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ANNALS OF HIGHER EDUCATION

GET RICH U.

There are no walls between Stanford and Silicon Valley. Should there be?

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Students at the Institute of Design at Stanford, or d.school, work this spring on an irrigation project for farmers in Burma. The work is part of the university's focus on interdisciplinary education. Photograph by Aaron Huey.

Stanford University is so startlingly paradisaical, so fragrant and sunny, it's as if you could eat from the trees and live happily forever. Students ride their bikes through manicured quads, past blooming flowers and statues by Rodin, to buildings named for benefactors like Gates, Hewlett, and Packard. Everyone seems happy, though there is a well-known phenomenon called the "Stanford duck syndrome": students seem cheerful, but all the while they are furiously paddling their legs to stay afloat. What they are generally paddling toward are careers of the sort that could get their names on those buildings. The campus has its jocks, stoners, and poets, but what it is famous for are budding entrepreneurs, engineers, and computer aces hoping to make their fortune in one crevasse or another of Silicon Valley.

Innovation comes from myriad sources, including the bastions of East Coast learning, but Stanford has established itself as the intellectual nexus of the information economy. In early April, Facebook acquired the photo-sharing service Instagram, for a billion dollars; naturally, the co-

founders of the two-year-old company are Stanford graduates in their late twenties. The initial investor was a Stanford alumnus.

The campus, in fact, seems designed to nurture such success. The founder of Sierra Ventures, Peter C. Wendell, has been teaching Entrepreneurship and Venture Capital part time at the business school for twenty-one years, and he invites sixteen venture capitalists to visit and work with his students. Eric Schmidt, the chairman of Google, joins him for a third of the classes, and Raymond Nasr, a prominent communications and public-relations executive in the Valley, attends them all. Scott Cook, who co-founded Intuit, drops by to talk to Wendell's class. After class, faculty, students, and guests often pick up lattes at Starbucks or cafeteria snacks and make their way to outdoor tables.

On a sunny day in February, Evan Spiegel had an appointment with Wendell and Nasr to seek their advice. A lean mechanical-engineering senior from Los Angeles, in a cardigan, T-shirt, and jeans, Spiegel wanted to describe the mobile-phone application, called Snapchat, that he and a fraternity brother had designed. The idea came to him when a friend said, "I wish these photos I am sending this girl would disappear." As Spiegel and his partner conceived it, the app would allow users to avoid making youthful indiscretions a matter of digital permanence. You could take pictures on a mobile device and share them, and after ten seconds the images would disappear.

Spiegel needed some business advice from campus mentors. He and his partner already had forty thousand users and were maxing out their credit cards. If they reached a million customers, the cost of their computer servers would exceed twenty thousand dollars per month. Spiegel told Wendell and Nasr that he needed investment money but feared going to a venture-capital firm, "because we don't want to lose control of the company." When Wendell asked if he'd like an introduction to the people at Twitter, Spiegel said that he was afraid that they might steal the idea. Wendell and Nasr suggested a meeting with Google's venture-capital arm. Spiegel agreed, Nasr arranged it, and Spiegel and Google are now talking.

Spiegel knows that mentors like Wendell will play an important part in helping him to realize his dreams for the mobile app. "I had the opportunity to sit in Peter's class as a sophomore," Spiegel says. "I was sitting next to Eric Schmidt. I was sitting next to Chad Hurley, from YouTube. I would go to lunches after class and listen to these guys talk. I met Scott Cook, who's been an incredible mentor." His faculty adviser, David Kelley, the head of the school of design, put him in touch with prospective angel investors.

If the Ivy League was the breeding ground for the élites of the American Century, Stanford is the farm system for Silicon Valley. When looking for engineers, Schmidt said, Google starts at Stanford. Five per cent of Google employees are Stanford graduates. The president of Stanford, John L. Hennessy, is a director of Google; he is also a director of Cisco Systems and a successful former entrepreneur. Stanford's Office of Technology Licensing has licensed eight thousand

campus-inspired inventions, and has generated \$1.3 billion in royalties for the university. Stanford's public-relations arm proclaims that five thousand companies "trace their origins to Stanford ideas or to Stanford faculty and students." They include Hewlett-Packard, Yahoo, Cisco Systems, Sun Microsystems, eBay, Netflix, Electronic Arts, Intuit, Fairchild Semiconductor, Agilent Technologies, Silicon Graphics, LinkedIn, and E*Trade.

John Doerr, a partner at the venture-capital firm Kleiner Perkins Caufield & Byers, which bankrolled such companies as Google and Amazon, regularly visits campus to scout for ideas. He describes Stanford as "the germplasm for innovation. I can't imagine Silicon Valley without Stanford University."

