traditional question: who is the most qualified person in the world to fill a particular vacancy, and then we try to convince that scholar to join our ranks."[22]

Successful scholars thus became sought-after free agents. This had been happening ever since the German model of scholarship was adopted in the late 1800s. The new universities created by wealthy philanthropists used their capital to attract the world's best scholars, often poaching from one another. Cornell, one of the first to play this game, gained early prominence only to find itself outbid for its own faculty by new universities founded by John D. Rockefeller in Chicago and Leland Stanford in Palo Alto, California.

Conant's drive for excellence required Harvard to enter this free agent market for scholarly talent, a financial competition he preferred to avoid. His goal was to set newly tenured faculty members' salaries at a consistent level across the university.[23] But that goal conflicted with his drive to recruit "the best." For example, in the early 1950s the nation's most promising young geneticist, a twenty-six-year-old from Wisconsin, demanded a full professorship, a paid position for his wife, the promise of additional faculty appointments in his field, lab space

and research funding, and no teaching except of graduate students. On top of that, he refused to wear a necktie to work.[24] University officials declined this tall order and watched their lost quarry win a Nobel Prize just seven years later. In time, Harvard would find a balance, eschewing bidding wars but deviating as necessary from Conant's goal of parity in faculty salaries, so as to be competitive in recruiting "the best," and to recognize the higher salaries available outside of the academy in fields such as science and business. Meanwhile, Harvard graduate students and junior faculty, the workhorses of undergraduate instruction, labored under the apprehension that, when tenure time came, they would need to find other employment, as they were unlikely to be deemed the world's best candidate in their field.

Conant's tenure system, with its emphasis on finding the world's premier scholars, also made Harvard's curriculum more specialized and graduate-student focused. Many of the most noted scholars in a field had found some subspecialty in which to make discoveries. Their teaching preferences reflected this narrowness. Specialty offerings proliferated; in the latter part of Conant's presidency, most departments offered two to three times as many courses as in Eliot's day.[25] With the student body growing less rapidly than the course catalog, this meant that many offerings operated at less-than-economical levels. A Conant-commissioned report revealed that 169 courses had fewer than five students. Handwritten notes on the margin of this report reflect his surprise and dismay: "This is ridiculous"; "My God!" [26] Ridiculous or not, academic specialization, with its attendant costs, was by then firmly embedded in the university's DNA. Fortunately, Harvard could afford those costs.

Merit-Based Admissions

Conant also introduced meritocratic measures for the recruitment and evaluation of the best students. The need to access a bigger, broader

pool was clear. Harvard College was admitting more than two-thirds of all applicants, and it had the highest percentage of students from its home state of any major school.[27] To draw more candidates outside of the New England region, Conant created national scholarships that included target regions such as the Midwest.[28] Anticipating that students in these distant regions would need greater financial support, he included need-based aid up to several times the cost of tuition.[29] Though the combination of merit and need-based student support was rare at the time,[30] packages of scholarships and financial aid would soon become standard features of the traditional university. The cost at Harvard grew large: by 2010, 60 percent of Harvard College students received some portion of $158 million in financial aid from the school, with the average grant estimated to be $40,000.[31]

The immediate challenge became judging the merit of the new candidates that Conant hoped to admit. Few of them had experienced the kind of classical curriculum found in New England's private preparatory schools and elite public high schools. It wasn't fair to judge them on what they knew of Homer or Milton or classical languages, which is what the entrance examinations pioneered by Eliot and the College Board at the turn of the twentieth century did. Those tests required essays, rather than multiple choice responses, and included sections testing not only English but also French, German, Latin, and Greek.[32]

To implement a standardized, widely administered test of merit that wouldn't penalize students from ordinary high schools, Conant and his Harvard colleagues turned again to the College Board. The new screening mechanism he advocated for wide adoption was the SAT, an evaluation instrument developed in the 1920s by Princeton psychologist Carl Brigham.[33] Unlike the early entrance exams, the SAT was a form of IQ test that attempted to measure academic potential separate from the knowledge of specific subjects, other than English and math. The test wasn't perfect. It assessed primarily word familiarity, which of course depended to a large degree on formal education.

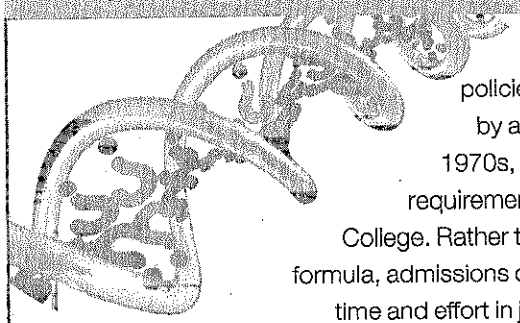
Brigham himself soon disavowed the SAT as a true measure of native intelligence.[34] That others share his view is evidenced by the time and money today's college applicants spend in test preparation.

