Innovation and the Erosion of Our Competitive Edge

by Lewis M. Branscomb

Is America losing its competitive edge? If so, we have been doing it for a long time. In 1968, Michael Boretsky, a government economic analyst, began to document the erosion of America’s much vaunted trade surplus in high-tech manufactured goods. In 1972 Maurice Stans, Nixon’s conservative Secretary of Commerce, made a strong appeal to Congress to expand public investments in research to reverse this trend. By then our high-tech trade surplus had already gone negative.

In the 1980s U.S. manufacturers were rapidly losing market share in high-tech manufactured products to firms based in Asia. Japanese firms had already driven the U.S. consumer electronics manufacturers either to Mexico or out of business. Now it was the turn of makers of memory chips, autos, copiers, computers and communications equipment. “Japan Incorporated” was the presumed threat and a re-dedication to US “Competitiveness” was the Reagan Administration’s buzz word. The President launched a special Commission on Competitiveness, apparently to stave off pressure from the Democrats in Congress to have his administration emulate the Japanese government efforts to push their high-tech export industries ahead. “Competitiveness” became so overused in political discourse that the press called it the “C” word.

Then came the 1990s. The Japanese real estate bubble burst, and American business leaders finally stopped reading books about Japanese “quality circles” and Theory Z management, and started taking lean management and manufacturing engineering seriously. The erosion slowed and in some markets reversed. The Japanese industrial image shrunk to its normal size, and American productivity grew once again. Then came the 21st century, with globalization and the emergence of new high-tech competitors in China and India – many as smart as the Japanese and a lot cheaper. (For the price of one engineer or chemist in the U.S., one can hire five in China or eleven in India.) Outsourcing of technically skilled jobs became the measure of a newly perceived US comparative weakness. This time the buzz word is the “I” word: Innovation.

If America is losing its innovative edge, is it because our engines of new science, technology and entrepreneurship are sputtering, or because other nations are investing more heavily in research and higher education aimed at economic growth? Or are both happening simultaneously?

The capacity for innovation is hard to measure. Academics define “innovation” as the successful introduction to a commercial market of a product, service or business model that is novel and offers growth opportunities. Radical, technology-based innovations may also promise to introduce whole new industries.

The U.S. engines of innovation – research, entrepreneurship and risk-taking investors – are still the envy of other nations. With a quarter of the world’s scientists and engineers we perform a third of the world’s research, and enjoy the highest level of citations to our journals by foreign researchers. Our primary high-tech competitors are struggling to create lively and productive venture capital industries. They are searching for ways to match the American combination of technical talent and entrepreneurial zeal. I know of no university outside the U.S. whose top graduates would rather start a company than take a good paying job with a well established high-tech firm. Not only do we have a strong market for venture capital and hedge funds, but – at least until recently – several regions

Continued on p. 2
in the U.S. (led by California and Massachusetts) enjoyed a vigorous community of “angel” investors, experienced in building new firms that pioneered new industries and eager to help younger entrepreneurs succeed in this high-risk game. And on the cultural side, the U.S. has a big advantage in its tolerance for entrepreneurs who may fail at first, but are allowed – even encouraged – to try again with a new business.

The indicators, however, show that the U.S. advantage is fast eroding. A high-powered group of industrial and academic leaders, writing for the Science, Engineering, and Medical Academies, recently viewed this situation with alarm: “...the committee is deeply concerned that the scientific and technical building blocks of our economic leadership are eroding at a time when many other nations are gathering strength.”

The U.S. now imports annually $24 billion more high-tech products than we export. Our share of global production has fallen from 30% to 17% in the last two decades. We are closing chemical plants (70 in 2004, with 40 more tagged for shutdown this year). Of new, billion-dollar plants, 50 are being built in China; only one is underway in the U.S. In the patent race, American-owned firms comprise less than a third of those with the most patents granted by the U.S. Patent Office.

On the input side, the evidence is equally dreary. In China 59% of their undergraduates study engineering. In Japan it is 66%, while in the U.S. only 32% pursue technical careers. American colleges graduated 70,000 engineers in 2004. Sounds like a lot, until you see the Chinese and Indian numbers, totaling 950,000. The pre-college educational pipeline in the U.S. is in serious disrepair. Our high school seniors, competing with other nations in a test of general mathematical and scientific knowledge, came in 22nd.