Leland Stanford was a Republican governor and senator in the late nineteenth century, who made a fortune from the Central Pacific and Southern Pacific railroads, which he had helped to found. Stout and bearded, he could be typecast, like Gould, Morgan, and Vanderbilt, as a robber baron. Without knowing it, this man of the industrial revolution spent part of his legacy establishing a center for what would become the Age of Innovation. After his only child, Leland, Jr., died, of typhoid fever, at fifteen, Stanford and his wife, Jane, bequeathed more than eight thousand acres of farmland, thirty-five miles south of San Francisco, to found a university in their son's name. They hired Frederick Law Olmsted, who designed Central Park, to create an open campus with no walls, vast gardens and thousands of palm and Coast Live Oak trees, and California mission-inspired sandstone buildings with red-tiled roofs. Today, the campus extends from Palo Alto to Woodside and Portola Valley, spanning two counties, three Zip Codes, and six government jurisdictions.

Stanford University opened its doors in 1891. Jane and Leland Stanford said in their founding grant that the university, rather than becoming an ivory tower, would "qualify its students for personal success, and direct usefulness in life." From its early days, engineers and scientists attracted government and corporate research funds as well as venture capital for start-ups, first for innovations in radio and broadcast media, then for advances in electronics, microprocessing, medicine, and digital technology. One of the first big tech companies in Silicon Valley—Federal Telegraph, which produced radios—was started by a young Stanford graduate in 1909. The university's first president, David Starr Jordan, was an angel investor.

Frederick Terman, an engineer who joined the faculty in 1925, became the dean of the School of Engineering after the Second World War and the provost in 1955. He is often called "the father of Silicon Valley." In the thirties, he encouraged two of his students, William Hewlett and David Packard, to construct in a garage a new line of audio oscillators that became the first product of the Hewlett-Packard Company.

Terman nurtured start-ups by creating the Stanford Industrial Park, which leased land to tech firms like Hewlett-Packard; today, the park is home to about a hundred and fifty companies. He encouraged his faculty to serve as paid consultants to corporations, as he did, to welcome tech

companies on campus, and to persuade them to subsidize research and fellowships for Stanford's brightest students.

William F. Miller, a physicist, was the last Stanford faculty member recruited by Terman, and he rose to become the university's provost. Miller, who is now eighty-six and an emeritus professor at Stanford's business school, traces the symbiotic relationship between Stanford and Silicon Valley to Stanford's founding. "This was kind of the Wild West," he said. "The gold rush was still on. Custer's Last Stand was only nine years before. California had not been a state very long—roughly, thirty years. People who came here had to be pioneers. Pioneers had two qualities: one, they had to be adventurers, but they were also community builders. So the people who came here to build the university also intended to build the community, and that meant interacting with businesses and helping create businesses."

President Hennessy believes that the entrepreneurial spirit is part of the university's foundation, and he attributes this freedom partly to California's relative lack of legacy industries or traditions that need to be protected, so "people are willing to try things." At Stanford more than elsewhere, the university and business forge a borderless community in which making money is considered virtuous and where participants profess a sometimes inflated belief that their work is changing the world for the better. Faculty members commonly invest in start-ups launched by their students or colleagues. There are probably more faculty millionaires at Stanford than at any other university in the world. Hennessy earned six hundred and seventy-one thousand dollars in salary from Stanford last year, but he has made far more as a board member of and shareholder in Google and Cisco.

Very often, the wealth created by Stanford's faculty and students flows back to the school. Hennessy is among the foremost fund-raisers in America. In his twelve years as president, Stanford's endowment has grown to nearly seventeen billion dollars. In each of the past seven years, Stanford has raised more money than any other American university.

Like other elite schools, Stanford has become increasingly diverse. Caucasian students are now a minority on campus; roughly sixty per cent of undergraduates, and more than half of graduate students, are Asian, black, Hispanic, Native American, or from overseas; seventeen per cent of Stanford's undergraduates are the first member of their family to attend college. Half of Stanford's undergraduates receive need-based financial aid: if their annual family income is below a hundred thousand dollars, tuition is free. "They are the locomotive kids, pulling their whole family behind them," Tobias Wolff, a novelist who has taught at Stanford for nearly two decades, says.

But Stanford's entrepreneurial culture has also turned it into a place where many faculty and students have a gold-rush mentality and where the distinction between faculty and student may blur as, together, they seek both invention and fortune. Corporate and government funding may warp research priorities. A quarter of all undergraduates and more than fifty per cent of graduate students are engineering majors. At Harvard, the figures are four and ten per cent; at Yale, they're five and

eight per cent. Some ask whether Stanford has struck the right balance between commerce and learning, between the acquisition of skills to make it and intellectual discovery for its own sake.

David Kennedy, a Pulitzer Prize-winning historian who has taught at Stanford for more than forty years, credits the university with helping needy students and spawning talent in engineering and business, but he worries that many students uncritically incorporate the excesses of Silicon Valley, and that there are not nearly enough students devoted to the liberal arts and to the idea of pure learning. “The entire Bay Area is enamored with these notions of innovation, creativity, entrepreneurship, mega-success,” he says. “It’s in the air we breathe out here. It’s an atmosphere that can be toxic to the mission of the university as a place of refuge, contemplation, and investigation for its own sake.”

