

## UC'S ATKINSON YEARS: STAYING AFLOAT AND ALTERING COURSE

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Patricia A. Pelfrey, *Entrepreneurial President: Richard Atkinson and the University of California, 1995-2003* (Berkeley: University of California Press, 2012, pp. 231).

**Clark Kerr**, UC President from 1958 to 1967, once joked that college presidents were expected to provide three essential services: sex for the undergraduates, football for the alumni, and parking for the faculty. As he also knew from hard experience, managing a state-sponsored, multi-campus research university like ours means extracting money from the state's general fund (a sum now shrunk to only 11% of the total UC budget) and helping each affiliate acquire additional support from wealthy donors, foundations, corporate partners, and federal agencies. And while he is at this Sysiphean task, he also has to protect the whole enterprise from the onslaughts of a host of interested parties and constituencies, including the governor, the legislature, federal agencies, activist Regents, students and their families irate over tuition increases, and ideologically-committed agitators to the left and right. When all else fails, he is expected to spread his arms stoically while being nailed to the cross for our alleged sins (in Kerr's case by **Ronald Reagan** acting as **Pilate**). **Dick Atkinson** somehow fended off all the political furies over an eight-year term – a tenure **Patricia A. Pelfrey** nicely describes as a test of "some



administrative version of chaos theory" – and got back to La Jolla, his palms free of visible stigmata and his reputation not only intact but enhanced.

That in itself was no mean feat. But in this very readable, thoughtful, and richly informative account, Pelfrey uses an insider's perspective gained by working in the Office of the President over three decades to show how Atkinson not only helped the University survive the first wave of the state's ongoing budget crisis, but brought about or sustained several im-

portant changes of direction for the system and for higher education generally. She examines his contributions under five headings:

**1. Assuring opportunity and diversity in admissions.** After preferential treatment of applicants was banned, first by the Regents' Resolutions SP-1 and SP-2 in 1995 and then by the passage of state Proposition 209, Atkinson won approval for two measures that softened the impact of the controversial ban: "comprehensive review," allowing consideration of factors other than high school GPA, such as demonstrated success in overcoming disadvantage, and "Eligibility in the Local Context," which takes into account whether an applicant has attended underperforming schools. These steps quieted the controversy and raised numbers of minority admissions almost back to what they had been.

**2. Keeping the Los Alamos and Livermore Labs under UC management.** In response to security lapses at Los Alamos and reports of lax business practices, he instituted a major reform of the University's oversight mechanism. With the help of an investigation led by former UCSD administrator **Bruce Darling**, he succeeded in tightening control well enough to enable the University to win approval (under his successor, President **Robert Dynes**) to retain management of both facilities. He saw this as a service to the nation – one that gives the labs' researchers more creative freedom

*Continued on p.2 →*

### ♦ ♦ ♦ Inside ♦ ♦ ♦

Remembering Bill Nierenberg .5
Correction .....7
Anecdoteage ..... 7-8
Mark Your Calendar .....8

than they might have under government or industrial control and also benefits UC scientists and students.

**3. Strengthening Campus Autonomy.** Atkinson continued the project begun by Kerr and pursued under President **Jack Peltason** (1992-95) of dismantling the “highly centralized organizational edifice” created under President **Robert Gordon Sproul** (1930-58). He saw the system as “a collection of ten research universities – a single but not a monolithic institution,” much to the relief of the nine chancellors and faculties. As of 2010, UCOP’s budget was cut by \$85 million (\$30 million of which was transferred to the campuses) and its workforce by 28%. As Pelfrey comments, “In ceding to the chancellors an unprecedented degree of budgetary authority, Atkinson imposed strong limits on this presidential prerogative.” At the same time, he used his authority to encourage progress on the new Merced campus and to spur creation of intercampus ventures like the California Institute for Telecommunications and Information Technology (CALIT<sup>2</sup>) linking UCSD and UCI.

**4. Reforming the SAT.** Boldly and single-handedly, he challenged reliance on the SAT I test and brought about a major reform in the SAT. He did so by calling for studies that showed the SAT I was a poor predictor of first year performance. He successfully argued for reliance instead on SAT II, which measured what students had learned, and got the Educational Testing Service to get rid of analogies on SAT I and add a writing requirement.

