UC Berkeley’s Experiment in Research Funding
Controversial $25 million agreement with Novartis raises academic freedom questions
By Carl Irving
BERKELEY, CALIFORNIA
Almost all faculty members in an entire department at the University of California, Berkeley, including plant specialists noted for their research in genetic engineering, have signed on to an unprecedented five-year, $25 million agreement with a single company.
In return for its investment, Novartis of Switzerland will have first bid on about one-third of the research discoveries of Berkeley’s Department of Plant and Microbial Biology, whether they were sponsored by the company or the federal or state government.
Some Berkeley faculty members have criticized the agreement because it ties the university too closely to commercial interests, others because it further erodes the faculty’s role in campus decision-making.
But supporters, including 29 of the department’s 31 professors, point out that the pact allows faculty members to choose the research, has no limits on publishing their findings, and creates a working alliance with a company that has a $2.5 billion budget for research and development in the life sciences.
The 29 professors have received their first installments from Novartis—$50,000 to $200,000 each—for studies subject only to approval by a committee, a majority of whose members are faculty colleagues.
They also will have access to Novartis’ own research, information that proponents say no campus has the means, equipment or staff to collect on its own. They foresee that this will provide, for the first time, a path from basic research at the campus lab to application and development.
The Novartis database “enables us to interact with the company to let technology grow up,” said Bob B. Buchanan, department chairman. “Technologies are often born in a university’s basic research laboratory, but they can’t grow up at a university…Faculty members now won’t have to take machetes to cut through to make a trail.
“Without that money, we would have been in serious difficulty, and because of that support, we have a fine crop of students coming in who otherwise might have enrolled in better-funded, medically related fields,” Buchanan said. Part of the Novartis payment is budgeted for graduate programs, fellowships and seminars, and for attending national conferences.

The Southern Maine Partnership
University’s education faculty collaborates with nearby schools
By Jon Marcus
BRUNSWICK, MAINE
It is still dark when the big yellow buses lumber to a stop outside Mt. Ararat Middle School, disgorging sleepy students into the old brick building’s bright, high-ceilinged corridors, their dark wooden floors buffed to a high shine and the walls lined with orange metal lockers.
For most of these kids it has been a long commute from their homes in the far-flung rural towns and sparsely populated coastal villages and islands that comprise Maine School Administrative District 75. And if the students feel isolated, consider the teachers: Theirs is the only middle school in a radius of five towns, geographically separated from the nearest counterpart or colleague who might offer reassurance or advice.
These are the conditions that have helped to foster the nation’s most enduring collaboration between a university education faculty and the schools around it, the 15-year-old Southern Maine Partnership, whose success at helping teachers to collaborate among themselves from one rural district to another has overcome traditional suspicions of higher education faculty nosing around in local classrooms.
The partnership is there to help us talk things out, or at least to find out that we’re not the only ones who are dealing with an issue,” Elizabeth Manchester, Mt. Ararat’s congenial principal, said.
Her brightly lit and cheerful office is like an outpost in the gloom of the bleak New England morning. “They will actually go and get the resources people need. You have a real sense that they work for you.”
Take a recent showdown with the school board, in which the whole staff met together using problem-solving skills they’d learned from faculty at the University of Southern Maine, where the partnership is based, and found a way to save a literacy class the board had ordered cut. Or consider a similar situation last year, when research the university supplied helped back the school’s campaign to expand the foreign language program; or the partnership’s network of guidance counselors from different districts who have gotten together to talk about dealing with student violence; or the college-model system under which each student has a teacher advisor; or the school’s new...
AN INTERVIEW
CHARLES B. REED

Charles B. Reed has been chancellor of the California State University since March 1998, and was chancellor of the State University System of Florida from 1985 to 1998. This interview was conducted by Patrick M. Callan, president of the National Center for Public Policy and Higher Education.

Patrick M. Callan: From your perspective as one who has now led two major statewide higher education systems, what do you see as the major issues that are or ought to be on the higher education agenda for the next decade or so?