In February, 2011, a dozen members of the Bay Area business community had dinner with President Obama at the home of the venture capitalist John Doerr. Steve Jobs, who was in the late stages of the illness that killed him, eight months later, sat at a large rectangular table beside Obama; Mark Zuckerberg, of Facebook, sat on the other side. They were flanked by Silicon Valley corporate chiefs, from Google, Cisco, Oracle, Genentech, Twitter, Netflix, and Yahoo. The only non-business leader invited was Hennessy. His attendance was not a surprise. “John Hennessy is the godfather of Silicon Valley,” Marc Andreessen, a venture capitalist, who as an engineering student co-invented the first Internet browser, says.

Hennessy is fifty-nine, six feet tall, and trim, with thinning gray hair and a square jaw. He talks fast and loud, one thought colliding with the next; he bubbles over with information and data points. His laugh is a sharp cackle. Hennessy grew up in Huntington, Long Island. His father was an aerospace engineer; his mother quit teaching to rear six children. As a child, he read straight through the sixteen-volume encyclopedia his parents gave him. He studied electrical engineering at Villanova University and went on to earn a doctorate in computer science at Stony Brook University. He married his high-school sweetheart, Andrea Berti, and, in 1977, became an assistant professor of electrical engineering at Stanford.

Hennessy’s academic work focussed on redesigning computer architecture, primarily through streamlining software that would make processors work more efficiently; the technology was called Reduced Instruction Set Computer (RISC). He co-wrote two textbooks that are still considered to be seminal in computer-science classes. He took a year’s sabbatical from Stanford in 1984 to co-found MIPS Computer Systems. In 1992, it was sold to Silicon Graphics for three hundred and thirty-three million dollars. MIPS technology has contributed to the miniaturization of electronics, making possible the chips that power everything from laptops and mobile phones to refrigerators and automobile dashboards. “RISC was foundational,” Andreessen says. “It was one of the maybe five or six things in the history of the industry that really matter.”

Hennessy returned to teaching at Stanford, and became a full professor in 1986. In 1996, he was

elevated to dean of the School of Engineering. He had little time to teach, but he marvelled at the inventions of his graduate students. He describes the time, in the mid-nineties, when Jerry Yang and David Filo took him to visit their campus trailer, which was littered with pizza boxes and soda cans, to show off a directory of Web sites called Yahoo. He calls this an “aha moment,” because he realized that the Web was “going to change how everyone communicated.”

In 1998, Larry Page and Sergey Brin, who were graduate students, showed Hennessy their work on search software that they later called Google. He typed in the name Gerhard Casper, and instead of getting results for Casper the Friendly Ghost, as he did on AltaVista, up popped links to Gerhard Casper the president of Stanford. He was thrilled when members of the engineering faculty mentored Page and Brin and later became Google investors, consultants, and shareholders. Since Stanford owned the rights to Google’s search technology, he was also thrilled when, in 2005, the stock grants that Stanford had received in exchange for licensing the technology were sold for three hundred and thirty-six million dollars.

In 1999, after Condoleezza Rice stepped down as provost to become the chief foreign-policy adviser to the Republican Presidential candidate George W. Bush, Casper offered Hennessy the position of chief academic and financial officer of the university. Soon afterward, Hennessy induced a former electrical-engineering faculty colleague, James Clark, who had founded Silicon Graphics (which purchased MIPS), to give a hundred and fifty million dollars to create the James H. Clark Center for medical and scientific research. Less than a year later, Casper stepped down as president and Hennessy replaced him.

Hennessy joined Cisco’s corporate board in 2002, and Google’s in 2004. It is not uncommon for a university president to be on corporate boards. According to James Finkelstein, a professor at George Mason University’s School of Public Policy, a third of college presidents serve on the boards of one or more publicly traded companies. Hennessy says that his outside board work has made him a better president. “Both Google and Cisco face—and all companies in a high-tech space face—a problem that’s very similar to the ones universities face: how do they maintain a sense of innovation, of a willingness to do the new thing?” he says.

But Gerhard Casper worries that any president sitting on a board can pose a conflict of interest. Stanford was one of the first universities to agree to allow Google to digitize a third of its library—some three million books—at a time when publishers and the Authors Guild were suing the company for copyright infringement. Hennessy says that he did not participate in the decision and “never saw the agreement.” But shouldn’t the president of a university see an agreement that may violate copyright laws and that represents a historic clash between the university and the publishing industry? And shouldn’t he worry that those who made the decision might be eager to reach an agreement that would please him?

Debra Satz, the senior associate dean for Humanities and Arts at Stanford, who teaches ethics

and political philosophy, is troubled that Hennessy is handcuffed by his industry ties. This subject has often been discussed by faculty members, she says: “My view is that you can’t forbid the activity. Good things come out of it. But it raises dangers.” Philippe Buc, a historian and a former tenured member of the Stanford faculty, says, “He should not be on the Google board. A leader doesn’t have to express what he wants. The staff will be led to pro-Google actions because it anticipates what he wants.”