However, the SAT yielded better results than the old college boards that Eliot helped create. It could be administered and scored much more reliably, and it predicted college success better.[35] While it still favored students with more education, it leveled the playing field for those who hadn't attended New England's college prep schools. The SAT proved tremendously popular and influential, thanks largely to the efforts of Henry Chauncey, the Harvard assistant dean and scholarship committee chairman who first brought the test to Conant's attention. He left Harvard and founded Educational Testing Services (ETS), which marketed and administered the SAT nationwide.[36]

By making the SAT the national standard for college admissions, Conant and Chauncey gave Harvard and other elite colleges access to the country's brightest students. They also paved the way for remarkable growth in American higher education. Administration of the SAT was a much less expensive way of ensuring high-quality student "inputs" than Henry Ford–style vertical integration. Its adoption as a national standard allowed colleges and universities to deliver standardized curriculum to the masses at very low cost, putting a college education within reach of all high school graduates, much as Ford's integrated manufacturing process made Model T cars affordable even for his factory workers.

At the same time, though, Conant's use of the SAT ultimately produced a further narrowing of the types of students Harvard served; only the brightest and best prepared could win admission. With Eliot's emphasis on graduate and professional schools, the proportion of the university's students who were undergraduates had fallen. With Conant's added emphasis on the SAT, Harvard's accessibility by undergraduate students of ordinary intellect would plummet. That happened when Conant's system of meritocratic admission met a wave of student demand after World War II.

THE UNFORESEEN COSTS OF STANDARDIZED TESTING



Thanks to innovative policies and procedures created by admissions personnel in the 1970s, a near-perfect SAT is not a requirement for admission to Harvard College. Rather than applying a quantitative formula, admissions officers invest extraordinary time and effort in judging intangibles such as "strength of character" and "ability to overcome adversity." Standardized tests factor in, but not decisively. As the college's admissions website says, "We regard test results as helpful indicators of academic ability and achievement when considered thoughtfully among many other factors."[37]

Nonetheless, Harvard's huge pool of qualified applicants means that its students' standardized test scores are among the highest in the country, and no farsighted applicant to it or any other selective school sits for the SAT or ACT unprepared. Test preparation strategies range in cost from few dollars for a used book to a few hundred dollars per hour for private tutoring, with the sum of options in between amounting to a multibillion-dollar industry.[38] Rankings-conscious institutions also pay a price, offering scholarship packages to high-scoring applicants.

In addition to this financial cost, there is the social cost of unequal preparation for the economically disadvantaged, as pointed out by Nicholas Lemann, author of *The Big Test: The Secret History of the American Meritocracy.* Lemann has noted how Conant's attempt to blunt the power of privilege—by substituting a standardized test for personal connections in the admissions process—ironically created a new form of privilege and a fierce drive to secure it, via admission to an elite university. In a PBS interview exploring the strengths and weaknesses of standardized assessment, he observed, "It would horrify [Conant] to see the way in which people regard getting high test

scores and getting selected for these universities as a kind of way to get stuff—to get the goodies in America. That is not what the system was built for."[39]

Harvard During World War II

World War II turned Harvard on its head. The draft caused the population of traditional students to shrink dramatically. Four hundred faculty members, a quarter of the total, also joined the war effort. Filling the classrooms and keeping the university running required drastic measures; the faculty who remained voted unanimously to teach year-round, with no increase in salary.[40] Students were inducted in February and June, in addition to the usual September entry point, and the professional schools admitted candidates without bachelor's degrees.[41] The university's classrooms and dorms were rented out to the Army and Navy for the training of their personnel.

Most of these measures were temporary. But one important change, the inclusion in Harvard's classrooms of women from its sister institution, Radcliffe, proved lasting. It would be twenty years before female students received Harvard diplomas, and almost thirty before they took up normal residence on the campus, but the door to equal educational opportunity had been opened.