Charles B. Reed: The two states I’ve worked in, as is true for much of the south and the west, must focus on accommodating the enrollment growth, providing access for their citizens to earn the baccalaureate degree. And the greatest growth in California and Florida is in the minority populations. As the demographics change, universities are going to have to reflect their states’ populations.

It’s going to be a real challenge to accommodate that growth with quality. So it behooves the universities to focus their efforts on helping to improve the public schools. Universities have the responsibility to prepare more teachers and to prepare them better. Recent research from Washington and from Stanford shows that well prepared, high-performing teachers can improve student achievement.

States like California and Florida have worked hard on standards—admissions standards, curriculum standards. Now the achievement of standards by students must be the focus. We must focus on new populations, on poverty, on language issues, on preparation that must take place at the very early grades, especially in language and reading skills.

So the universities must roll up their sleeves and get down into the schools, so that we can guarantee, for instance, that every one of our graduates who goes out to teach, can teach reading. And we must work as hard as we can to recruit more people into the teaching profession in the sciences and mathematics.

Patrick M. Callan: So, are you asserting that teacher education and work with the public schools is a higher priority than some of the other things that the California State University does?

Charles B. Reed: Yeah. Not only have I said that it’s a higher priority, but the Board of Trustees of the California State University system have said that this has to be our number-one priority. You know, if you step back two steps from all of this, and you look at it, when 95 percent of your students come from the public schools, if you do something to improve the public schools, you’re going to improve the quality of your universities.

Patrick M. Callan: Much of the history of higher education over the last several decades has been one of de-emphasizing teacher education and giving the public schools a low priority. What will it take to change this? What are the impediments? Why haven’t we done better?

Charles B. Reed: Well, working with public schools is extremely hard work. It’s not what gets put on the front page of most professional publications—it’s not in the New York Times and the L.A. Times every week. So, from a professional basis, there are not many rewards.

Number two, it has been seen as a money maker in universities where they had large enrollments, so that they could support other degree programs. And so the payback hasn’t been on a dollar-for-dollar basis.

Third, it has not been recognized by the faculty, by the provosts and the presidents, as very prestigious. So therefore, it kind of got second rating in the priorities.

One of the things that I think is going to have to occur nationally is that presidents, chancellors and heads of systems are going to have to make a commitment that the number-one priority is going to have to be preparing more and better teachers. There’s a need for 2.2 million teachers in the next seven to ten years in America. Some of the states that I’ve been in are going to need huge numbers of new teachers. If it’s not a priority, then public education will continue to suffer through the next decade. But it’s going to call for a major investment.

I had a conversation with a colleague from another state who said, “Well, you can’t say that, chancellor, because you’ve got to say that all of the professional programs and the academic disciplines are equally important.” That’s just not true. She said, “Well, you know, the medical school people will eat you alive.” Well, so what? You know, that’s going to take care of itself. But public education and the preparation of teachers will not take care of itself if there’s not leadership, investment, with resources into those programs.

Patrick M. Callan: In addition to the schools, what are the issues you expect to drive public policy?

Charles B. Reed: I think in both states what is very clear as you go into the 21st century, is that the economy is going to drive public policy. And these public universities are part of the economic engines of these states. And so there is a direct relationship in producing bright people to fill these jobs that then allows those state economies to be as competitive as they need to be in order to generate the revenue that the state needs. So it’s kind of a vicious cycle. But if the universities aren’t doing their part, then the competitiveness, the economic competitiveness will suffer.

Patrick M. Callan: As a person who has lived in both the academic and political worlds, do you think we are getting the kind of political leadership in the states that is going to be needed if higher education is to address the issues you’ve been discussing? What should we expect by way of state leadership?

Charles B. Reed: The legislatures and the governors of the states have really figured it out. One of the things that they have access to is good polling information. And what they see is that the American people are very concerned about the quality of the public schools so their children and grandchildren have a chance to succeed in America. Which success, in their estimation, is being able to get a college degree and enter the economic competitiveness that they know they’re going to need. That’s what a level playing field is going to be. They know that’s the most important thing for their children’s future.