Hennessy has also invested in such venture-capital firms as Kleiner Perkins, Sequoia Capital, and Foundation Capital—companies that have received investment funds from the university’s endowment board, on which Hennessy sits. In 2007, an article published in the *Wall Street Journal*—“THE GOLDEN TOUCH OF STANFORD’S PRESIDENT”—highlighted the cozy relationship between Hennessy and Silicon Valley firms. The *Journal* reported that during the previous five years he had earned forty-three million dollars; a portion of that sum came from investments in firms that also invest Stanford endowment monies. Hennessy flicks aside criticism of those investments, noting that he isn’t actively involved in managing the endowment and likening them to a mutual fund: “I’m a limited partner. I couldn’t even tell you what most of these investments were in.”

Perhaps because his position is so seemingly secure, and his assets so considerable, Hennessy rarely appears defensive. He knows that questions about conflicts of interest won’t define his legacy, and they seem less pressing when Stanford is thriving. Facebook’s purchase of Instagram made millions for, among others, Sequoia Capital—which means that it made money for Hennessy and for Stanford’s endowment, too.

Two decades ago, when the Stanford humor magazine, *the Chaparral*, did a spoof issue with *the Harvard Lampoon*, the *Chappie*, as it’s called, rearranged Harvard’s logo—“Ve Ri Tas”—to “Ve Ry Tan.” Sometimes the campus stars are athletes. This year, the quarterback Andrew Luck is the likely No. 1 pick in the N.F.L. draft. He stayed through his senior year to earn a degree in architectural design. “I sat next to him in a class once,” Ishan Nath, a senior economics major, says. “I didn’t talk to him, but I sneezed and he said, ‘Bless you.’ For the next month, like, ‘I got blessed by Andy Luck!’ ” But, at Stanford, star athletes don’t always have the status they do at other schools. When Tiger Woods was a student, in the mid-nineties, not everyone knew who he was. One classmate, Adam Seelig, now a poet and a theatre director, spotted Woods practicing in his hallway one night and returned to his own dorm to ask who “this total loser practicing putts at 11 P.M. on a Saturday night” was.

Thirty-four thousand high-school seniors applied for Stanford’s current freshman class, and only twenty-four hundred—seven per cent—were accepted. Part of the appeal, undoubtedly, is the school’s laid-back vibe. There are nearly as many bicycles on campus—thirteen thousand—as undergraduate and graduate students. Flip-flops are worn year-round.

“To me, it felt like a four-year camp,” Devin Banerjee, who graduated last year and is now a reporter for Bloomberg News, says. “We had so many camp counsellors. You never felt lost.” Michael Tubbs, a senior who was brought up by a single mother and whose father has been in prison for most of his son’s life, says that he could not have attended Stanford without a full financial-aid scholarship. He is an honors student, and marvels at how financial aid has produced a campus of diverse students who are unburdened by student debt—and who thus don’t have to spend the first five years of their career earning as much money as they can. After he graduates, Tubbs plans to return home to Stockton, California, to challenge an incumbent member of the city council this fall.

To listen to students who are presumably in the most anxious, rebellious period of their lives express such serenity is jarring. One afternoon, I met with some undergraduates at the CoHo coffee-house. They almost uniformly described an idyllic university life. Tenzin Seldon, a senior and a comparative-studies major from India, was one of five Rhodes Scholars chosen from Stanford this year. She said that Stanford is particularly welcoming to foreign students. Ishan Nath, who also won a Rhodes Scholarship, disagrees with those who say that Stanford is a utilitarian university: “There are plenty of opportunities for learning for the sake of learning here.” Kathleen Chaykowski, a junior, was a premed and an engineering major who switched to English, and last year was the editor-in-chief of the *Stanford Daily*. She spoke about the risk-taking that is integral to Silicon Valley. “My academic adviser said, ‘I want you to have a messy career at Stanford. I want to see you try things, to discover the parts of yourself that you didn’t know existed.’ ”

Each year, Hennessy visits four to five freshman dormitories to field questions. When he visited the Cedro dorm, on January 30th, the forty or so students gathered around him in the recreation room often asked the kinds of benign question posed to celebrities on TV shows: Did he miss computer science? Or they sometimes asked the questions of young careerists: To be successful, what should we do?

The students’ calm, however, belies the stress that they are under. “Looking around, most everyone looks incredibly productive, seems surrounded by friends, and ultimately appears to be fundamentally *happy*. This aura of good cheer is contagious,” the editorial board of the *Stanford Daily* wrote in early April, in an essay that described the Stanford duck syndrome in detail. “Yet this contagious happiness has its dark side: Feeling dejected or unhappy in a place like Stanford causes one to feel abnormal and out-of-place, so we may tend to internalize and brood over this lack of happiness instead of productively addressing the situation.”