The war also provided an unexpected boost to Conant's drive for meritocracy. Peacetime and the G.I. Bill brought a flood of applicants—20,000 in 1946. These prospects hailed from around the country, and from all social and economic strata. Rather than admitting two of every three applicants, Harvard could choose one in fifteen, with an eye to diversity as well as academic excellence. The swollen postwar tide of applicants soon ebbed, but the makeup of the student body would never be the same. Meritocracy in admissions, designed to inhibit social inbreeding at a time of low demand, would create a new kind of elite as more and more students vied for a prized spot at Harvard.[42]

The Rise of Government-Funded Research

The war brought two other major changes to Harvard, one pervasive and permanent, the other less so. The more lasting change was the rise of government-funded research. During World War I university scientists had been enlisted, both in the military sense of the term and also on a project basis, to create weapons and equipment. In fact, Conant was among the most prominent of these serviceman-scientists. He left Harvard to join the Chemical War Service, where he oversaw the development of poison gas and gas masks and became "practically a section of the War Department."[43] By the conflict's end, he had been promoted to major.[44]

Conant's involvement in the Second World War was much more strategic and high profile. He chaired the National Defense Research Committee (NRDC), the federal government's vehicle for mobilizing civilian scientists and engineers, and for funding research in university and company laboratories.[45] He also played a personal role in expediting the development of the atomic bomb; his position at Harvard provided cover for covert recruitment visits to the nation's leading scientists.[46]

Conant's work in Washington gave Harvard an inside track on government-funded research contracts.

Conant's work in Washington gave Harvard an inside track on government-funded research contracts. Its $31 million in NDRC grants put it behind only science and engineering specialists MIT and Cal Tech as a player in the world of sponsored university research.[47] Harvard scientists made valuable contributions to military communications and to the development of radar, napalm, and the atomic bomb.

The war's end brought a decrease in government-funded research, but its role in the university was established. The volume of research contracts and grants would grow with the coming of the Cold War and the creation of agencies such as the National Science Foundation

and the Atomic Energy Commission, both of which Conant advised. Government research funds produced not only economic benefits to the university but also scholarly ones. Money attracted discovery-minded scientists. Particularly in the physical sciences, the growth of external research funding coincided with a rise in the number of world-class scholars at Harvard. Four candidates tenured in physics in October 1945 went on to win Nobel Prizes.[48]

The new externally funded research came with costs. Faculty and administrative time was taken up in grant writing and regulatory compliance, and the programmatic nature of some of the research made it more difficult for professors to carve out time for teaching. External funding also widened the haves-and-have-nots divide in the university, creating greater opportunities for scientists than for other members of the faculty. Still, the net effect for Harvard was positive. The war indirectly enhanced the quality not only of its student body, but of its scholarship as well.

The Redbook

The war produced yet another benefit at Harvard, one to the undergraduate curriculum. In addition to being concerned about the merits of the university's scholars and students, Conant was intent on raising the academic rigor and social usefulness of the college curriculum. Lowell's distribution requirements were an improvement over Eliot's elective free-for-all, but they failed to promote either a truly general education or academic excellence. As in Eliot's day, some students sought out the curricular path of least resistance, congregating in easy courses known colloquially as "bow-wows."[49] Distribution requirements produced a general education that was, in Conant's view, spotty, shallow, and bereft of moral authority.

The specter of war, to say nothing of its actual horrors, stimulated a redesign of the core undergraduate curriculum of which even Harvard's Puritan founders might have been proud. The West's narrow escape

from totalitarianism temporarily unified academicians separated by their specialties. A committee of twelve well-regarded Harvard scholars sought broad input and published a 267-page volume called *General Education in a Free Society*, or, in reference to its crimson binding, the "Redbook."

The Redbook's authors stated their view that a fundamental purpose of education is to promote freedom. That, they declared, requires a degree of commonality of "traits and outlooks" among the citizenry: "A successful democracy (successful, that is, not merely as a system of government, but as democracy must be, in part as a spiritual ideal) demands that [certain] traits and outlooks be shared so far as possible among all the people."[50]

In addition to advocating common traits and outlooks, an educational goal abandoned for practical purposes by both Eliot and Lowell, the authors quoted Conant on the importance of values: "Unless the educational process includes ... some continuing contact with those fields in which value judgments are of prime importance, it must fall far short of the ideal."[51] The main writer on the project, a young professor of Greek literature named John Finley, went so far as to suggest that "if many courses should set forth our view of life as rooted in a humane tradition, it seems only fair that some should set it forth as rooted in a religious tradition." Conant wouldn't go so far. He doubted "if a secular university today can take the step necessary to put its argument on the plane of absolute values."[52]

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>
> —The Redbook

As ultimately adopted by the faculty, the new general education (GE) program lacked not only grounding in absolute values but also any single course required of all students. Yet it did, as recommended by the Redbook, require that courses designed specifically for general

education comprise more than a third of the undergraduate curriculum.[53] This represented a substantial increase over the 25 percent required in Lowell's day.[54] No courses from a student's concentration could be "double counted" for GE credit, though that curricular compromise would creep into later versions of the system.[55]