**5. Pointing the system toward a new model, which Pelfrey calls the “entrepreneurial university.”** The seed of this new model was planted by **Vannevar Bush** in 1945, in *Science, The Endless Frontier*, where he argued, with the recent example of the mobilization of science for war in mind, that the closing of America’s geographical frontier need not produce economic stagnation, as one school of economists feared. Science would become an “endless frontier” as the production of new knowledge in university and industrial labs became an ever-renewing cornucopia. The model took shape around MIT after the

war as the “Route 128 effect” and was perfected at Stanford, thanks largely to the initiatives of Provost **Frederick Terman**, the engineer who became the “father of Silicon Valley,” beginning with two of his students, **William Hewlett** and **David Packard**, and continuing through Google and lately Instagram. Atkinson worked at Stanford under Terman and later served as director of the National Science Foundation – the very institution that was created to implement Bush’s vision by supporting basic research at universities.

Bush, Terman, and Atkinson have all recognized that the modern research university must become the key active agent in the pursuit and dissemination of *new* knowledge. And just as important, it must promote links between the expanding frontiers of knowledge and users – by mating physics and mathematics with applied engineering (electrical, mechanical, structural, computational, telecommunication, and environmental); biology and chemistry with medicine, agricultural science, biotechnology, synthetic materials engineering, energy production, and environmental preservation; oceanography with climate science and much else; philosophy, linguistics, and cognitive science with neuroscience and its applications; the social sciences and legal studies with constitutional, business, and social reform; the arts and humanities with new (“post-modernist”) forms of creativity in fiction, criticism, theater, graphic arts, and music. In other words, the university must now be the central instrument in the transition to a post-industrial society more dependent than ever before on the rapid acquisition and application of scientific findings.

Each of these accomplishments warrants examination, but in this commentary I will limit the focus to the first because it is controversial and the last because it is increasingly urgent.

#### “Affirmative Action”

The issue of affirmative action or preferential treatment, as Pelfrey points out, raised the question of how “shared governance” among the Regents, the faculty, and the administration, ought to

work. Like academic freedom, shared governance has always been an ambiguous concept, as became especially obvious in the controversies over the loyalty oath and the free speech movement and protests of the 1960s. In this instance, Regent **Ward Connerly**, with the support of Governor **Pete Wilson**, spearheaded the campaign to stop the University from using racial and ethnic preferences in admissions – which in practice amounted to admitting less qualified students solely because they were in one of the recognized minority categories. After Connerly’s counter-campaign succeeded with the passage of Prop. 209, faculty and student groups demanded the ban be reversed. Since the 1970s, radical members of the legislature had been calling on the University to achieve a student body that mirrored the state’s diversity. When Atkinson became president, the Latino caucus – now the largest in both houses – was demanding that UC enroll an undergraduate student body (as Pelfrey puts it) “that approximated the ethnic and racial composition of the state’s public high schools.” The Regents in 1988 went part of the way toward meeting these demands by ordering that each campus enroll a student body that not only demonstrates “high academic achievement” and “exceptional personal talent” but also “encompasses the broad diversity of cultural, racial, geographic, and socioeconomic backgrounds characteristic of California.”

Atkinson took on this issue not just out of a desire to try to placate the protestors or ward off threatened legislative sanctions. He agreed as a matter of principle with the protestors and legislators, out of a belief that “if race [understood to include ethnicity] cannot be factored into admissions decisions at all, the ethnic diversity of an elite public institution such as the University of California may well fall behind that of the state it serves.” Accordingly, he and the Academic Senate persuaded the Regents to approve a new path to admission, modifying the Master Plan target of the top 12.5% of the state’s high school graduates so as to extend eligibility to students ranked in the upper 4% of each high school class – a way of

opening access to students from relatively inferior high schools. (Texas/Austin goes further by extending eligibility to the top 10% of the state's high school graduating classes.) Admission standards were also broadened to become "comprehensive," so that factors such as potential for leadership and persistence in overcoming hardships could be taken into account. The result was that by the end of Atkinson's term, minority enrollments had mostly returned to the percentages they had reached before Prop. 209, except at several campuses, including Berkeley and UCLA.

These changes are consistent with the Supreme Court's 1978 Bakke decision, which outlawed quotas in graduate schools but stipulated that racial diversity could be one factor among others in admissions decisions. They are nevertheless open to serious criticism on a number of grounds.

