

California: The Nation's First "New Society?"
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I am pleased to join you tonight. I hope I can capture your interest after a long day, a meal, and several glasses of wine.

Although we all work for the same University, we are spread across California and northern New Mexico. The value of the UC Management Institute is in meeting people we might not otherwise meet, building relationships that will endure even after we return home, and gaining a fuller appreciation of the University and the opportunities and challenges that lie ahead for all of us.

In the next 50 years, California will face one of the most critical challenges of any society. The question I want to put to you tonight is: Can California provide the opportunities to its citizens, and achieve the level of social cohesion in the next half-century, that we have enjoyed in the last half-century? Why do I raise this question? Because in the next 50 years, California will undergo a profound social transformation driven both by the changing complexion of its citizens and the impact of science and technology.

California has the opportunity to rise to the occasion and become the nation's first "New Society" – a model for others to follow. Higher education, and the University of California in particular, will be key to this transformation. We are at the nexus of these two forces: higher education is the principal means of upward social mobility in the United States, and the new knowledge produced by research is the basis for social and economic progress.

What do I mean by a "New Society"? I mean one that has two characteristics:

- 1) A population that is multi-national, multi-lingual, multi-ethnic, multi-racial, and

- 2) One that is driven by advances in knowledge that are quickly transformed into societal benefits, thereby improving the economic, social and health opportunities for its citizens.

But, before we look ahead, let's take a brief journey back in time. Since the mid-1800's, there have been two constants in California history:ⁱ

First, Californians have always placed great faith in science and technology, and

Second, the state's population has often been characterized more by its diverse origins than by its homogeneity.

The situation is not too different today. Californians continue to look to science and technology to shape the future. And, a large proportion of Californians are new residents of this state. 50% of California's residents were either born outside the United States, or are the children of parents born outside the United States.

For the past 135 years, California has looked to the University to educate its citizens, to unravel the mysteries of our world, and to build a prosperous economy for the state.

The University of California began with a bold mission: to provide an education equal to that of the nation's best private universities, and to make that education available to students who could not then aspire to a higher education. The state law that created the University said that admission shall be open to students from all economic classes, and that tuition shall be free to all California residents. Soon thereafter, The Regents adopted the policy that women shall be admitted on an equal basis with men. These were lofty aspirations for a time when a college education was largely the preserve of upper class gentlemen.ⁱⁱ

So how has the University fulfilled these goals? Today, the University enrolls the highest percentage of low income students of any public or private research university in the nation. Thirty years after its founding, 46% of the students were women, and today women comprise 54% of all undergraduates. And, while tuition is not free, our fees are 36% below the average for comparable public universities. Although the University has more than fulfilled its promise (with the obvious exception of free tuition),

its early years were fraught with peril, and revealed little of its later greatness.

The Regents set out to recruit the first President of the University, and, over the objections of one-half of the Board, they offered the position to General George McClellan. Abraham Lincoln had fired McClellan in the fall of 1862 as commander of the Union forces during the Civil War for failing to pursue the war with sufficient vigor. In the summer of 1864, McClellan was nominated as the democratic challenger to Lincoln in that fall's Presidential election. During the campaign, McClellan called for a conditional peace with the South and acceded to the Southern position on slavery.ⁱⁱⁱ

When McClellan refused the Regents' offer, the Board then recruited Daniel Coit Gilman, a distinguished scientist from Yale. His goal was to create a University with as much emphasis on the sciences as on the classics, an unusual goal for an American university at the time.

But Gilman's efforts were resisted by politically powerful agricultural groups that wanted the University to be a farm school where students would work in the fields to receive a practical education. He also bristled under the micro-management of the Legislature. After several difficult years, Gilman left to become president of Johns Hopkins University, where he built a great university free from the restive forces he had encountered in California.^{iv}

Gilman's departure had one positive outcome: it helped bring about the University's status as public trust with Constitutional autonomy – a status equivalent to California's executive, legislative and judicial branches. The state was in serious economic difficulty, it was experiencing a prolonged drought, and its citizens were concerned that their government was serving the interests of a monied elite. Calls for reform led to a Constitutional Convention in 1879.

As part of the convention, agricultural and labor interests were successful in restricting the mission of the university to that of a farm school. But, as the growing season began, the farmers returned home to plant crops and work their farms. Seizing the opportunity, San Francisco business and professional interests reintroduced earlier amendments to grant the University autonomy from state government. Fortunately, they prevailed in the final round of voting and these provisions were incorporated in the

California Constitution as Article IX, Section IX. Now the University had the independence to achieve greatness.