The new GE program also specified that students take at least one course in each of three areas: humanities, social sciences, and natural sciences. To the Harvard faculty's credit, many courses met Lowell's ideal that distribution requirements give students a synoptic view of a broad area of learning, rather than a mere introduction to a narrow academic discipline. Well-received offerings such as "Western Thought and Institutions" and "Principles of Physical Science" met the Redbook's standard of "form[ing] a comparatively coherent and unified background for an understanding of some of the principal elements in the heritage of Western civilizations."[56]

The Redbook improved general education for a generation of students not only at Harvard but elsewhere: 40,000 copies were purchased, many by representatives of other universities, some of which introduced general education programs modeled after Harvard's.[57] Yet the effect in Cambridge was not long lasting. Courses consistent with the Redbook's broad vision were popular with students but difficult to teach, both because they spanned traditional disciplines and because of the high student–teacher ratios.[58] Newer offerings tended to be narrower, more rooted in a single academic discipline.[59] Conant saw that coming. He knew that the gravitational pull of the university's departments would inexorably bring cross-disciplinary courses back within the traditional lines of scholarship. However, his hoped-for separate department for general education, which might have resisted this tendency, never materialized.[60]

The prosperity of the 1950s and social turmoil of the 1960s soon brought a shift away from postwar idealism. Confidence in great books and historical Western values, temporarily revived by the Allied triumph over totalitarianism, waned. By the early 1970s, some faculty members were calling the Redbook's view of the world "chauvinistic

and dated."[61] The war had temporarily changed patterns of thought and behavior, but the specialization and skepticism written into the university's DNA inevitably reemerged.

The Redbook and High School Education

Paradoxically, the Redbook's most lasting impact may have been not on Harvard or other colleges but on American high schools. In fact, secondary education was arguably its primary focus. In charging the committee's members, Conant advised them that "the general education of the great majority of each generation in high schools [is] vastly more important than that of the comparatively small minority who attend our four-year colleges."[62] Like Eliot before him, Conant appreciated the importance of ensuring a steady supply of well-prepared students for Harvard and other universities. However, he was also genuinely concerned for the welfare of that majority of Americans whom he presumed would not seek college education.

The committee took the challenge to heart, devoting more of the Redbook, by page count, to advice for secondary schools and "community" education than to proposals for Harvard College. Several trends in the realm of high school education concerned them. One was the explosive growth of high school participation and associated changes in the profile of the typical student. Between 1870 and 1940, they noted, laws making secondary education mandatory led to a thirty-fold increase in the percentage of Americans attending high school. Not surprisingly, the fraction of those students going on to college fell, from 3 in 4 to just 1 in 4.[63]

Another trend of concern was diffuseness in the high school curriculum. To meet the varied interests and abilities of their exponentially larger and more diverse student bodies, and in response to the rapid advance of knowledge, high schools introduced more courses.[64] In this respect, they were little different from colleges, where electives had come to rule.

Still, the Redbook's authors lamented the tendency of elective offerings to foster concentration in a particular field of study at the high school level.[65] They worried that societal cohesion required imparting shared values to future scholars and tradesmen before they parted ways to lead separate lives. The authors also aspired to exposing young people to "the good." They worried especially about students in rapidly growing cities, where the social functions of the traditional community had broken down.[66] High school, they reasoned, was the last and best opportunity for doing those things, and general education was the vehicle. Their recommended curriculum bore striking resemblance to the one put forward by Eliot's Committee of Ten, whose focus was college preparation. They reasoned that a general education in the humanities, social studies, and science and math would serve not just future college and technical school students but also the 75 percent of high school graduates going directly into the workplace.

Their logic rested on a presumption that today seems shortsighted and even blithe—that the majority of these students would take one of the 60 to 65 percent of U.S. jobs requiring "no previous training." They derided the value of high school "vocational and trade courses, regarded as inferior, made up of inferior students, and taught by inferior teachers." Better, they reasoned, for those going straight from high school to work to pursue liberal studies. "For these students," declared the Redbook, "their whole high school education is in the truest sense general education."[67]

The Redbook offered detailed opinions about the preferred structure of this general education. English literature ought to be studied through all four years, via "great works." By great the Redbook meant difficult, citing approvingly the dictum that "if it were easy the book ought to be burned, for it cannot be educational." All students, the Redbook's authors felt, should also study a foreign language, ideally Latin or French, for the sake of better understanding English. Those seeking a deeper appreciation of the humanities should recognize Russian and Greek as superior to German and Spanish, the latter being valuable more as "tools." Art—music, painting, drawing, and modeling—should

be studied by all students for aesthetic reasons, but not for either career preparation or creative self-expression.[68]