This sort of affirmative action does nothing to address the sources of minority under-qualification, such as poverty, poor schooling, and dysfunctional or at least poorly educated families. By itself the university can hardly do enough to raise the still dismally low school performance of African-American and Latino young people. The reform of K-12 education poses a monumental challenge for the state and for that matter the nation. But despite a serious effort to create outreach programs (such as those of UCSD Extension aimed at upgrading school teachers' skills), and the successful establishment of UCSD's Preuss School, the University does very little to address that handicap. And one thing it has done has compounded the problem. It has encouraged the proliferation of topical departments and programs outside discipline-based social science and humanities departments, like Ethnic Studies, Black Studies, Chicano Studies, Women's Studies, Queer Studies, or UCSC's GLBTI (for "Gay, Lesbian, Bisexual, Trans and Intersex"). Some minority students admitted for the sake of diversity are drawn to these programs, which reinforce their sense of social alienation and victimhood (and provide FTEs for faculty who might otherwise not gain appointments

in disciplinary departments). Instead of preparing students for careers or graduate study, these departments and programs encourage them to become militant advocates of one sub-group or another. (Thus, a UCSD Ethnic Studies course "explores collective mobilizations for resources, recognition, and power by members of aggrieved racialized groups, past and present . . . and . . . the prospect for collective mobilization for change within aggrieved communities in the present and future.")

Preferential treatment, moreover, does enormous psychological harm to the cohesiveness and morale of a liberal democratic society because it leads beneficiaries and non-beneficiaries alike to become cynical about the real meaning of the ideal of equal opportunity. As numerous observers have noted, the "goals and timetables" adopted to achieve diversity become for all practical purposes quotas in disguise, and applicants with better credentials than those admitted suffer "reverse discrimination." And the logic of Atkinson's belief that the university should not fall behind the ethnic makeup of the state has awkward consequences, to say the least. If a third of the UCSD student body consists of Asian-Americans, in a state in which they comprise only 9% of high school students, should we deplore that outcome or be grateful to all their Asian Tiger moms for rearing them? Even the reference commonly made to the "underrepresentation" of minority groups in the student population makes it seem that there is something undemocratic about an institution designed, as this one is, to educate an intellectual elite — the segment of the population **Jefferson** and **John Adams** described as "the natural aristocracy." Pelfrey applauds Atkinson because his efforts provided "a more inclusive definition of merit." She might at least also have indicated that his views on this subject are not above serious criticism.

### The Entrepreneurial University

Atkinson is on much more defensible ground in promoting the model of the entrepreneurial university, not just because the UC campuses all have to figure out how to survive the state's budget crisis but

because higher education must now serve the needs of a society critically dependent on research and highly skilled professionals. Modern nations are all in a process of transition from older forms of social structure and the aims of education must be adapted to that transition.

When universities were first created in Europe, the pace of change was hardly as rapid as it is now. They were designed to serve as repositories and transmitters of *existing* knowledge, at first especially the eternal verities of religious doctrine — as Cambridge's college names, Trinity, Jesus, Christ's, All Souls, Magdalene, etc., shouted from their spires. In time, the Protestant sanction of earthly vocations allowed civil subjects and callings to be added to the curriculum. Both Harvard and Yale were founded to rear young men from the ranks of the privileged, as the Yale charter of 1701 laid out, "fitted for Public employment both in Church & civil State."

In the nineteenth century, reformers like Cardinal **John Henry Newman** helped free British universities from the authority of the church but defined their function as one of teaching, no different from that of preparatory "colleges" like Eton and Harrow. Cambridge's celebrated Cavendish Laboratory was first created for pedagogy, not research. New contributions to knowledge were presumably to be made by independent scholars and scientists. (**Newton** worked at the Royal Mint, **Einstein** at the patent office, **Darwin** at home.) The central preoccupation of institutions of higher learning was to be the study of humane letters — culture being defined canonically by **Matthew Arnold** as "the best that has been said and thought in the world." In his 1960 lectures on the tensions between the "two cultures" (the humanities and the natural sciences) **C. P. Snow** lamented that in the most prestigious British universities the natural sciences were barely tolerated junior partners (chemists being known familiarly in the Common Room as the "stinks dons").