In late 2010, Mayor Michael Bloomberg announced that New York wanted to replicate the success of Silicon Valley in the city’s Silicon Alley, and he called for a public competition among universities to build an élite graduate school of engineering and applied sciences on city-owned land. Seven universities submitted proposals for a campus on Roosevelt Island, and Stanford was widely viewed as the early front-runner.

Stanford's proposal contained a cover letter from Hennessy that conveyed his sweeping ambition: "StanfordNYC has the potential to help catapult New York City into a leadership position in technology, to enhance its entrepreneurial endeavors and outcomes, diversify its economic base, enhance its talent pool and help our nation maintain its global lead in science and technology." Stanford proposed spending an initial two hundred million dollars to build a campus housing two hundred faculty and more than two thousand graduate students. It pledged to raise \$1.5 billion for the campus.

This was not to be a satellite campus. It would be solely an engineering and applied-science school. Hennessy proposed that each department base three-quarters of its faculty in Palo Alto and a quarter on Roosevelt Island. Nor was it to be solely a research facility. (Stanford has one at Peking University, in Beijing.) Faculty members across the country would share videoconference screens, and students in New York would be able to take online classes based in Palo Alto. Stanford's chief fund-raiser, Martin Shell, who is the vice-president for development, says, "New York City could be the place we could begin to put into place a truly second campus. One hundred years from now, we could be a global university."

Not everyone on Stanford's campus shared Hennessy's enthusiasm. Members of the humanities faculty were upset that Stanford proposed to create a second campus without including liberal-arts faculty or students. Casper, the former Stanford president, asked whether the Roosevelt Island project would "reinforce the cliché that we are science and engineering and biology driven and the arts and humanities are stepchildren." According to Jeffrey Koseff, the director of Stanford's Woods Institute for the Environment, there were "mixed feelings," because of fears that resources would be drained from the Palo Alto campus. And there were additional questions: Would Stanford be able to recruit top faculty and students to New York when the technological heart of the country was in Silicon Valley? Could Stanford really reproduce in New York its "secret sauce," a phrase that university officials use almost mystically to describe whatever it is that makes the school succeed as an entrepreneurial incubator?

Exactly what that sauce is provokes much speculation, but an essential ingredient is the attitude on campus that business is a partner to be embraced, not kept at arm's length. The Stanford benefactor and former board chairman Burton McMurtry says, "When I first came here, the faculty did not look down its nose at industry, like most faculties." Stanford's proposal to New York, almost as a refrain, repeatedly referred to the "close ties between the industry and the university."

People may remember Hennessy's reign most for the expansion of Stanford into Silicon Valley. But his principal academic legacy may be the growth of what's called "interdisciplinary education." This is the philosophy now promoted at the various schools at Stanford—engineering, business, medicine, science, design—which encourages students from diverse majors to come together to solve real or abstract problems. The goal is to have them become what are called "T-

shaped” students, who have depth in a particular field of study but also breadth across multiple disciplines. Stanford hopes that the students can also develop the social skills to collaborate with people outside their areas of expertise. “Ten years ago, ‘interdisciplinary’ was a code word for something soft,” Jeff Koseff says. “John changed that.”

Among the bolder initiatives to create T-students is the Institute of Design at Stanford, or the d.school, which was founded seven years ago and is housed in the school of engineering. Its founder and director is David Kelley, who, with a thick black mustache and black-framed eyeglasses, looks like Groucho Marx, without the cigar. His mission, he says, is to instill “empathy” in his students, to encourage them to see the human side of the challenges posed in class, and to provoke them to be creative. Stanford is not the only university to adopt this approach to learning—M.I.T., among others, does, too. But Kelley’s effort is widely believed to be the most audacious. His classes stress collaboration across disciplines and revolve around projects to advance social progress. The school concentrates on four areas: the developing world; sustainability; health and wellness; and K-12 education. The d.school space is open, with sliding doors and ubiquitous whiteboards and tables too small to accommodate laptops; Kelley doesn’t want students retreating into their in-boxes. There are very few lectures at the school, and students are graded, in part, on their collaborative skills and on evaluations by fellow-students.

Sarah Stein Greenberg, who is the managing director of the d.school, was a student and then a fellow. Her 2006 class project was to figure out an inexpensive way for farmers in Burma to extract water from the ground for irrigation. Greenberg and her team of students travelled to Burma, and devised a cheap and efficient treadle pump that looks like a Stairmaster, which the farmer steps on in order to extract water. A local nonprofit partner manufactured and sold twenty thousand pumps, costing thirty-seven dollars each. In his unpretentious, book-filled office, John Hennessy displays items that have been produced, at least in part, by Stanford students to assist developing countries, including a baby warmer for premature babies; the simple device’s cost is one per cent of an incubator’s.