The Redbook was equally prescriptive about the ideal curriculum in the social sciences and in the physical sciences and math. Four years of history: world and European first, then American history, including government, economics, and "contemporary society." At least three years of physical science: biology, chemistry, and physics, in that order. A three-year sequence of math: algebra, geometry, and trigonometry, followed by calculus, for the mathematically gifted. Education in mental and physical health was also recommended.[69]

That the Redbook's authors wanted good education for all high school students is beyond dispute. They can hardly be faulted for failing to imagine, in a country only just emerging from decades of isolationism, a global economy that would soon expose unskilled factory workers to competition from around the world. In fact, the general education they prescribed for all high school students was well-timed for the growing fraction of those students who would attend college with the help of the G.I. bill and other federal aid programs.

Yet their prescriptions, reflected in high school curriculum to this day, did not only presume that students headed directly to work could prepare sufficiently via the mere one-third of the curriculum not consumed by general education. The Redbook also presumed that high school teachers could do what college professors would not: teach required courses "characterized mainly by broad integrative elements," rather than specialized electives.[70] Ironically, a general education curriculum that was too rigid and too difficult to deliver for Harvard students and faculty became the standard for American high schools.[71]

The Redbook's authors may have failed to appreciate the extent to which Harvard's academic rise had distanced it from the kind of students the institution had served in its earliest days, when sixteen-year-old freshman were taught not only Latin and Greek but also the fundamentals of English composition and arithmetic. The authors' suggestions that "easy" books cannot be educational and that vocational training is inherently "inferior" indicate that Harvard's professors had

lost sight of a large portion of the potential higher education market, the one below them, in which ordinary high school graduates (and nongraduates) need remedial liberal education and practical career preparation. Today, the universities and colleges that have emulated Harvard may be making a similar misjudgment, as evidenced by the growth of for-profit institutions that increasingly cater to "at-risk" students who might otherwise be nonconsumers of higher education.

The Ivy Agreement

The postwar years saw one change to Harvard's DNA that was not only permanent but had been a long time in coming: the end of big-time football. Harvard's intercollegiate football tradition could hardly have been richer. In the opening decades of the twentieth century, its squad was a perennial national powerhouse. From 1911 to 1915 it won thirty-three consecutive games, producing three perfect seasons. In 1920, it secured its seventh national championship with a Rose Bowl win.[72]

Harvard left its mark not only on the record books but on the game itself. Its early players and coaches were among those who defined the rules of college football and created what would become the National Collegiate Athletic Association (NCAA). Harvard built the first concrete stadium, an architectural wonder seating more than 30,000 people. The stadium stimulated, indirectly, one of the football's most important innovations, the forward pass. Before 1906, the ball could be advanced only on the ground. Because of this limitation, as the game became more serious it grew brutal. Giant ball carriers and blockers drove straight ahead, often with arms locked, into opposing behemoths on the defensive line. Size and strength trumped speed and strategy.

Rule makers considered several options for opening up the game, the most popular of which was widening the field by 40 feet, to reward agility. But Harvard's immovable stands, completed just three years

before, ran down to the edges of the field. Other gridirons might be adjusted, but not the nation's premier football facility. Hence, the adoption of one of the alternative proposals: allowing a forward pass.[73]

Harvard also established the tradition of sparing no expense to build a winning program. The alumni who helped pay for the new stadium couldn't bear to sit in it and watch Yale win. They pressed for the hiring of Bill Reid, a former Harvard football hero, as the university's first paid coach. When Reid declined the athletics committee's initial offer of $3,500, the alumni contributed a matching amount. The $7,000 starting salary of the twenty-six-year-old football coach exceeded by 30 percent that of the university's highest-paid professor and was comparable to President Eliot's, who had served in his capacity for thirty-six years.[74]

Eliot's successors were no happier than he had been about the trend toward big-money football. Lowell, who valued athletic competition, preferred that it be intramural, loosely organized competition among fellow scholar-athletes for its own sake. His ideal intercollegiate football schedule would have had just one game per year (with Yale). The most prolific builder in Harvard's history, he nonetheless rebuffed alumni offers to fund a new stadium.[75]

Intercollegiate athletics looked even less attractive to Conant as he grappled with Depression-era budgets. Football gate receipts had paid for all other competitive sports in the Roaring Twenties, but they failed to cover the freight during the lean 1930s.[76] Even in the good times, the game had been difficult to manage. Reid was called twice to the White House by Harvard alumnus Teddy Roosevelt to discuss football violence and casualties, including the deaths of eighteen players from around the country in the 1905 season.[77]

Revisions to the rules and the introduction of protective equipment ameliorated these life-or-death concerns, but big-time football still seemed incompatible with Conant's vision of scholarly excellence and social consciousness. As competition from larger schools increased,

there was pressure to reduce admissions standards for athletes.[78] Pending proposals for a "two-platoon system," with players specializing on either offense or defense, would only worsen the problem.