We have made up for our generally poor K-12 education by importing the best students from abroad to populate our excellent graduate school programs. But the sources of the best foreign students are drying up as a result of three factors: the improved quality of their schools and work opportunities at home, the decline in America’s image as the best place to “lead a good life” (only respondents from India picked the U.S.), and the U.S. government’s failure to match the foreign focus on the national capacity for innovation. In the wake of 9/11 our government’s restrictive visa policies and many other regulations selectively discouraged many foreign students from studying here. The currently proposed “deemed export” regulations would force our universities to prevent certain foreign-born students from using research equipment that would require a license if they were to be exported. A category of scientific information called “sensitive but unclassified” now allows the government to prevent publication of new research, even though the restriction has no clear definition.

Quite apart from the impact of both new security laws and regulations, federal government policies since 2000 have failed to address the economic requirements for a vigorous technical base for commercial innovation. A few examples:

(a) Since 1990 research support in mathematics, engineering, and physical science has been stagnant. What growth there has been has been focused in one area: biomedical science. During this time industry has more than doubled its Research and Development, or R&D (mostly D). Thus the scientific base of knowledge to support this growth is simply not keeping up.

(b) The U.S. venture capital industry is looking for more mature, less risky investments. Only about one percent of the venture firms’ money goes to high-tech, seed investments. Thus venture capital is ever more dependent on angel investors, a few corporate seed-venture funds, and two government innovation research funds. The current administration has been determined to shut down the most successful of these government programs, the Advanced Technology Program in the Department of Commerce.

(c) Federal funding (in constant dollars) for research in all non-defense areas except NIH is now lower than it was 25 years ago and has been flat since 1992, destined to decline further in 2006. US R&D (industry and government funded) has been falling as a percentage of GDP since 2000.

(d) For ideological reasons the federal government has declined to actively promote stem cell research, has declined to pursue the implications of global climate change, and has failed to mount a balanced research effort to reduced oil and coal dependence.

But the needed national response to the innovation challenge lies at least as much in state and local government and in the private sector. The seed beds for science-based innovation are highly concentrated in a few locations, such as the suburbs of Boston, Silicon Valley, and, indeed, San Diego. The social capital of these regions has evolved to respond to high-tech innovation opportunities. These networks of resources and relationships, the groups of angel investors, the local and state government efforts to stimulate new firm creation, and the cultural sources of entrepreneurship are bounded by an hour or two of driving time. Metropolitan areas such as these represent the nuclei of a competitive national industrial economy. Federal policy has done little to create them, but in the past has provided incentives and now increasingly erects barriers to their success.

Yes, we are losing our competitive edge and may soon lose our innovative edge too, both because we fail to invest fully in our own most critical resources for sustained high-tech leadership, and because the most talented and productive regions within “third world” nations are ready to challenge us in the skills we once uniquely possessed.

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Although I am proud of my Emeritus Professor status at UCSD and that my active status lasted nineteen years, I should clarify that it was only on a quarter-time basis. My principal activities since moving to La Jolla in 1973 have centered on the founding and development of two startup companies, Linkabit and Qualcomm.

Nevertheless, during the preceding ten years, while on the UCLA faculty, I had numerous contacts with this brand new campus. These associations, some of which even preceded its founding, were with two early faculty leaders of the department successively known by the initials AEP, APIS and ECE. One was Carl Helstrom whom I first met in 1963 at the UCLA Engineering School, when he came for a one-year sabbatical from his position at Westinghouse Research just as I first joined as an Assistant Professor. That year I began teaching out of Carl’s excellent recent text on Statistical Detection Theory, A year or so after returning to Pittsburgh, Carl decided he preferred the California academic life. The newly appointed Acting Dean at UCLA had other priorities than Communication Theory, while Henry Booker had vision and an eye for quality. So Carl ended up at UCSD, later serving as Department Chair. When I moved south, Carl offered me the opportunity to continue teaching as an Adjunct Professor which I gladly accepted, partly to class-test my “Principles of Information Theory and Coding” textbook co-authored with my UCLA colleague, Jim Omura. Equally satisfying was my undergraduate teaching of the Linear Systems course. At a time when digital signal processing was hardly the familiar term it is today, I taught digital linear systems before analog systems, rather than in the conventional reverse order.

The other colleague who joined Booker’s department about the same time was Irwin Jacobs. Though we had overlapped at MIT for one year, I left with a Master’s degree in 1957 to join JPL’s Communication Research Section in Pasadena while he remained to complete the doctorate and subsequently join the faculty; we actually met for the first time in 1959 when he interviewed at JPL. We met again in 1963 at the National Electronics Conference in Chicago where we both received “Best Paper” awards for work presented the previous year, Irwin for the best tutorial paper and I for the best original paper.