In California, I’m very interested in pursuing the concept of a compact between the political leadership and the universities that would focus on maintaining access, but yet would have greater accountability and both efficiency and effectiveness from the universities. And so I welcome the legislative and the gubernatorial demand for greater accountability from our institutions. If we don’t have the outside pressure, then it’s very difficult for us to change inside.

In Florida I am proud to say that I got a huge productivity increase in the number of student credit hours that were being taught by the faculty. Now, in California I think that we have very heavy teaching loads in the California State University. On the other hand, I think that we can expand our capacity significantly by working on a year-round calendar, and that we can hire more faculty members to teach and work throughout the summer, that we can get more students through, and get more students through faster, to maintain the access.

And then, I think that there are some uses of technology that we can put in place, and maybe serve ten percent or so of our students through new technology and
Web-based courses I think that we also can look at utilizing the day the week and the calendar in a different way to serve students’ needs. But it’s going to call for a major investment by the state.

PC: So you’re saying it will take some political pressure from the governors and legislatures as well as some leadership from inside, to achieve these kind of improvements in productivity that are needed to accommodate this demand.

CR: Twenty years of experience says if you don’t have that kind of outside pressure, it’s very difficult to get the kind of productivity and accountability changes that are really necessary to improve quality.

PC: Among the spirited conversations you’ve started since arriving in California, one of the most interesting seems to revolve around your view that higher education must become more “student-centered.” What are you driving at? And what kind of changes are you looking for?

CR: Universities were put in place to serve student needs. I think over the last ten or fifteen years, some institutions have lost that focus. My observation has been that we have a student-focused system, then we’ll have a higher quality system, we’ll be more efficient, we’ll be more effective in what we do, and we will be supported at a much greater level by the public if we do that.

PC: Some who may be nervous about this “student centered” approach have suggested that you may be implying a kind of pandering to students that reduces quality.

CR: It’s just the opposite, I think. For instance, in remedial education, we’re going to say to students, here are the standards, and if you don’t meet them, we’re going to suggest that you go to your local community college or elsewhere until you can meet these standards. But we want students to meet their needs. And, my hunch is that if we have a student-focused system, then we’ll have a higher quality system, we’ll be more efficient, we’ll be more effective in what we do, and we will be supported at a much greater level by the public if we do that.

PC: Some faculty don’t like me to say this, but students are our customers. If we didn’t have any students, we wouldn’t be here—especially the California State University, because that is our mission: to serve the students of California.

“I welcome the legislative and the gubernatorial demand for greater accountability from our institutions. If we don’t have the outside pressure, then it’s very difficult for us to change inside.”

remedial programs to be available when students want them, we want them to be intense, we want them to operate year round, we want them to be on weekends and nights, we want tutors available, we want learning assistants available, because it’s focused on getting those students up to the level that they need to be able to do collegiate work.

“Student-centered” also means having the curriculum focused on use of multimedia techniques for students, because they all don’t learn the same way. Having the courses available when students want to take the courses Providing more access to technology. More access to electronic information and data systems for students. Teaching students more about computers and the Internet. When they get their first job, they’re going to need to know that.

That’s something different than what we’ve traditionally been able to do. That’s more student-centered—giving students a chance to be able to demonstrate that they’ve learned material on their own. I think that’s going to be different. Providing community and service learning opportunities to students, and being able to keep records of that so that those students can show potential employers that they’ve had these different experiences.

PC: How are these ideas being received?

CR: Some of our students don’t like me to say this, but students are our customers. If we didn’t have any students, we wouldn’t be here—especially the California State University, because that is our mission: to serve the students of California.
The Southern Maine Partnership, which started in 1985 with six school districts, has grown to 33, representing 201 schools, 6,700 teachers, and 82,000 students—a third of the state’s enrollment.

The partnership with Southern Maine University has helped to improve communications within individual schools and between school districts, says Elizabeth Manchester, a middle school principal.