Recognizing the handwriting on the wall, Harvard joined seven sister institutions—Brown, Columbia, Cornell, Dartmouth, Penn, Princeton, and Yale—in an Ivy Group Agreement by which football and all other intercollegiate sports would be bound. The soon-to-be members of the Ivy League agreed to hold all students to common academic standards, to offer no athletic scholarships, and to participate in no postseason games. In addition, professional participation in *any* sport by a student-athlete would preclude collegiate participation in all sports.

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Overlaid on the Ivies' relatively small student populations, these strictures effectively meant the end of nationally competitive football. Harvard not only did not win another national championship, it waited nearly twenty years for an outright Ivy League football title. Yet there were compensating benefits. With football expenses under control, there was more money for other sports, in which Harvard and the other Ivies continued to compete well nationally. Also, intramural athletic participation, which had doubled with the creation of the house system, became an even stronger tradition.[79] By 1979, three-fourths of Harvard undergraduates would be participating in intramurals.[80] Lowell, who championed "athletics for all," would have been pleased.[81]

Conant likewise was satisfied with the effects of the Ivy Agreement, though by this time larger matters engulfed him. In 1953 President Dwight D. Eisenhower called him into service as the U.S. high commissioner to Germany. He left Harvard with three weeks' notice to

the school.[82] With the subsequent creation of the Federal Republic of Germany, he became U.S. ambassador.

Even before these presidential appointments, Conant had brought Harvard national recognition not seen since Eliot's day. He appeared on three *Time* covers during his presidency. The caption on the last of these, in September 1946, read, "A scholar's activities should have relevance." Certainly Conant made Harvard's scholarship nationally relevant as never before. He also laid the foundation for scholarly excellence not only at Harvard but at other elite universities. His rank and tenure system quickly became ubiquitous, as did SAT screening of college applicants. His alterations to Harvard's DNA had profound implications. (See Table 7.1.)

The Essential Genetic Structure

By the end of Conant's administration the dominant traits of the university were set. Harvard would grow larger and more complex, and it would continue to change, becoming wealthier, worldlier, and more diverse. But, by the early 1950s, Conant and his predecessors had fixed the policies that would ultimately determine the quality and cost of a Harvard education, as well the number and type of students it could serve. As these policies were copied, incompletely, by less prestigious and less resource-rich universities, they had tremendous impact on higher education.

Elements of the genetic design originally set by Eliot and Lowell for Harvard have a particularly powerful effect on college students. The overlay of German-style graduate schools and research objectives on an undergraduate college naturally tends to draw senior faculty away from undergraduate teaching; their focus shifts to scholarship and to working with graduate students, leaving the younger students in the hands of less experienced instructors.

Along with Eliot's elective system, the university's graduate programs and scholarly ambitions foster a narrowing of the curriculum.

TABLE 7.1 Harvard Evolution in the Conant Era, 1933–1953

New Traits	Implications
Up-or-out tenure	Increased scholarly excellence Decreased attention to teaching Decreased collegiality and commitment to the institution
Faculty salary and workload distinctions	Increased incentive to win tenure Flexibility in recruiting scholarly stars and approximating market rates outside of higher education Increased salary costs Envy and division
SAT-based admissions selectivity and merit scholarships	Merit-based fairness in student selection Greater opportunities for poor students Increased cost
Externally funded research	Attraction of world-class researchers New opportunities for social contribution New costs of grant writing and regulatory compliance Distraction from teaching Accentuation of haves/have-not's disciplinary divide

continued

TABLE 7.1 *(Continued)*

New Traits	Implications
The Redbook/General Education	Enhanced course quality Broader range of required studies Increased emphasis on values Liberal education prescriptions for high school students (good for future college students, but at odds with technical training needs of others)
The Ivy Agreement	Reduced financial expense Elimination of admissions exceptions for athletes Increased zeal for intramurals Decreased affinity and support from some alumni Loss of athletics' contribution to the university's public profile

So do the creation of departments and the deference that university presidents, in the tradition of Eliot and Lowell, pay to them. Given the choice, as they are in the spirit of academic freedom, faculty organized into departments naturally create courses reflective of their high degree of specialization.[83]

When applied with the intent to promote only "the best," Conant's up-or-out tenure system supercharges those tendencies. With one's livelihood at stake, the preference of some faculty members for discipline-focused scholarship over instruction becomes a self-preservation mandate for all. The survivors of the process expect to be paid more while teaching less, as do star recruits from other universities. The greater absence of senior professors from undergraduate classrooms

affects not only the quality of instruction but also its cost. The university's hope is that its faculty scholars will secure research grants to cover a portion of their increased salaries and absence from the classroom. That failing, though, professors who spend less time in the classroom become relatively more expensive when they are there, as each teaches fewer students per year. The more established and research-oriented a university becomes, the more its instructional costs tend to grow.