Irwin commented that he was looking for a California host for his upcoming sabbatical leave from MIT. I assured him that my Section at JPL would gladly receive him. After his application was turned down in a typical Personnel Department snafu, I referred it to our Division head, Eb Rechtin, who immediately reversed the clerk’s error and Irwin spent the 1964-65 academic year productively at JPL. Though after receiving my Ph.D. at UCLA I had left JPL in 1963 to teach at USC, I continued on at JPL as a consultant one day a week; this gave me the opportunity to collaborate occasionally with Irwin that year. Similar to Carl’s story, a year back East was enough for Irwin to prefer life on this coast. And so when he wrote to Henry Booker, the invitation to join the embryonic department came quickly, bringing him to UCSD in the fall of 1966. I recall writing two letters in response to Henry’s inquiries, one in 1966 in support of the appointment and the second in late 1967 in support of Irwin’s accelerated promotion to Professor. The second was handwritten during my sabbatical in Milan and commented on three papers which he had written while at JPL.

1966 was also the most productive of my academic career, as it was the year in which I devised the algorithm for decoding convolutional codes. I never expected then the impact it would have on multiple fields over the subsequent decades. Rather, my goal at the time was to provide a simpler and pedagogically more accessible proof of the properties of that class of codes and their relation to the Shannon limit. (A quarter century later at an IEEE Communication Theory Workshop I recalled the steps to its unexpected universal acceptance in a talk entitled “From Proof to Product.”) After its publication in two papers in 1967, I presented the algorithm and its implications a number of times over the following months, often to audiences incredulous of the algorithm’s practicality, not an unreasonable conclusion at the very dawn of Moore’s Law of semiconductor circuit integration.

After one such conference at NASA Ames Research Center on “Coding for Space Applications” in early 1967, I flew back with Irwin and our UCLA colleague Leonard Kleinrock. On the flight we speculated on the possibility of starting a small company to pool our consulting and hire some of our former students to expand into government sponsored studies. This was the genesis of Linkabit Corporation, which was incorporated in 1968 after my return from sabbatical. The next year we rented a tiny office at the edge of the UCLA campus to house two engineers along with the three part-time founders. With a total founders’ contribution of fifteen hundred dollars plus a hundred thousand dollar investment by a division of McDonnell Aircraft and contracts from the Navy and NASA,
Viterbi from p. 3

we met payroll and, in June 1970, moved “headquarters” to a spacious low-rent building in the Sorrento Valley. A year later, Irwin left UCSD to become full-time CEO of the company which had grown to over ten employees. I remained at UCLA until 1973, driving down the then uncrowded freeway once a week during the academic year, and spending summer months with my family at what is now the Radisson at the edge of campus. Then, with all of two dozen employees and collaborators and what seemed to a naïve academic to be major programs and developments, the pull to join full-time seemed irresistible. The stories of Linkabit and Qualcomm, the latter founded in 1985 with Irwin and five other previous colleagues, have been covered extensively – and sometimes even accurately.

In the brief hiatus between the two companies, I considered returning to academia full-time but wound up, at Dean Lea Rudee’s invitation, merely converting my Adjunct appointment to regular professorial (above scale) status, on a quarter-time basis. The graduate course I first taught in 1975 morphed through nineteen years from mostly theoretical to a healthier blend of some theory with a strong dose of applications to wireless communication. In fact, in the last three or four years, I again class-tested successive drafts of a textbook; this time it was “CDMA: Principles of Spread Spectrum Communication,” which was published in 1995. I then became Emeritus, with some regret, reacting to the ever increasing strain of juggling class schedules with frequent unavoidable company travel to Asia, Europe and South America. Since my retirement from Qualcomm five years later at the classical age of sixty-five, travel, though more leisurely, has not diminished, driven by the several roles I’ve assumed in professional, industrial, academic and philanthropic organizations.

As first generation Americans, my wife, Erna, and I have had the good fortune to arrive early in our lives to Southern California, which has afforded us the opportunity to make a contribution to the region and especially to see our family grow to three generations and become firmly and happily established in San Diego.

by Mary Corrigan

I am immensely pleased to inform you that from now on we will hold our monthly meetings in the Green Faculty Club. I am sure you will agree that it will be a treat to get together in this comfortable and convenient venue. Some of the rooms we have been assigned elsewhere have been noisy, and parking to get to them has been a hardship for those of us who are “mobility challenged.” This new arrangement has been made affordable for us thanks to a generous offer on the part of the Club. I know you will join me in expressing our appreciation to the Club’s management, represented by Sally Ashburn and Tom Mignano, for this welcome response to our inquiry.