In America, for most of the nineteenth century, higher education became

*Continued on p.4 →*

an enterprise bifurcated between public and private institutions. The private colleges and universities followed the British model, but less faithfully. Jefferson had proposed that at the University of Virginia, “every branch of science, deemed useful at this day, should be taught in its highest degree.” Engineering and other forms of technical education found a home in the secular, state-sponsored land-grant colleges and private schools like RPI (founded in 1824), MIT (1861), and Caltech (1891). In both private and public higher education, America’s pragmatic spirit gave the natural sciences a more respectable place than they had in Britain.

This very pragmatism became the bane of educational reformers in the twentieth century, who complained that American education was too concerned with inculcating practical skills and parochial American values and not enough with opening young people’s minds to all that civilization entailed. At Chicago (where Atkinson earned his undergraduate degree and was inspired to pursue academic studies), **Robert Maynard Hutchins** and **Mortimer Adler** championed a curriculum based on the Great Books and Great Ideas. At Harvard, **Charles W. Eliot** said famously that the elements of a liberal education could be obtained by spending fifteen minutes a day reading from a collection of books that could fit on a five-foot shelf. He then filled that shelf with a set known as the Harvard Classics. At Columbia, a core curriculum was introduced, and the General Education movement swept the country.

This passion for the classics and general education – derided in the 1970s as worship of the works of “dead white European males” – has been eviscerated by globalized notions of culture, relativistic and subjectivist “deconstructionism,” and the increasing emphasis on disciplinary specialization. The core curriculum, as one critic has pointed out, “still exists in modified form as a kind of charming anachronism at a few leading universities, Chicago and Columbia most prominently.”

The really lasting trend was set in motion at Johns Hopkins in 1876 when, under former UC President **Daniel Coit**

**Gilman** (his surname now fittingly known to commuters as the road to UCSD!), the research university first came into being – complete with the German Ph.D. (symbolically memorialized by the Berkeley barber-shop known as Hair Doctor). By the time Kerr took office, he recognized that the modern university had become a smorgasbord of undergraduate general education, disciplinary majors, graduate and professional schools of every conceivable variety, affiliated labs, and pre-professional athletics – a “multiversity” catering to the range of needs in complex modern societies. By the 1960s, when UCSD was founded, it became obvious (especially to **Roger Revelle**, who originally wanted this to be solely an institution for research and graduate education) that the research university was what modern society needed most.

Atkinson gave this trend definition and made it central to the UC mission. At UCSD, he expanded industry-university research and enrollments in engineering and computer science. He presided over the campus when **Irwin Jacobs** and **Andrew Viterbi** created Qualcomm. UCSD and other local biologists created Hybritech and a host of other biotech startups on Torrey Pines mesa. With his encouragement, Extension developed initiatives like its “Connect” program to midwife innovative enterprises. The astonishing growth of our medical research and treatment facilities started when he helped create Thornton Hospital, at first derided as a white elephant. Around the medical complex have arisen other research-oriented facilities, notably including the staggeringly ambitious one headed by UCSD Ph.D. **Craig Venter**.

As UC president, Atkinson founded the California Digital Library, considered the best online research library in the country, and joined with Governor **Gray Davis** to found four California Institutes for Science and Innovation. He understood that the research university must be the foundation of “the New Economy, built on ever more powerful technologies and on the translation of fundamental scientific knowledge into new products...” As Pelfrey points out, the results of the University’s move toward becoming

an entrepreneurial university are already impressive: One in six communications firms in the state was started by a UC scientist. One in four biotechnology firms had a UC scientist-founder, and 85 percent of California biotech firms employed UC alumni with graduate degrees. UC has long been the most prolific producer of patents of any American university. In 2008 the University of California system earned \$164,314,433, in licensing revenue, with 1,913 active licenses, 244 issued in 2008, and 899 new patent applications. UC research produced fifty-five start-up companies that same year.

Given the importance of the research universities to critical national and state needs, they merit continued public and private support. But that expectation presupposes public appreciation. During the Cold War (and its incident Space Race), concern for national security, power, and prestige made support for the research university a high priority. The first major federal fellowship program was the National Defense Education Act in the 1950s. Federal agencies provided grants to universities and R&D contracts to industry. The demand for scientific manpower grew as a result. The quest for answers to diseases like cancer and AIDS and alarm over environmental degradation provided further stimulus.