Simultaneously, the academic calendar's long summer break, set in the early 1800s, means that utilization of the physical plant remains low by the standards not only of manufacturing businesses but also of human service providers such as hospitals. The American-style university is by design hungry for expensive brick-and-mortar investment and relatively inefficient in its use. That is particularly true of intercollegiate athletic facilities, which sit mostly idle even when school is in session.

Because of the high cost of its scholarship, instructional activities, and physical facilities, the university is always alert to new sources of revenue. Among those are tuition increases, alumni philanthropy, and, in the case of public universities, new legislative appropriations. Even with increased revenues, though, the inherent unprofitability of the collegiate enterprise necessitates restricted enrollments. Scarce seats are reserved for the most intellectually gifted, as determined primarily by Conant's SAT. Often these applicants come from economically privileged backgrounds. Still, inter-institutional competition requires the less prestigious schools to offer scholarships even to students with the capacity to pay their own way.

> *We crush the enthusiasm out of our young faculty.*[84]
>
> —Gordon Gee, president of Ohio State University

Collectively, Conant, Lowell, and Eliot imbedded in the university's DNA the decision to serve fewer of the country's typical undergraduate students, to make the curriculum expansive in the aggregate but narrower and more arcane at the level of individual courses, and to focus more

faculty attention on research scholarship. For students, universities fashioned after this model are expensive and difficult to access; they also provide preparation more appropriate to advanced study in graduate school than to the workplace. For most faculty, particularly the untenured, such universities are pressure cookers that tend to inspire apprehension, envy, and a sense of organizational and intellectual fragmentation.

Some decisions made before Eliot's time have proven fateful in our day. One is the creation of a pedagogy that presumes face-to-face interaction between teacher and student. Another is the gradual abandonment of early Harvard College's blend of rationality and moral values. We'll see later how those decisions make the modern university vulnerable to new forms of competition.

Table 7.2 summarizes the widely adopted elements of the traditional university's DNA, roughly as they developed chronologically at Harvard, as well as traits that didn't transfer.

Harvard's Advantages

Harvard enjoys prestige and resource advantages that blunt many of the negative effects of its genetic tendencies on undergraduate education. Because it attracts the world's leading scholars *and* provides house and tutorial systems, a Harvard undergraduate student can experience the best of both the German research university and the English college. In the words of Henry Rosovsky, who began his Harvard studies near the end of Conant's tenure, "The people who wrote the books stood at the lectern."[85] While world-famous scholars lecture, the house masters and tutors provide personal mentoring akin to that of the early Puritan college.

Likewise, Harvard's ability to draw gifted students and, as necessary, pay for their education, creates tremendous opportunities for learning from one's fellows. They are, to quote Rosovsky, "students from every state and many foreign countries selected by rigorous standards—a

TABLE 7.2 Traditional University DNA

Strategically Significant Traits Copied from Harvard
• Face-to-face instruction • Rational/secular orientation • Comprehensive specialization, departmentalization, and faculty self-governance • Long summer recess • Graduate schools atop the college • Private fundraising • Competitive athletics • Curricular distribution (GE) and concentration (majors) • Academic honors • Externally funded research • Up-or-out tenure, with faculty rank and salary distinctions • Admissions selectivity
Harvard Traits That Didn't Transfer Generally
• Extension school (degree programs for nontraditional students) • Residential house system • Ivy Agreement (limitations on competitive athletics) • Four-year graduation

diverse, contentious, and marvelously stimulating cohort."[86] Thus, even as Conant's Harvard increased its commitment to scholarly excellence across an ever-expanding range of subjects, its undergraduate students continued to enjoy a first-rate educational experience.

Harvard has also made two important decisions that most other schools have not. One is to restrict intercollegiate athletic competition. The other, which is less visible, is actually more valuable to its students. Notwithstanding the growth of curricular offerings attendant to specialization and departmentalization, the standard time-to-graduation for a Harvard College student is still four years. That compares to a national average closer to five.[87] Undoubtedly, part of the difference lies in Harvard's students' superior academic ability, their full-time focus on their studies, and the financial incentive to move quickly inherent in the College's high tuition rate. There is also a strong desire to graduate "with my class."