In spite of these initial difficulties, the University eventually did realize President Gilman's vision and went on to shape California as we know it today.

- In the early 1900's, UC researchers discovered how to remove alkali salts from Central Valley soils, making California the world's most productive farming region.
- In the 1960's, UC studies led to automobile safety standards such as seatbelts, shatterproof windshields, and head rests to protect vehicle occupants.
- UC researchers developed Recombinant DNA technology, which gave birth to the biotechnology industry. So it is no accident that one-third of all biotechnology companies in the United States are located within 35 miles of a UC campus.
- And, UC faculty pioneered the laser, fiber optics, and the wireless technologies that make modern telecommunications and entertainment possible – from compact discs to cellular telephones.

There are hundreds of additional examples, but these few make the point. These developments and others like them in agriculture, aerospace, electronics, computing, and biotechnology have laid the foundation for California's economy, which is now the fifth largest in the world.

Recently, the Council of Economic Advisors to the President of the United States reported that one-half of the growth in the U.S. economy since World War II resulted from innovations stemming from basic research. This report's stunning conclusion echoes on a national level the University's contributions to the California economy.^v

- California is the leading research and development state. One-fifth (21 percent) of the nation's R&D is carried out in California. More research and development is carried out in California than in the next three states combined (Michigan, New York and Texas).^{vi}

- The University of California ranks first among all recipients of federal research and development funding and contributes significantly to California's premiere status – particularly when one includes the Lawrence Berkeley and Lawrence Livermore National Laboratories in the University's portfolio.
- One can point to innumerable companies created by UC alumni, faculty and staff that have powered the California economy – companies like Intel, Cisco, Sun, Amgen, Chiron, Genentech, Qualcomm, and many many more.

But the nation's science and engineering workforce is aging.^{vii} 24% of science and engineering employees with bachelor's degrees are 50 years old or older. 36% of those with master's degrees are 50 or older. And 44% of those with doctorates are aged 50 or older. Where will their successors come from? The University of California will have a decisive role in educating the next generation of scientists and engineers to build on the foundation that has been laid by the current generation.

Californians have benefited enormously from the University's presence. So have people throughout the world. Some have said the University of California and its national laboratories were responsible in large measure for winning World War II and the Cold War. This statement does an injustice to the men and women from many nations who sacrificed their lives against tyranny. But few other institutions had as significant an impact on the war effort as the University of California.

UC had a key role in the three biggest developments in World War II. Radar; the amphibious landings in North Africa, Europe and the Pacific Islands; and the atomic bomb were all greatly influenced by UC. For example, Berkeley's Ernest O. Lawrence recruited the scientists who led the U.S. effort to refine and expand on the British development of radar. Many of the significant advances were made by Berkeley researchers such as Luis Alvarez and Ed McMillan. The research and coordination of the amphibious landings was undertaken by allied scientists at UC San Diego's Scripps Institution of Oceanography. And, the recruitment of scientists for the Manhattan Project was initiated by Ernest O. Lawrence who also recruited Berkeley physicist Robert Oppenheimer to lead the effort. At the time, the allies feared that the Nazis were further ahead in the race to deploy the first

nuclear weapon.^{viii} Pause for a minute and imagine what your life would be like today if the Nazis had won the race to develop the first atomic bomb.

Given this history, what is the future of the golden state? California's population has been changing dramatically in the past several decades and these changes will accelerate in the decades ahead. When California entered the Union, its residents were citizens of the world. They had come from Mexico, Ireland, China and Italy as well as from the United States. However, the Gold Rush, the Dust Bowl, and the Second World War brought in wave after wave of migrants from other U.S. states. Since they were principally of Western European heritage, they altered the existing make-up of the population.

After these waves of immigration from other states, the diversity of California's population was greater than that of the U.S., but not significantly so.^{ix} From 1940 to 1970, less than 10% of the state's growth was due to foreign immigration. However, since 1970, nearly 50% of the state's growth has been due to immigration from abroad, principally from Latin America and Asia.^x

California's total population is expected to grow 69% by 2040. The Latino population is projected to grow by 163%, the Asian-American population will grow by 127%, and the African-American population will grow by 38%. The white population, by contrast, will grow by only 3%.

These differential rates of growth are projected to change California's population dramatically by the year 2040. The white population is projected to decline from 67% of California's population in 1980 to 31% in 2040. The Latino population is expected to increase from 19% to 48% of California's population during this same period. The Asian-American population is expected to increase from 5% to 15%. The African-American population, by contrast, is expected to decrease from 8% to 6% of California's population during these years.