The willingness of Californians to support stem cell research is encouraging evidence that the anti-scientific attitudes prevalent elsewhere may not be as widely held here. But the nation’s Great Recession and the state’s parlous budgetary imbalance make it imperative that the University become even more entrepreneurial than it has been. At the same time, Atkinson’s successors (and ours in the active faculty) will need to think seriously about how to preserve its core functions in the face of inevitable austerity. He himself can look back with pride on his stewardship: for keeping the University strong and pointing it in the right direction, Dick Atkinson ranks among the best leaders we have had. And Pelfrey is to be commended for showing us why. ♦



## REMEMBERING BILL NIERENBERG

By **Charles F. Kennel (UCSD)**, **Richard S. Lindzen (MIT)** and **Walter Munk (UCSD)**.

### Part I: The Early Years

(Reprinted – minus footnotes – from the Memorial published by the National Academy of Sciences)

**Bill Nierenberg** (1912-2000) excelled in two scientific fields: physics and oceanography. As a physicist, he worked on the Manhattan Project and contributed to molecular beam research and cascade theory. He helped to shape national policy in oceanography and to develop oceanography into a multidisciplinary, planetary science with a pivotal role to play in climate change research and earth science.

Nierenberg was born February 13, 1919, in Manhattan to a family that lived on Houston Street in the Lower East Side and then moved up to the Bronx. His family was of Austro-Hungarian Jewish ancestry, and his first job was as a “floor boy” in the garment industry. The Bronx was near to his heart and still perceptible in his diction when he died 81 years later in La Jolla, California, after a long and distinguished career as a physicist and oceanographer.

### Emeriti Website

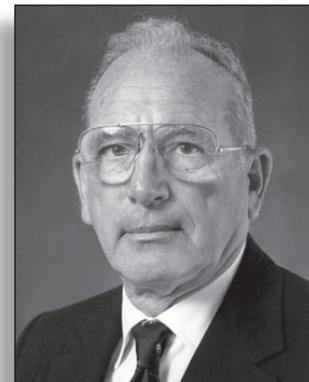
The UCSD Emeriti Association maintains a website: <http://emeriti.ucsd.edu>.

Clicking the **CHRONICLES** button will allow you to view past issues of this newsletter. The website also provides the constitution and by-laws, lists of members, and minutes of meetings.

Late in his life Bill talked occasionally about how he made the transition from what we now call the South Bronx to California and gave great credit to Townsend Harris High School, where he was admitted by competitive examination in 1933. Townsend Harris was a citywide school for the gifted; it recognized and rewarded his prowess in mathematics, schooled him in physics, paid him small sums for grading papers, and prepared him for the City College of New York. Bill knew he had a high IQ. Even his boyhood gang called him “the Brain.” As a youth he was ambitious, competitive, and excited to be out and in the world; these characteristics stayed with him for life.

Bill had the advantage of growing up in a great city. He spent his free time at the Bronx Botanical Garden and developed an interest in science at the American Museum of Natural History. He went to high school with **Herman Wouk** and college with **Bernard Feld**, and he met **Richard Feynman** at an intercollegiate math contest. Physics was a small world then, and he quickly established himself at CCNY in a set that included **Eugene Booth**, **William Havens, Jr.**, and teachers like **Henry Semat**, **Mark Zemansky**, and **Walter Zinn**. While CCNY was purely an undergraduate institution, students and faculty there participated in research at Columbia and New York University. **Clark Williams** took Bill to visit his lab at Columbia, and they became friends. The talk in physics at CCNY was all about the work of **Enrico Fermi**, **I. I. Rabi**, and **John Dunning** at Columbia. Bill first met Rabi in 1939, when he took his course in statistical mechanics.

Bill competed for and won many honors, medals, and prizes. He spent his junior year as the Aaron Naumberg fellow at the University of Paris, where he polished his physics and his French at the Sorbonne. His closest friend was a French classmate, **Nicolas Zafiropoulo**, who introduced him to new foods, mu-



sic, and continental viewpoints. France broadened Bill’s American outlook and made room for his big personality. France in 1938 was in a foreboding mood, however, and Bill went home expecting a European war. Even during this period Bill was dismissive of the Left Wing at CCNY in the 1930s, and he was a committed antifascist. He expected to enter military service; naval aviation appealed to him, but his enlistment was delayed when, through Fermi and Dunning, he was offered an opportunity in 1941 for six months of war work in what turned out to be the Manhattan Project.