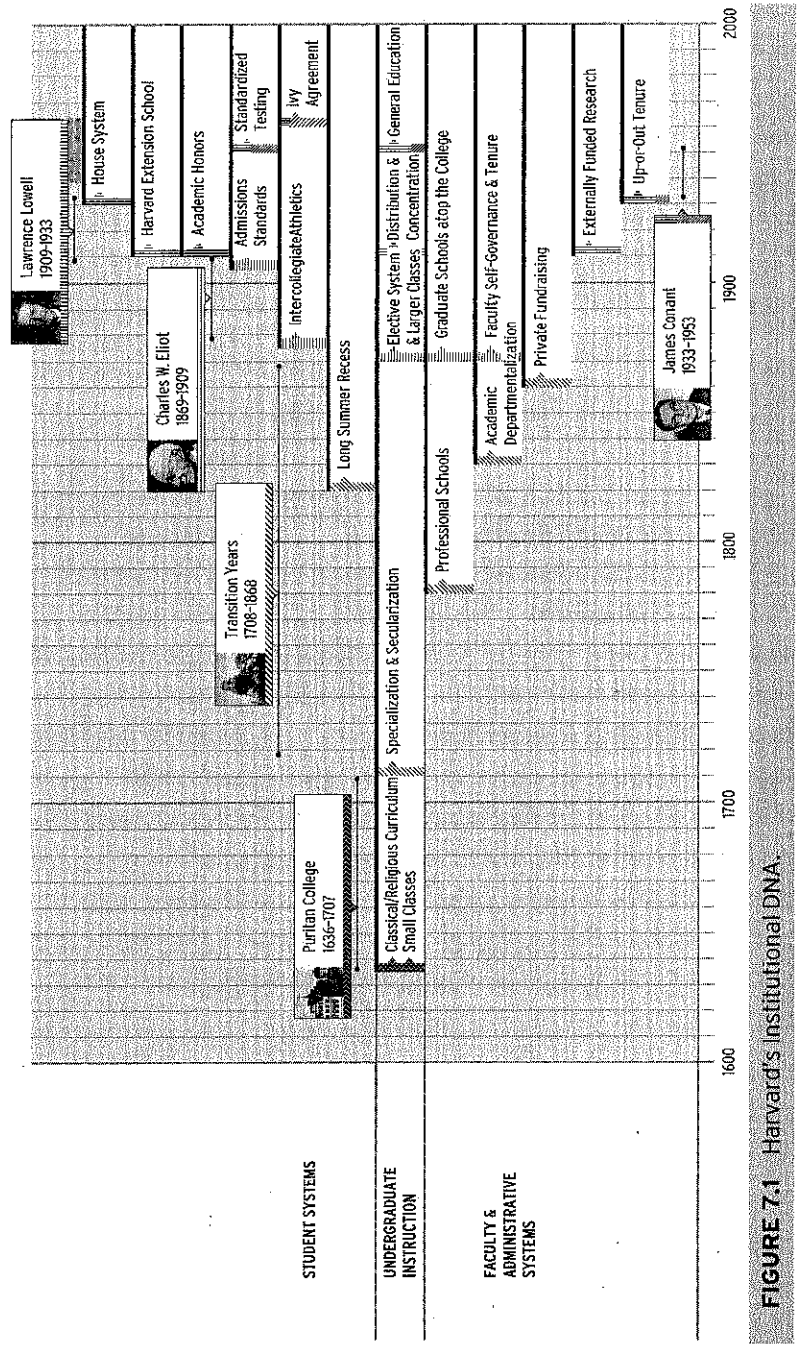

FIGURE 7.1 Harvard's Institutional DNA

However, there is more than student ability, full-time study, high prices, and social cohesion at work. Like other private colleges, Harvard provides more student advising.[88] It has also made four-year graduation structurally more feasible by constraining the growth of its concentration requirements, or majors. Failure to do that elsewhere has become epidemic.

For a graphical representation of the evolution of Harvard's DNA, see Figure 7.1.

The Costs of Harvard DNA

In spite of its uncommon advantages, the burdens of the institutional DNA have proven increasingly difficult even for Harvard to bear. The presidents who followed Conant found they had limited capacity to influence the university, let alone to innovate as he and his predecessors had done. Two of Conant's successors made funding the university's voracious appetite for resources their primary focus. Two others attempted to increase the quality of undergraduate education; they met with some success but also growing resistance. A fifth successor to Conant, who had the misfortune of presiding during the most severe economic downturn since the Great Depression, came face to face with the limits of the university's ability to pay for everything at its best. None of this was foreseen, though, either at Conant's Harvard or at the many institutions bent on becoming like it, including Ricks College.