When we hold our meetings, they will be scheduled for the Club on the second Wednesday of the month, at 4 o’clock. We will continue to advise you by e-mail and Chronicles of upcoming events.

And please, those of you who may be widows of emeriti, bear in mind that you are most welcome to attend these meetings!

I also think you will be interested in being let in on some of the interesting possibilities that the Executive Council of the Emeriti Association Board is investigating. At this point a couple of ideas are in the exploratory phase. Before any major commitment is made, we will of course ask the approval of the membership.

One possibility under consideration is an alliance with the UCSD Retirement Association and possibly also with the UCSD Alumni Association. We do not have in mind a merger, which would not be compatible with the separate character of each organization, but rather a cooperative partnership that would provide many advantages for our members and theirs – including the opportunity to have regular rooms or even a building assigned to meet our various needs and the possibility of sharing staff time. All three organizations have been experiencing considerable growth on the UC campuses. Collectively, we now constitute a potentially large voting bloc that could influence decisions on benefit plans as well as broader UC, local, and state issues. An alliance would allow us to share ideas and cooperate in any campaigns we might decide to support. Getting some dedicated office space would help alleviate the problem many of us are facing now that the space crunch has caught up with our expanding departments, making them unable to provide us with offices. We are told that UC Davis is providing its emeriti with such a facility. We hope we can make a similar arrangement at UCSD.

And let me add, wishfully, that if you should have know of anyone who might be willing and able to fund a building for us – as Bob Hamburger tells me some Old Blue has done at Yale – by all means let us know!

We’ll keep you posted on these exciting possibilities. I urge all of you to pay your dues, attend our meetings, and otherwise take an active part in your Emeriti Association so that we can have a stronger voice in University decisions that affect us. I look forward to seeing you at our presentations!
Anecdotage

Other Voices, Other Classrooms: Learning to Appreciate Cultural Diversity

Rules Britannia: On a visit to the London School of Economics while a graduate student, I received an explanation from my friend Bernard Crick (now Sir Bernard) of the vexing question of why the British put their water pipes on the outside of buildings: “That’s so that when the pipes burst in freezing weather,” Bernard helpfully advised, “the plumbers can get to them easily.” . . . One especially warm day at UCSD, I walked out of my office on the terrace of what is now Galbraith Hall at Revelle College and encountered our English visitor for the quarter, the political theorist Maurice Cranston. He looked altogether out of place. While everyone else was wearing the most casual of California styles – jeans, t-shirts and worse – he was dressed to the nines in winter-weight grey wool trousers, a blue blazer with gold buttons, and a foulard at the neck. “Maurice,” I said in a gently teasing tone, “you are forgetting where you are.” “No, Sandy,” he replied, stiffening his upper lip, “I am remembering who I am.”

Gentlemen of Japan: The recent death of Kenzo Tange, the Japanese architect, brought to mind an experience at Harvard. The School of Design had asked the Government Department to send someone to help out in a seminar that Friday, a political theorist, introduced by Sandy Lakoff

in the dark. As I was in the habit of doing, I tried to help by asking Tange if we were understanding him correctly. Was he suggesting, I asked, that commercial and residential activities are better integrated, as in cities like Paris, rather than separated, as in American suburbs? As I spoke, he smiled and nodded his head up and down, and the class brightened, thinking we were getting somewhere. I elaborated a bit, receiving still more nods of encouragement. When I finished, he answered, in a loud and firm voice, “No!” We were utterly devastated and never did find out what was on his mind. The nods, I suppose, were a Japanese way of being polite.

A propos Japan, one of my first Harvard students, Tatsuo Arima, now a retired ambassador, let me in on the tale of his initial encounter with the wondrous ways of the West. The U.S. defeat of Japan, he said, had convinced all Japanese kids of his generation that whatever is Western must be superior. Sent off to prep school at St. Paul’s in New England, he found evidence of that superiority everywhere, even in the dormitory restrooms. He was particularly impressed that the toilets were designed so that their water tanks were positioned against the wall just above the seat. That way you could rest a book to read while squatting over the seat. How ingenious, he thought – until one day he happened to look down and was shocked to notice that the fellow in the stall next to him had his feet on the floor facing the other way! Ah so.