In late January, a popular d.school class, Entrepreneurial Design for Extreme Affordability, taught by James M. Patell, a business-school professor, consisted of thirty-seven graduate and three undergraduate students from thirteen departments, including engineering, political science, business, medicine, biology, and education. It was early in the quarter, and Patell offered the students a choice of initial projects. One was to create a monitoring system to help the police locate lost children. Another was to design a bicycle-storage system.

David Janka, a teaching fellow, who walked about the class’s vast open space wearing tapered khakis and shoes without socks, invited the students to gather in groups around the white wooden tables to discuss how to address these challenges. Patell and Janka were joined by David Beach, a professor of mechanical engineering; Julian Gorodsky, a practicing therapist and the “team shrink”

at the d.school; and Stuart Coulson, a retired venture capitalist who volunteers at the university up to fifty hours per week. “The kinds of project we put in front of our students don’t have right and wrong answers,” Greenberg says. “They have good, better, and really, really better.”

Justin Ferrell, who was attending Stanford on a one-year fellowship, on leave from his job as the digital-design director at the *Washington Post*, said that he was impressed by “the bias toward action” at the d.school. Newspapers have bureaucracy, committees, hierarchies, and few engineers, he said. At the *Post*, “diversity” was defined by ethnicity and race. At the d.school, diversity is defined by majors—by people who think different.

Multidisciplinary courses at Stanford worked for two earlier graduates, Kevin Systrom and Mike Krieger, the founders of Instagram. In 2005 and 2007, respectively, Systrom and Krieger were awarded Mayfield fellowships. (Only a dozen upperclassmen are chosen each year.) In an intense nine-month work-study program, fellows immerse themselves in the theoretical study of entrepreneurship, innovation, and leadership, and work during the summer in a Valley start-up. Tom Byers, an engineering professor, founded the program in 1996, and says that it aims to impart to fellows this message: “Anything is possible.” Byers has kept in touch with Systrom and Krieger and remembers them as “quiet and quite humble,” by which he means that they were outstanding human beings who could get others to follow them. They were, in short, T-students.

The most articulate critic of the way the university functions might be the man who used to run it. Gerhard Casper, who is a senior fellow at Stanford, is full of praise for Hennessy, and the two men clearly like each other. Nonetheless, it wasn’t hard to find a few daggers in a speech that Casper gave in May, 2010, in Jerusalem. The United States has “two types of college education that are in conflict with each other,” he said. One is “the classic liberal-arts model—four years of relative tranquility in which students are free to roam through disciplines, great thoughts, and great works with endless options and not much of a rationale.” The second is more utilitarian: “A college degree is expected to lead to a job, or at least to admission to a graduate or professional school.” The best colleges divide the first two years into introductory courses and the last two into the study of a major, all the while trying to expose students to “a broad range of disciplines and modes of thought.” Students, he declared, are not broadly educated, not sufficiently challenged to “search to know.” Instead, universities ask them to serve “the public, to work directly on solutions in a multidisciplinary way.” The danger, he went on, is “that academic researchers will not only embrace particular solutions but will fight for them in the political arena.” A university should keep to “its most fundamental purpose,” which is “the disinterested pursuit of truth.” Casper said that he worried that universities would be diverted from basic research by the lure of new development monies from “the marketplace,” and that they would shift to “ever greater emphasis on direct usefulness,” which might mean “even less funding of and attention to the arts and humanities.”

When I visited Casper in his office on campus this winter, I asked him if his critique applied to

Stanford. “I am a little concerned that Stanford, along with its peers, is now justifying its existence mostly in terms of what it can do for humanity and improve the world,” he answered. “I am concerned that a research-intense university will become too result-oriented,” a development that risks politicizing the university. And it also risks draining more resources from liberal arts at a time when “most undergraduates at most universities are there not because they really want to get a broad education but because they want to get the wherewithal for a good job.”

John Hennessy is familiar with Casper’s Jerusalem speech. “It applies to everyone—us, too,” he says. Getting into college is very competitive, tuition is very expensive, and, with economic uncertainty, students become preoccupied with majoring in subjects that may lead to jobs. “That’s why so many students are majoring in business,” Hennessy says, and why so few are humanities majors. He shares the concern that too many students are too preoccupied with getting rich. “It’s true broadly, not just here,” he says.

Miles Unterreiner, a senior, fretted in the *Stanford Daily* that students spent too much time networking and strategizing and becoming “slaves to the dictates of a hoped-for future,” and too little time being spontaneous. “Stanford students are superb consequentialists—that is, we tend to measure the goodness of actions by their eventual results,” he wrote. “Bentham and Mill would be proud. We excel at making rational calculations of expected returns to labor and investment, which is probably why so many of us will take the exhortation to occupy Wall Street quite literally after graduation. So before making any decision, we ask one, very simple question: What will I get out of it?”