Bill worked with Dunning and Clark Williams and had a role in the project, which he later said was closer to engineering than physics, but it placed him within the *haut monde* of physics and gave him opportunities and responsibilities unusual for a physicist who had just passed the qualifying examination for his doctorate. This work was cited when Bill was nominated for election to membership in the National Academy of Sciences.

His family responsibilities expanded at about the same time, when Bill married **Edith Meyerson** in 1941. Their daughter, **Victoria**, was born in New York, and their son, **Nicolas Clark Eugene**, at Berkeley. Nicolas was named in honor of Bill’s French classmate, and his friends Clark Williams and Eugene Booth.

After Bill’s graduation from CCNY in 1942, he was accepted at Columbia as

*Continued on p.6 →*

a graduate student of I. I. Rabi and was received everywhere as a brilliant young physicist, although the acerbic Rabi told him he was too forward and brash. Bill listed Rabi first among those who influenced him, and Bill considered Rabi a great teacher, despite poor skills as a lecturer, because of the personal approach Rabi took with his students.

He was always available to us in his office, singly or in groups of two or three, to work over some obscure or difficult point. He would spend several hours with us, if necessary. Some of the time, of course, was used to locate some reprint in the famous pile of papers on the table behind his desk.

Rabi had a lifelong influence on Bill, but their relationship remained that of teacher and pupil, not an equal friendship. Rabi drew Bill into science advisory circles. Rabi was involved in the creation of the Hudson Labs at Dobbs Ferry, and Bill directed the labs in 1953-1954, his first contact with oceanography. Rabi introduced Bill to **Alan Waterman** and **Manny Piore**, then at the Office of Naval Research, and to the North Atlantic Treaty Organization science committee. **Fred Seitz** recommended that Bill succeed him in the position of assistant secretary general for scientific affairs at NATO in Paris from 1960 to 1962.

Those years in Paris improved Bill's French accent and deepened his interest in French culture and literature. Bill's special interest in Turkey dates from these years. Rabi and Nierenberg were both interested in music, particularly opera, and Bill even briefly adopted Rabi's recipe for martinis: eight parts gin to three parts vermouth.

Bill also acknowledged the influence of his high school physics teacher, **Ivan Hurlinger**; the Sorbonne mathematician **André Leon Lichnerowicz**; and **Maurice Biot** and **Enrico Fermi** at Columbia. Bill wrote about Fermi in his unpublished Autobiography:

Fermi . . . was a most extraordinary lecturer on any branch of physics he chose. His most important series was his seminar on advanced nuclear

physics that concentrated heavily on slow neutron phenomena. It was in these lectures that he demonstrated the utility of the scattering length and the virtue of his version of the Born approximation in scattering calculations that became known as the Golden Rule after the war among the graduate students. His most appealing feature was the revealing simplifications of what were normally displayed as extremely complex computations in the literature. A good example occurred in his course in geophysics that he had earlier given in Rome and then repeated at Columbia. This was a tremendous simplification of Jeffrey's treatment of the cooling of a spherical earth including the heating due to radioactivity.

Rabi got a National Research Council Fellowship for Bill in 1945, and Bill returned to his doctoral research as soon as the war ended. He reopened **Sidney Millman's** molecular beam laboratory and worked on an elucidation of the quadrupole broadened alkali resonances in the alkali halides. The committee for his orals included Rabi, **Norman Ramsey**, **Willis Lamb**, and **Hendryk Kramers**. In 1948 Bill had a new Ph.D. and a letter of recommendation from Rabi:

Nierenberg belongs to a small group of men who are capable both experimentally and theoretically. He is not a theorist in the sense of **Nordsieck**, but rather a man who gets a complete grasp of the theory of his field of experimental work and who can carry a problem right through to the end.

Bill received excellent offers from academic departments of physics but none from the place he wanted to go, Berkeley. Therefore, he went to Ann Arbor for two years and arrived in Berkeley during the summer of 1950 as an associate professor of physics. He planned to teach, work on the systematic measurement of the spins and magnetic moments of radioactive nuclei, and live near **E. O. Lawrence** on Tamalpais Road.