India Inklings. A public health specialist I once met said he had met a man in India who complained that a British friend he otherwise admired had one revolting habit: “He deposited the secretions from his nose in a white cloth which he kept in a pocket of his trousers.” Whenever the Brit left after visiting his home, the Indian exclaimed, “I had to fumigate the place with cow dung!” . . . At high table luncheon in Harvard’s Kirkland House one Friday, I was seated next to an Indian visitor. What was he doing here, I asked out of politeness, “I am writing a book,” he answered. “Are you writing a book about America for Indians?” I asked. “No,” he replied, “you see, there are few people in my country who are literate, so I am writing a book for Americans about America as seen by an Indian.” “Well,” I asked, somewhat taken aback, “what strikes you as different about our countries?” “Your country and my country,” he said, “are very different.” “Yes,” I said, but how so?” “Well,” he answered, “take your system of education. In my country, we would never say ‘fuck’ in a classroom.” I’ve often wondered what else he reported about life in these United States.

Oy, Canada. While teaching at the University of Toronto, I learned that the motherland was sometimes the butt of
self-deprecating humor. Canadians, so it was said, had set out to blend the best of three national influences: British government, French culture, and American know-how – only to wind up with what? French government, British know-how, and American culture.

Muscovite Mirth. Here at UCSD, I heard two particularly memorable Russian stories. Herb York was told by a Russian diplomat how Stalin's favorite Armenian, Anastas Mikoyan, handled a critic who asked why the landlocked Soviet Republic of Armenia needed a Ministry of the Navy: “If Turkey can have a Ministry of Culture,” Mikoyan answered, “Armenia can have a Ministry of the Navy.” . . . John Holdren, then at Berkeley, relayed a story he picked up in Moscow when Leonid Brezhnev was in power. One morning, Brezhnev got out of bed and went out on his balcony to take in the sunrise. To his astonishment, he heard the sun say to him, “Arise, o great leader, you have heroic deeds to accomplish today for the peace-loving peoples of the world.” Brezhnev couldn’t wait to tell his comrades in the Politburo what had happened, but he realized they wouldn’t believe him so he invited them to come to his home that evening and see for themselves. They all dutifully crowded together on the balcony, and sure enough the sun once again addressed him. But this time the sun said, “You miserable Communist hack. May you rot in hell for your evil crimes.” Brezhnev, mortified, said to the sun, “But this morning you praised me. Why do you now revile me?” The sun answered: “This morning I was rising in the East. Now that I’m settled in the West, I can say what I really think!”

Mysteries of the Holy Land. Even in semi-retirement, my education in cultural diversity continues. In a recent off-campus lecture, my friend the Israeli political scientist Jacob Goldberg gave an amusing insight into the perspective of the country’s ultra-orthodox Jews. When the Elders of Safed, a town famous for its piety, were asked to explain why the town had been spared from attack, they offered two reasons. One was practical, the other a miracle. The practical reason was that the men of the town prayed fervently for deliverance; the miracle was that the Israel Defense Force arrived just in time. . . . In The Sabbath Elevator, the late (and altogether extraordinary) Berkeley folklorist Alan Dundes deals with some of Israel’s other oddities. He chose the title after discovering that certain hotels get around the religious ban on doing any kind of work on the Sabbath, even if the work only involves pushing elevator buttons, by having one set of elevators run automatically all day Saturday. That way the observant can ride up and down and get on and off at any floor without violating the ban. He also discovered an ingenious way some Israelis get around another rule. In deference to religious sensibilities, public law dictates that pigs “may not be grown on the soil of Israel.” Farmers who raise them therefore make sure to keep their squealers on wooden platforms – elevated above the sacred soil of the Holy Land.

Viva La Mordida. When I first tried to recruit Wayne Cornelius, already renowned as a Mexicanist, to join our Department of Political Science, he asked to see Tijuana, which he had not yet visited. We drove across in my Audi, which had incurably squeaky brakes. As we were snaking through town at about five miles an hour in a long line of traffic, a cop suddenly appeared and announced that he was going to ticket me for speeding! He had misinterpreted the sound made by my brakes. With a sigh I said to Wayne, “He wants his mordida. That’s the way things work here.” “No, no,” Wayne protested, “let me handle this,” evidently indignant that I should think so ill of our good neighbors to the south. In flawless Spanish, he explained to the policeman that El Senor was not speeding; he merely had squeaky brakes. Rebuffed, Wayne came back and said, “He wants five bucks.” Nothing like having an expert to hand when you’re in a foreign country!