The 15-year-old Southern Maine Partnership has overcome traditional suspicions of higher education faculty nosing around in local classrooms.
the front lines with you telling you how to do your job. And you suspect it isn’t right.” In the partnership, by contrast, he said, “they seem to have a little more experiential learning going on here. Tell me what you’re doing, and let’s devise a plan.”

This kind of thing is credited with nothing less than changing the culture inside schools, according to its many boosters. Back at Mt. Ararat Middle School, for instance, a guidance counselor stops a physical education teacher to talk about a troubled student who is finally doing well, but is fearful about a looming test in gym class. Not only does the teacher stop to listen; she promises to find a way to solve the problem.

“It’s amazing how you can get these people together and make a decision,” said Kyle Abernathy, a special education teacher who came to Mt. Ararat this year from a rural district outside the partnership. “The climate, which flows over into the kids, too, is a warmer environment. It’s like a team.” In her old school, she said, “I felt isolated. Even within my own building, there were teachers I probably never met.”

Principal Manchester agrees. “When I first started at the middle school, you could not hold a conversation with the staff about something that was out of anybody’s content area,” she said. “Now they are doing problem-solving beyond their own needs. They are really looking at the whole school and the big picture.”

Ruff tells of bringing his three-year-old daughter, Bridget, to his office at the partnership one day, after which her mother asked what it was like. She responded:

“The university really has listened to the schools. The schools really have a lot to say, and they have changed the way the university trains teachers.”

—JOHN GOODLAD, UNIVERSITY OF WASHINGTON.

“They just do a lot of talking.” And that pretty much appears to be the gist of things. When a colleague first proposed the CFGs, “they said, ‘OK, we get a bunch of people together, maybe ten to 12 people, and somebody to facilitate that group, and they talk about their work,’” Ruff said.

“There was a pause, and I said, ‘OK.’ But that was it. It’s really that simple.”

Even the partnership’s office at the university is in a large open room, with work areas separated by waist-high partitions. There is a conference table in the center and a lot of random conversation back and forth. In short, Ruff said, “the partnership brings people together to generate ideas, realizing I don’t have the answers, but maybe I have a piece and you have another piece, and we can put them all together.”

Of course, the CFGs are not the only initiative of the Southern Maine Partnership. The program publishes a calendar crowded with lectures, seminars, conferences, retreats and other activities for teachers. Its biannual newsletter, In Partnership, highlights successful programs in Maine schools, often in the words of the teachers who devised them.

The partnership offers visiting experts to help prepare for new state-required assessment tests. It arranges monthly meetings of superintendents, periodic gatherings of principals, and regular “dine and discuss” dinners at the teacher-friendly time of 4 p.m., with education experts as speakers. It coordinates review teams that, when asked, provide member schools with evaluations of their teaching strategies. It invites experienced classroom teachers to serve for a semester as instructors in the school of education. It quietly provides up-to-date research to help principals like Manchester stand up to their school boards. It has designed a $3.5 million Web site called the Electronic Learning Marketplace (www.elearningmaine.org), where teachers in isolated schools can see each other’s most effective classroom methods and materials online. It even stages forums to discuss Maine’s educational reform program, gingerly sidestepping the many complaints in favor of suggestions for ironing out problems.

No accident, that. At a time when education has been heavily politicized, the partnership steers clear of controversy. For one thing, it is based at a public university that is subject to the legislative budget process. For another, it is trying to avoid a major pitfall in this kind of work: the expectation of immediate results.

“People want change within two years. The reality is, you don’t get radical change in two years,” Ruff said.

“We have been careful, and we haven’t been forced to make promises to people. A big factor is political cover. We live in a very different world than Boston or New York or Philadelphia or Los Angeles, thank God, where there is an unwillingness from foundations and politicians to give it time to grow.” For that reason, the partnership takes only a limited amount of state money for programs, “because that’s tied up with politics,” Lynn Miller said. Instead, it looks for sympathetic philanthropic foundations with patience.