“At most great universities, humanities feel like stepchildren,” Casper told me. Two members of the humanities faculty—David Kennedy and Tobias Wolff, a three-time winner of the O. Henry Award for his short stories—extoll Stanford’s English and history departments but worry that the university has acquired a reputation as a place for people more interested in careers or targeted education than in a lofty “search for truth.”

Attempting to address this weakness, Stanford released, in January, a study of its undergraduate education. The report promoted the T-student model embraced by Hennessy. The original Stanford “object” of creating “usefulness in life,” though affirmed, was said to be insufficient. “We want our students not simply to succeed but to flourish; we want them to live not only usefully but also creatively, responsibly, and reflectively.” The report was harsh:

The long-term value of an education is to be found not merely in the accumulation of knowledge or skills but in the capacity to forge fresh connections between them, to integrate different elements from one’s education and experience and bring them to bear on new challenges and problems. . . . Yet we were struck by how little attention most departments and programs have given to cultivating this essential capacity. We were also surprised, and somewhat chagrined, to discover how infrequently some of our students exercise it. For all their extraordinary energy and range, many of the students we encountered lead curiously compartmentalized lives, with little integration between the different spheres of their experience.

Like any president of a large university, John Hennessy is subject to a relentless schedule of breakfasts, meetings, lunches, speeches, ceremonies, handshakes, dinners, and late-night calls alerting him to an injury or a fatality on campus. His home becomes a public space for meetings and entertaining. He juggles various constituencies—faculty, administrators, students, alumni, trustees, athletics. The routine becomes a daily blur, compelling a president to want to break away and seek a larger vision, something that becomes his stamp, his legacy. For a while, it seemed that StanfordNYC might provide that legacy.

Hennessy declared that a New York campus was “a landmark decision.” He invested enormous time and effort to overcome faculty, alumni, trustee, and student unease about diverting campus resources for such a grandiose project. “I was originally a skeptic,” Otis Reid, a senior economics major, says. But Hennessy persuaded him, by arguing that Stanford’s future will be one of expansion, and Reid agreed that New York was a better place to go first than Abu Dhabi.

On December 16, 2011, Stanford announced that it was withdrawing its bid. Publicly, the university was vague about the decision, and, in a statement, Hennessy praised “the mayor’s bold vision.” But he was seething. In January, he told me that the city had changed the terms of the proposed deal. After seven universities had submitted their bids, he said, the city suddenly wanted Stanford to agree that the campus would be operational, with a full complement of faculty, sooner than Stanford thought was feasible. The city, according to Debra Zumwalt, Stanford’s general counsel and lead negotiator, added “many millions of dollars in penalties that were not in the original proposal, including penalizing Stanford for failure to obtain approvals on a certain schedule, even if the delays were the fault of the city and not Stanford. . . . I have been a lawyer for over thirty years, and I have never seen negotiations that were handled so poorly by a reputable party.” One demand that particularly infuriated Stanford was a fine of twenty million dollars if the City Council, not Stanford, delayed approval of the project. These demands came from city lawyers, not from the Mayor or from a deputy mayor, Robert Steel, who did not participate in the final round of negotiations with Stanford officials. However, city negotiators were undoubtedly aware that Mayor Bloomberg, in a speech at M.I.T., in November, had said of two of the applicants, “Stanford is desperate to do it. Cornell is desperate to do it. . . . We can go back and try to renegotiate with each” university. Out of the blue, Hennessy says, the city introduced the new demands.

To Hennessy, these demands illustrated a shocking difference between the cultures of Silicon Valley and of the city. “I’ve cut billion-dollar deals in the Valley with a handshake,” Hennessy says. “It was a very different approach”—and, he says, the city was acting “not exactly like a partner.”

Yet the decision seemed hasty. Why would Hennessy, who had made such an effort to persuade the university community to embrace StanfordNYC, not pause to call a business-friendly mayor to try to get the city to roll back what he saw as its new demands? Hennessy says that his sense of trust was fundamentally shaken. City officials say they were surprised by the sudden pullout, especially

since Hennessy had an agreeable conversation with Deputy Mayor Steel earlier that same week.

Steel insists that “the goalposts were fixed.” All the stipulations that Stanford now complains about, he says, were part of the city’s original package. Actually, they weren’t. In the city’s proposal request, the due dates and penalties were left blank. Seth Pinsky, the president of the New York City Economic Development Corporation, who was one of the city’s lead negotiators, says that these were to be filled in by each bidder and then discussed in negotiations. “The more aggressive they were on the schedule and the more aggressive they were on the amount, the more favorably” the city looked at the bid, Pinsky told me. In the negotiations, he said, he tried to get each bidder to boost its offer by alerting it of more favorable competing bids. At one point, Stanford asked about an ambiguous clause in the city’s proposal request: would the university have to indemnify the city if it were sued for, say, polluted water on Roosevelt Island? The city responded that the university would. According to Pinsky, city lawyers said that this was “not likely to produce significant problems,” and that other bidders did not object. To Pinsky and the city, these demands—and the twenty-million-dollar penalty if the City Council’s approval was delayed—were “not uncommon,” since developers often “take liability for public approvals.” To Stanford, the stipulations made it seem as if the goal posts were not fixed.