Levantin Levity. And finally, via e-mail, the electronic lecture hall, a purport of recent news. A pollster reportedly asks an American, a Lebanese, and a Syrian this question: “What’s your opinion on electricity cuts?” The American asks, “What’s an electricity cut?” The Lebanese asks, “What’s electricity?” The Syrian asks, “What’s an ‘opinion’?” (Black Beirut humor reported by Claudia Rosett in The New York Sun)

Our Own Jazz Man

After serving for over 25 years in the music department at UCSD, Jimmy Cheatham retired on June 1, 2005. He will continue touring with his and his wife Jeannie’s Sweet Baby Blues Band and doing workshops, lectures and performances. He will be honored at the University of Wisconsin-Madison in June 2006 in a citywide celebration. Jazz America has accepted his complete collection of materials – books, professional band arrangements, and “gig shirts” as an endowment to their institution.
Dear Dean:

This is in response to your suggestion that we appoint Mr. Wolfgang A. Mozart to our music faculty. The music department appreciates your interest, but the faculty is sensitive about its prerogatives in the selection of new colleagues.

While the list of works and performances the candidate has submitted is very full, it reflects too much activity outside academia. Mr. Mozart does not have an earned doctorate and has very little formal education and teaching experience. There is also significant evidence of personal instability evidenced in his resume. Would he really settle down in a large state university like ours? Would he really be a team player?

I must voice a concern over the incidents with his former superior, the Archbishop of Salzburg. They hardly confirm his abilities to be a good team man and show a disturbing lack of respect for authority.

Franz Haydn’s letter of recommendation is noted, but Mr. Haydn is writing from a very special situation. Esterhazy is a well-funded private institution quite dissimilar from us and ableer than we to accommodate non-academics, like Mr. Haydn himself. Here we are concerned about everybody, not just the most gifted. Furthermore, we suspect cronyism on the part of Mr. Haydn.

After Mr. Mozart’s interview with the musicology faculty, they found him sadly lacking in any real knowledge of music before Bach and Handel. If he were to teach only composition, this might not be a serious impediment, except of course that his own work is too contemporary. But would he be an effective teacher of music history?

The applied faculty were impressed with his pianism, although they thought it was somewhat old-fashioned. That he also performed on violin and viola seemed to us to be stretching versatility dangerously thin. We suspect a large degree of dilettantism on his part.

The composition faculty was skeptical about his vast output. They correctly warn us from their own experience that to receive many commissions and performances is no guarantee of quality. The senior professor pointed out that Mr. Mozart promotes many of these performances himself. He has never won the support of a major foundation.

One of our faculty members was present a year ago at the premiere of, I believe, a violin sonata. He discovered afterwards that Mr. Mozart had not written out all the parts for the piano before he played it. This may be very well in that world, but it sets a poor example for our students. We expect deadlines to be met on time, and this includes all necessary paperwork.

It must be admitted that Mr. Mozart is an entertaining man at dinner. He spoke enthusiastically about his travels. It was perhaps significant, though, that he and the music faculty seem to have few acquaintances in common.

One of our female faculty members was deeply offended by his bluntness. She even had to leave the room after one of his endless parade of anecdotes. This propensity of his to excite the enmity of some is hardly conducive to the establishment of the comity to which we aspire to maintain on our faculty, let alone the image that we wish to project to the community at large.

We are glad as a faculty to have had the chance to meet this visitor, but we cannot recommend his appointment. Even if he were appointed, this is almost no hope of his being granted tenure. The man simply showed no interest in going to school to collect his doctorate. This is egotism at its zenith.

Please give our regards to Mr. Mozart when you write him. We wish him our very best for a successful career. All are agreed, though, that he cannot fulfill the needs of this department.

We wish to recommend the appointment of Antonio Salieri, a musician of the highest ideals and probity that accurately reflect the aims and values that we espouse. We would be eager to welcome such a musician and person to our faculty.

Sincerely yours,
The Chair and Faculty of the Department of Music

P.S. Some good news. Our senior professor of composition tells me there is now a very good chance that a movement of his concerto will have its premiere within two years. You will remember that his work was commissioned by a foundation and won first prize nine years ago.
Mark Your Calendar!

Professor Stuart Brody of the Department of Biology will speak to the Emeriti Association on

The Biological Clocks in All of Us

We all possess biological clocks; daily, monthly, ageing, etc. These clocks are even known to occur in single cells. This lecture will explore the relationship of our biological clocks to medicine and human health.

Wednesday, January 11, 4:00 pm
The Green Faculty Club