Does it work? That’s hard to measure. It is true that thousands of Maine teachers have gone through partnership programs. It is also true that Maine students, compared with counterparts in other states, do extraordinarily well on tests. They are, in fact, first in the nation in science, first in math and first in reading on the National Assessment of Educational Progress, administered by the U.S. Department of Education. They also have posted ten years of gains on SAT scores, now 503 in math and 507 on the verbal section. That is close to the national average, even though the SAT participation rate is 68 percent, ninth-highest in the country; the score on the optional writing assessment is a well-above-average 605.

On the other hand, Ruff concedes that he “would have a hard time drawing broad generalizations that the Southern Maine Partnership is solely responsible for that improvement. Once people go through professional development opportunities, or take graduate courses here, or become certified as teachers and go out into schools, there are too many other factors at play for us to take credit. What people tend to do is look at things like the (national assessment) tests and say that, while you can’t make the connection that the Southern Maine Partnership has been the sole thing that has made positive things happen, positive things are happening in Maine and the Southern Maine Partnership is one of the pieces that is making positive things happen.”

Not everyone is completely happy with the partnership. “Can they give us hands-on information?” asked Larry Williams, a teacher at Poland Regional High School.

“Are they going to come in and teach the ninth-grade history class? How many of them have done that? How many of them have walked their talk?”

Williams, who has an undergraduate degree in music education from the university, says its teacher training program still does not incorporate its own advice.

“It’s all about the market for teachers,” Williams said. “And if this program is going to provide teachers to public schools, they have to listen to them.”

Whatever its shortcomings, the partnership is now being cast in brick and mortar.

The new high school in Poland, which opened in September, incorporates many of its ideas. So does the new Mt. Ararat Middle School, scheduled to open next year. Both are among the first new schools in Maine in decades.

“We have done a lot of talking about how you incorporate these principles into the building,” said John d’Anieri, a teacher at the Poland school, whose students come from 13 different towns. There is, for instance, a desk in the faculty room for every teacher. Common spaces are oddly shaped with tile and wood trim to encourage students and teachers to talk informally. “It has a mall aesthetic, but I think a mall aesthetic is more appealing in a school than in a mall,” d’Anieri said.

“They’re meant for hanging out.”

Mt. Ararat’s new school will be considerably bigger, since sixth grade is being added to the current seventh and eighth.

To maintain its feeling of small size, it is to be divided into “neighborhoods,” with classrooms that can open onto each other for team and interdisciplinary teaching. There will be a room on each floor where students ranging from “learning disabled” to “gifted” can get extra help. And there will be a performing arts center. The chorus room will double as a space for staff meetings, with furniture arranged informally. The faculty room will have work areas and round tables for the ubiquitous discussion sessions.

“It’s hard to say what started with the partnership and what didn’t, because it’s so fluid,” Manchester said. “But the design came from this openness of communication, and that came from the partnership. People talk about working collegially now; they look at the whole school and the big picture. And the university will actually get the resources you need. It’s up to the school to take advantage of it.”

Jon Marcus is a senior editor at Boston Magazine and covers U.S. higher education for the Times of London.

University of Southern Maine faculty members meet with public school teachers and administrators at a summer workshop.

Heidi Paulding, who teaches Latin at a Maine high school, likes the exchanges of ideas promoted by the Southern Maine Partnership.
Preparing Unprepared Students
Cal State Northridge offers a special summer program

By William Trombley
Senior Editor
NORTHGRIDGE, CALIFORNIA

EIGHTEEN-YEAR-OLD Sahar Faghani sat in a hot, stuffy portable classroom on the California State University, Northridge, campus a few weeks ago, a bit unhappy about having to take a summer remedial math class before entering the university this fall.

Sahar had compiled a good grade point average at nearby Van Nuys High School, qualifying easily for admission to the Cal State system, which selects its first-year students from the top one-third of the state’s graduating high school seniors. But she fell just below the cut-off point on the mathematics test required of all entering Cal State freshmen.