Bill contrasted American physics be-

fore and after World War II by comparing the work done by Rabi at Columbia with that of E. O. Lawrence at Berkeley. He said that Rabi did his great work with grants of a few hundred dollars from foundations and the loan of Navy electric submarine cells for magnet power supplies. This was "small" physics that concentrated on clean, spare problems that did not require complicated apparatus. Lawrence built huge and advanced physics laboratories by convincing the University of California and the federal government that research in physics strengthened the university and the country. Although Bill occasionally lamented the loss of community that resulted from postwar big physics, he agreed with Lawrence's vision. In 1958 Bill was selected as the first E. O. Lawrence memorial lecturer by the National Academy of Sciences. In the 1980s, when some questioned whether funding for big science projects, like space science and the super accelerator, was justified when society had other pressing needs, Bill said he didn't understand the question. What he meant was that the commitment to science made by the United States after World War II was not merely a commitment of funds, it was a decision that American society would be knowledge-based with the expectation that research would build prosperity. Bill was, of course, being coy. He fully understood that the question itself marked a transition from the view that science was an essential part of the solution to society's problems to the view that science was simply another supplicant at the trough.

Bill started work at Berkeley by building a molecular beam apparatus, modeled on the one he had used at Columbia. His research included gaseous diffusion theory and experiment, cascade theory, atomic and molecular beams, the measurement of nuclear spins, magnetic moments, electric quadrupole moments, hyperfine anomalies with particular application to radioactive nuclei, and similar applications to atomic electronic ground states. He hoped to learn more about nuclear structure, and he became a leader in his field. He formed a group to measure spins and magnetic moments of radio-

active nuclei, and over the course of his years at Berkeley he published a hundred papers in physics and trained 40 doctoral students. He developed an excellent reputation as a teacher. He established the atomic beam research group at Lawrence Radiation Laboratory. He worked with and admired **Edwin McMillan** and met **Jerry Wiesner** during these years. There were lots of parties and social interactions among the physicists in Berkeley. The McMillans introduced the Nierenbergs to Borrego Springs and encouraged them to explore the deserts of California and Mexico. **Luiz Alvarez** borrowed and played Bill's mandolin at faculty dinners.

When the physics department purchased an IBM 650 computer in the early 1960s, Bill taught himself how to program it with FORTRAN, and then taught FORTRAN to other members of the department. He was closely involved in the development of the applications of computers to nuclear physics and particle physics at Lawrence Radiation Lab. The short-lived radioactive nuclei were flown into his labs by helicopter for rapid measurement. One of the laboratory doors had a sign that read, "Every nucleus has its moment," and *Physics Today* published a poem on the laboratory wall:

Lament of an Ancient Beamist  
 There are moments to remember.  
 There are moments to forget.  
 There are moments to publish.  
 There are moments to regret.

Bill was responsible for the determination of more nuclear moments than any other single individual, as he was fond of telling visitors. This work was cited when Bill was elected to the National Academy of Sciences in 1971.

Bill built and flew model airplanes in Berkeley with his son, and Bill quickly moved to full-size aviation. He and his family purchased a vacation home in Borrego and he explored Mexico both from the air and on the ground. He was an avid traveler and a linguist. Bill and his family enjoyed their two years in Paris when Bill was on assignment for NATO. Bill also served as *professeur associé* at the University of Paris and traveled widely in Europe and

the Middle East. His French was fluent; he became familiar with several European languages and began seriously studying Turkish.

While at Berkeley, Bill was recruited by Rabi and Piore to work on Project Michael, an Office of Naval Research effort to establish an academic base for use of long-range low-frequency sound in submarine detection. This led to the creation of the Hudson Labs at Dobbs Ferry, New York, and Nierenberg took a leave from Berkeley in 1953 to direct the lab for a year. While there he was responsible for the introduction of the concept of the vertical hydrophone array for the signal-to-noise improvement possible due to the special distribution of noise in the vertical plane in the deep oceans. He also made some contributions to anti-mine warfare.

While in New York, Bill and his wife, Edith, attended the opera and theater and had an opportunity to see **Jose Ferrer** in the role of *Cyrano de Bergerac* at the New York City Repertory Theater. Bill adopted the French *physicien* as an alter ego, and researched and lectured on his life. He described his work on *Cyrano* as an obsession, but it was typical of Bill to pick a subject completely outside his academic interests and become an expert on it.