Three days after Stanford withdrew, the city awarded the contract to Cornell University and its junior partner, the Technion-Israel Institute of Technology, the oldest university in Israel. Not a few Hennessy and Stanford partisans were pleased. “I am very relieved,” Gerhard Casper said.

Jeff Koseff, who played golf with Hennessy within a few days of Stanford’s withdrawal, recalls, “He was already talking about what we could do next.” One venture that Hennessy was exploring, though there is as yet no concrete plan, is working with the City College of New York to establish a Stanford beachhead in Manhattan. Deputy Mayor Steel says, “I’d be ecstatic.” Still, a Stanford official is dubious: “John’s disillusionment with the city is pretty thorough.”

Another person who is pleased with the withdrawal is Marc Andreessen, whose wife teaches philanthropy at Stanford and whose father-in-law, John Arrillaga, is one of the university’s foremost donors. Instead of erecting buildings, Andreessen says, Stanford should invest even more of its resources in distance learning: “We’re on the cusp of an opportunity to deliver a state-of-the-art, Stanford-calibre education to every single kid around the world. And the idea that we were going to build a physical campus to reach a tiny fraction of those kids was, to me, tragically undershooting our potential.”

Hennessy, like Andreessen, believes that online learning can be as revolutionary to education as digital downloads were to the music business. Distance learning threatens one day to disrupt higher education by reducing the cost of college and by offering the convenience of a stay-at-home, do-it-on-your-own-time education. “Part of our challenge is that right now we have more questions than we have answers,” Hennessy says, of online education. “We know this is going to be important and,

in the long term, transformative to education. We don't really understand how yet."

This past fall, Stanford introduced three free online engineering lectures, each organized into short segments. A hundred and sixty thousand students in a hundred and ninety countries signed up for Sebastian Thrun's online Introduction to Artificial Intelligence class. They listened to the same material that Stanford students did and were given pass/fail grades; at the end, they received certificates of completion, which had Thrun's name on them but not Stanford's. The interest "surprised us," John Etchemendy, the provost, says, noting that Stanford was about to introduce several more classes, which would also be free. The "key question," he says, is: "How can we increase efficiency without decreasing quality?"

Stanford faculty members, accustomed to the entrepreneurial culture, have already begun to clamor for a piece of the potential revenue whenever the university starts to charge for the classes. This quest offends faculty members like Debra Satz, the senior associate dean, who regards herself as a public servant. "Some of the faculty see themselves as private contractors, and, if you are, you expect to get paid extra," she says. "But, if you're a member of a community, then you have certain responsibilities."

Sebastian Thrun quit his faculty position at Stanford; he now works full time at Udacity, a start-up he co-founded that offers online courses. Udacity joins a host of companies whose distance-learning investments might one day siphon students from Stanford—Apple, the News Corp's Worldwide Learning, the *Washington Post's* Kaplan University, the *New York Times's* Knowledge Network, and the nonprofit Khan Academy, with its approximately three thousand free lectures and tutorials made available on YouTube and funded by donations from, among others, the Bill & Melinda Gates Foundation, Google, and Ann and John Doerr.

Since so much of an undergraduate education consists of living on campus and interacting with other students, for those who can afford it—or who benefit from the generous scholarships offered by such institutions as Stanford—it's difficult to imagine that an online education is comparable. Nor can an online education duplicate the collaborative, multidisciplinary classes at Stanford's d.school, or the personal contact with professors that graduate students have as they inch toward a Ph.D.

John Hennessy's experience in Silicon Valley proves that digital disruption is normal, and even desirable. It is commonly believed that traditional companies and services get disrupted because they are inefficient and costly. The publishing industry has suffered in recent years, the argument goes, because reading on screens is more convenient. Why wait in line at a store when there's Amazon? Why pay for a travel agent when there's Expedia? The same argument can be applied to online education. An online syllabus could reach many more students, and reduce tuition charges and eliminate room and board. Students in an online university could take any course whenever they wanted, and wouldn't have to waste time bicycling to class.

But online education might also disrupt everything that distinguishes Stanford. Could a student on a video prompter have coffee with a venture capitalist? Could one become a T-student through Web chat? Stanford has been aligned with Silicon Valley and its culture of disruption. Now Hennessy and Stanford have to seriously contemplate whether more efficiency is synonymous with a better education.

In mid-February, Hennessy embarked on a sabbatical that will take him away from campus through much of the spring. His plans included travelling and spending time with his family. The respite, Hennessy says, will provide an opportunity to think. Of all the things he plans to think hard about, he says, distance learning tops the list. Stanford, like newspapers and music companies and much of traditional media a little more than a decade ago, is sailing in seemingly placid waters. But Hennessy's digital experience alerts him to danger. He says, "There's a tsunami coming." ♦

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