“A lot of high school teachers, they don’t teach,” Faghani grumbled, “and a lot of the students just clown around, they don’t pay any attention.”

But 18-year-old Jay Deogracias, who graduated from another local high school last spring, did not seem to mind the make-up class.

“I wasn’t too surprised when I failed the test because, overall, my math wasn’t that good,” Deogracias said. “This class gives me a chance to review the material and get ready for college.”

Faghani and Deogracias were enrolled in a special Cal State Northridge summer program for graduating high school seniors who failed either the Entry Level Mathematics test (ELM) or the English Placement Test (EPT), now required for admission to the 22-campus Cal State system.

Seeking to reduce the amount of remedial instruction, the Cal State Board of Trustees in 1996 adopted a policy limiting remediation to ten percent of incoming freshmen by the year 2007, but progress has been slow.

Last fall, 54 percent of first-time freshmen required remedial math, 47 percent remedial English—the same as the year before. Campus rates vary widely, due mostly to demographic and household income differences.

For instance, at Sonoma State University, in the affluent wine-growing country north of San Francisco, where 516 of last fall’s 772 entering freshmen were white, 48 percent required remedial help in mathematics, 25 percent in English. At Cal State Los Angeles, where 95 percent of entering freshmen were non-white, many from low-income neighborhoods, 77 percent needed remedial help in math, 79 percent in English.

Cal State Northridge has undergone dramatic demographic shifts in the last 20 years, changing from a predominantly white campus to one that is two-thirds minority. A year ago, 63 percent of first-time freshmen required remediation in math, 59 percent in English. Only 452 of 2,300 first-year students needed no remedial help.

“That gives you an idea of the size of the problem,” said Margaret Fiweg, associate vice president for undergraduate studies. Each campus decides how to deal with the remedial issue, and Northridge chose to emphasize summer programs, hoping to prepare as many first-year students as possible for university work by the time fall classes began.

That is what brought Sahar Faghani and Leo Deogracias together in a developmental math class, one of many offered to about 300 incoming Northridge freshmen during the summer.

Since Northridge receives no state funding for a summer term, students ordinarily would have paid $140 per unit, or $700 for the five-unit remedial course. However, an unusual arrangement with nearby San Fernando Valley College, a two-year community college, allowed them to pay at the community college rate of $12 per unit, or $60 for the course.

At Cal State Northridge, where many students come from families that are living at or below the poverty line, the $700 fee would have been prohibitive for many entering freshmen, campus officials said.

“The Valley College collaboration was a real godsend for us,” according to Robert Danes, director of undergraduate studies. “We were sitting here scratching our heads, trying to figure out how we could afford this summer program, and then Valley called.”

Carlotta Tronto, dean of academic affairs at Valley College, called it a “win-win” for both institutions. “It helped students entering Northridge as freshmen, and it provided summer jobs for some of our instructors,” she said.

Valley College hired and paid the instructors but the classes were taught a few miles away at Northridge. Some instructors were from Valley College, some from Northridge, some taught at both places.

The program was rigorous. Students spent four hours a day, five days a week, for six weeks, in classes, workshops or tutorials. They took weekly tests and, if they failed a test, needed a “re-entry ticket” from the instructor to rejoin the class.

“There’s no credit for ‘seat time,’” said Elena Marchisotto, professor of mathematics at Northridge and director of the developmental math program.

The students were divided into two groups—those who were planning math-related majors and therefore would need calculus, and those who would not.

Students also were grouped by ELM scores. Those who came closest to the 550 passing mark were placed in workshops, while those with lower scores were in developmental classes. Tutoring was mandatory for all summer students.

Classes were small—20 to 25 students. Each class or workshop had an instructor and two tutors. Most of the instructors had been teaching remedial (or “developmental”) math for several years. Most of the tutors were math graduate students but a few were undergraduate math majors.