Low-energy nuclear physics and atomic beams was an exciting and promising field in physics in 1950, but by 1965, when Bill left the field, its promise was somewhat played out. Bill was interested in highly precise measurements, and these yielded some elegant clarifications, but they didn't produce new ideas. He told friends that he found the huge imbedded bureaucracy of physics objectionable and the process of writing lengthy proposals for research support debilitating. The Free Speech Movement had altered the social ambience of Berkeley, and stimulated Bill to become active politically. He was ready for a change. Ironically, he spent the next 21 years shepherding oceanography through a similar transition from small science to big science. ♦



**CORRECTION**

Andy Viterbi called our attention to two errors in the remembrance of Stuart Hughes in the April issue. We reported that in a lecture for the Judaic Studies program he mentioned supporting Hughes when he ran as an independent for the Senate from Massachusetts; in fact, Andy only mentioned that Hughes had made the race. He met him for the first time years later at UCSD when he invited him to his home to meet the Italian writer Primo Levi. We also erred in dating *Krystallnacht* as having happened in 1937; the year was actually 1938. We regret the errors.

**ANECDOTAGE**

By **Sandy Lakoff**

**Warum?**

Legend has it that a German father got so tired of his son asking "Warum?" (why) that he finally replied in rhetorical exasperation: "Warum! Warum! Warum ist die banana krumm?" (Why! Why! Why is the banana crooked?)

Which leads us to our own "warums." Why do some Britons named Ralph pronounce their given name as "Rafe" (as in "Rafe" **Vaughan-Williams**) whereas others (like the actor Sir **Ralph Richardson**) do not. Thanks to **Geoff Corre**, a letter-writer to the *Times of London*, we can explain: "'Rafe' became 'Ral' rather than vice versa. The origin of this name is to be found in the Hebrew word *rofe* or *rafe* meaning healer or doctor. As is common in Hebrew names, the suffix 'el' was added to denote the divine, as in such names as Michael and Gabriel. In the case of Raphael, this became abbreviated to Ralph."

And why do people encourage actors to "break a leg?" Because in Elizabethan

*Continued on p.8 →*

*Anecdote from p.7*

times, when actors received applause they would bow slightly, but when they received an ovation they would take a deeper bow by bending the knee.

Now you know warum!



**Puns for Groan-Ups**

*(Thanks to Claire Angel)*

1. I changed my iPod's name to Titanic. It's syncing now.
2. When chemists die, they barium.
3. Jokes about German sausage are the wurst.
4. I know a guy who's addicted to brake fluid. He says he can stop any time.
5. How does **Moses** make his tea? Hebrews it.
6. I stayed up all night to see where the sun went. Then it dawned on me.
7. This girl said she recognized me from the vegetarian club, but I'd never met herbivore.
8. I'm reading a book about anti-gravity. I just can't put it down.
9. I did a theatrical performance about puns. It was a play on words.

10. They told me I had type-A blood, but it was a Type-O.
11. Why were the Indians here first? They had reservations.
12. We're going on a class trip to the Coca-Cola factory. I hope there's no pop quiz.
13. I didn't like my beard at first. Then it grew on me.
14. Did you hear about the cross-eyed teacher who lost her job because she couldn't control her pupils?
15. When you get a bladder infection urine trouble.
16. Broken pencils are pointless.
17. I tried to catch some fog, but I mist.
18. What do you call a dinosaur with an extensive vocabulary? A thesaurus.
19. England has no kidney bank, but it does have a Liverpool.
20. I used to be a banker, but then I lost interest.
21. I dropped out of communism class because of lousy **Marx**.
22. I got a job at a bakery because I kneaded dough.
23. Haunted French pancakes give me the crêpes.
24. Velcro – what a rip off!
25. A cartoonist was found dead in his home. Details are sketchy.
26. Venison for dinner again? Oh deer!



# Mark Your Calendar!

**Gary Jacobson**

*Distinguished Professor of Political Science*

## Polarized Politics in the 2012 Elections

Wednesday, October 10, 4:00–5:30 pm



## Chronicles

Newsletter of the UCSD Emeriti Association



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