If these projections become reality, there will be 10 million more Latinos than whites by 2040. This ongoing change is already evident in the schools. In 1990, 34% of California's K-12 students were Latinos; in 2000, 43% were Latinos; and in 2010, 52% are expected to be Latinos.^{xi} If you don't speak Spanish already, you might consider Spanish lessons – if not for yourselves, then at least for your children or grandchildren.

California public higher education played a key role in integrating California's surges of earlier migrants (largely white, largely American) into a cohesive upwardly mobile society. This was particularly true for UC which, in the 1920's, had the largest student enrollment of any university in the United States.

The question now is, can California look to its institutions of higher education, particularly UC, to achieve similar results with this more diverse population? Why is this an important question? Because educational attainment has become the determinant or, at the very least, the arbiter of opportunity in the United States today. Personal income, health, civic participation, and opportunities for one's children are in many ways a function of a person's level of education.

U.S. Census Bureau data indicate that lifetime earnings are, on average, a function of education. High school graduates' estimated lifetime earnings are \$1.2 million, while lifetime earnings for those with a bachelor's degree are \$2.1 million, nearly double the figure for a high school graduate. And this gap is widening with each passing decade.^{xii}

With this in mind, it is worth looking at high school completion rates by race and ethnicity. 78% of whites and Asian-Americans complete high school. 59% of African-Americans complete high school, as do 55% of Latinos.^{xiii}

The race and ethnicity of Californians who have earned a bachelor's degree show a somewhat different, but not inconsistent, pattern: 47% of Asian-Americans hold bachelor's degrees, as do 36% of whites. By contrast, 18% of African-Americans and 8% of Latinos hold bachelor's degrees.^{xiv}

Yet public opinion polling shows that Latinos and African-Americans have the same educational aspirations for their children as do whites and Asian-Americans.^{xv} This gap between educational aspirations and educational attainment will be a key issue facing California, its elected representatives, its public schools, and its colleges and universities in the decades ahead. If we are able to close this gap, then California will have replicated its success during the past half-century. If not, the consequences could be profound. Few societies have long survived that have been presided over by a privileged few, while the majority has seen itself as excluded from the opportunities enjoyed by the few.

Is it reasonable to expect that state lawmakers will continue to support UC with taxpayer dollars if UC does not educate a reasonable fraction of the majority population group in the state? Texas provides an interesting case study. In the year 2000, Latinos represented 32% of the state population, and they are projected to become a majority in Texas by 2025. At the University of Texas at Austin, Latinos represent 14% of enrollment; at Texas A&M they represent 9%. This is roughly comparable with UC, where Latino students comprise 13% of undergraduate enrollment. These are the most selective public universities in the state – comparable to UC campuses.^{xvi}

As Texas tries to increase the educational attainment of its Latino population, the legislature has reduced state funding for UT Austin and Texas A&M. During the decade of the 1990's, these two universities saw their average annual state appropriation decline by 0.8% and 1.5% per year, respectively. By contrast, colleges and universities that enrolled increasing numbers of Latino students saw their budgets rise by 1.7% per year. A budget differential of 2.5% to 3.2 % per year over a ten-year period can make an enormous difference in the quality and effectiveness of any university.^{xvii}

In 2000, we conducted a public opinion poll throughout the State to assess voter understanding and attitudes toward higher education, and toward UC in particular. There were five key findings.^{xviii}

- 1) UC is the voters' first choice (38%) for a higher education, ahead of Stanford University (27%). But only 18% would give UC additional funding. Voters were more sympathetic to the California Community Colleges and the California State University. UC was viewed as more financially independent and therefore better able to fend for itself financially.
- 2) Public knowledge of UC starts and stops at the classroom. UC is renowned for its educational excellence, but voters have no sense that UC makes a difference in their lives by fostering new companies that create jobs; through medical advances that improve our health and fight disease; in the quality and abundance of our food supply; and by enhancing our national security.

- 3) UC is viewed as exclusive. This is considered a positive attribute, especially by African-Americans and Latinos. UC's diversity is not their principal concern, but these Californians do want their children to receive the educational preparation that will make them competitive for UC admission.
- 4) UC is viewed as unaffordable. The public overestimates the cost of attending UC by a factor of three. This, in turn, discourages some students from applying to our campuses.
- 5) The most credible sources of information about UC are faculty, students, staff and alumni. Voters want to learn about UC from their friends and neighbors, not from the media.

We are building a communications effort across the University to address these results and you can play a key part in its success. What can you do to help? As I just mentioned, the public considers you the most credible sources of information about the University. So as you leave this Management Institute, please accept your diplomatic credentials as ambassadors representing your campus, lab, or the Office of the President, as well as the entire University of California.

- Embrace this role with enthusiasm. Tell your friends, your neighbors, and your elected officials about the value of the University and how it makes a difference in their daily lives.
- Be an active and informed voter. Make sure that you, your family and your friends are registered to vote. A \$13 billion bond measure on the November ballot will fund construction and renovation of buildings at our public schools, colleges, and universities. If it passes, it will provide UC \$690 million over the next two years for such construction. If it fails, California's public colleges and universities may have to turn away thousands of deserving students who are working hard to prepare themselves for an undergraduate or graduate education.
- Lastly, keep in mind that your jobs are supported by millions of Californians who have never had a family member attend UC. Return the favor by seeking out and encouraging students to aspire to and

prepare for admission to the University. The rewards of doing so will remain with you for a lifetime.

I would like to conclude on an upbeat note. I am optimistic about the University's ability to navigate these rapids. Throughout its history the University has demonstrated an unparalleled ability to reconcile paradoxical goals. First, the University has achieved the democratic goals laid out in its founding legislation and simultaneously it has achieved a standard of excellence equaled by few other universities anywhere. Second, it accomplished Gilman's goal of giving as much emphasis to the sciences as to the classics, and it achieved distinction in both. And third, the University has once before accommodated large increases in California's college age population while maintaining high academic standards.

Before I close, I would like to ask you one last question. What California ethnic group has the following characteristics: a 25% poverty rate, a 50% high school completion rate, a 10% college graduation rate, and over half of whom are recent migrants to California? If your answer is that this description fits California's Latino population today, you are correct. But it also describes California's white population in the 1950's – a group of people that higher education successfully assimilated into the mainstream of California society.^{xix}

So while we have a challenge ahead of us, let's approach it with enthusiasm. Together we can do it!

Thank you.

ⁱ The early history of the University of California outlined in this speech is described in engaging detail in John Aubrey Douglass' book, *The California Idea and American Higher Education: 1850 to the 1960 Master Plan*, Stanford University Press, 2000.

ⁱⁱ Ibid.

ⁱⁱⁱ Ibid.

^{iv} Ibid.

^v Studies funded by the National Science Foundation have found that one-half of the growth in the U.S. economy since World War II resulted from innovations stemming from basic research. This finding has been confirmed by the Council of Economic Advisors to the President of the United States in its 1995 report entitled “Supporting Research and Development to Promote Economic Growth: The Federal Government’s Role,” which indicates that the social rate of return for investments in research and development is conservatively estimated to be 50%.

^{vi} The status of R&D in California is described in the California Report on the Environment for Science and Technology (CREST), prepared by The California Council on Science and Technology, November 1999.

^{vii} The aging of the nation’s science and engineering workforce is discussed in Science and Engineering Indicators, National Science Foundation, 2002.

^{viii} The role of Ernest O. Lawrence in recruiting scientists to refine and further develop radar, which was invented by the British, and later to develop the atomic bomb during World War II is discussed by Jennet Conant in her book, *Tuxedo Park*, Simon and Schuster, 2002.

^{ix} Douglass, John A., *The California Idea and American Higher Education*.

^x Immigration data are reported in *Immigration in a Changing Economy: California’s Experience - Questions and Answers*, by Kevin F. McCarthy and Georges Vernez, RAND, 1998.

^{xi} State of California, Department of Finance, *California Public K-12 Enrollment Projections by Ethnicity: 2001 Series*, Sacramento, California, October 2001.

^{xii} The role of education in determining lifetime earnings is reported by the U.S. Census Bureau.

^{xiii} High school completion rates by race and ethnicity are discussed in “High School Graduation Rates in the United States,” by Jay P. Greene, of The Manhattan Institute for Policy Research, November 2001.

^{xiv} Bachelor’s degree data can be found in the March 2001 “California Current Population Survey Report”, published by the State of California Department of Finance.

^{xv} Public opinion polling on this subject was conducted by Peter D. Hart and Associates in 2000.

^{xvi} The financial challenges facing The University of Texas at Austin and Texas A&M University at College Station are discussed in “The Fall of the Flagships,” published in the July 5, 2002 issue of The Chronicle of Higher Education.

^{xvii} Ibid.

^{xviii} Peter D. Hart and Associates poll, 2000.

^{xix} The comparison of social indicators for California’s Latino population today and California’s white population in 1950 is from an OpEd piece in the Los Angeles Times dated March 17, 1996 by David E. Hayes-Bautista and Gregory Rodriguez.