“I feel bad for these kids,” said Jim Castro, associate director of the developmental math program, who also taught two summer classes. “They do what they’ve been told to do in high school and then they fail the ELM (the entry-level mathematics test), and we come along and tell them they have to do this remedial class in order to enter the university.”

Much of Castro’s summer instruction was a review of algebra and geometry. “This is a good class,” he said one day, “but, like most freshmen, there are gaps in what they know.”

Castro said he was “pretty hopeful” that most would pass the ELM on their second try, and his optimism was warranted. Twenty-six of the 31 students in Castro’s two summer classes took the ELM in late summer. All of them passed.

Altogether, 102 of the 128 students who took the ELM test at the end of summer passed it and have completed their remedial work. Another 153 students earned credit for one remedial class but must pass one more before becoming regularly enrolled freshmen.

A few received “stop-out” letters, urging them to brush up their math at a community college before trying to reenter Cal State Northridge.

While the intensive math classes seem to have been successful, the same cannot be said for English. The math program was well coordinated, with many classes and workshops for students of varying levels of

Mathematics professor Elena Marchisotto is director of remedial math programs at Cal State Northridge.
CrossTalk

Some said many high school students don’t take the Cal State placement tests seriously, while others blamed “math phobia” among many high school students.

Still others criticized the ELM test as too demanding (students must solve 65 problems in 75 minutes), too abstract and not a good measure of the skills needed for either math-related or non-math-related college work.

But Elena Marchisotto “strongly disagrees” with critics of the test, saying it has “proven to be a useful predictor” of college performance at Cal State Northridge.

There is still a debate about the test,” said Charles Lindahl, associate vice chancellor for academic affairs in the Cal State system. Both the math and English tests are being evaluated by systemwide committees, Lindahl said.

Many students come from broken homes, where higher education might not be a high priority. Most students work at least part-time to be able to afford even the modest Cal State fees.

Last year, Cal State Northridge provided financial aid to 15,124 students, whose average household income was only $22,120.

“It’s not that our students are in poverty, they are in poverty,” said Philip Handler, interim vice president for academic affairs and provost at Northridge.

“It’s a wonder they survive at all.”

Many blame the public schools, especially those in Los Angeles, for failing to prepare students for college or university work.

“These students have been failed by their school system,” said Louanne Kennedy, interim president at Cal State Northridge. “They have done what they were told to do, they have passed their (high school) courses” but they are victims of “low performance in the Los Angeles Unified School District, and that’s our primary feeder system.”

Kennedy accused the Los Angeles schools of having “magnet schools and throw-away children…because if you’re not in a magnet, you’re not going to be well-prepared for university.”

Of the 30,000 California teachers who hold only emergency credentials, a high percentage are in Los Angeles.

Many math classes, in Los Angeles and elsewhere in the state, are taught by instructors whose grasp of the material is frail.

“The whole educational system has let them down,” Vice President Handler said.

“We have to keep reminding ourselves of that, especially faculty, some of whom tend to be impatient (with unprepared students). We have to take the students where they are and get them to where we want them to be.”

This student-centered approach differs sharply from positions taken by some members of the Cal State Board of Trustees when the board began to discuss remedial education four years ago.

Trustee Ralph R. Pesqueria, a San Diego restaurant owner, proposed that students who had not passed both the English and mathematics placement tests should not be permitted to enroll, or to continue, at Cal State. This would have eliminated about 9,000 students systemwide, including about 850 at Cal State Northridge, officials estimate.

A few trustees were sympathetic to Pesqueria’s proposal, which came at about the same time the City University of New York was deciding to eliminate remedial instruction from its four-year colleges and the University of California was abolishing affirmative action in admissions.

“It was a big problem,” said Trustee William D. Campbell, a Newport Beach attorney and businessman. “A lot of students were trying to find a way to get through without taking any math classes, the faculty didn’t want to teach remedial classes and high school standards had fallen so low that you could be in the top third of your class and still not be ready for college work.”

But Campbell and other board members thought the Pesqueria remedy was too harsh. Nor did the proposal sit well with some members of the Legislature, especially those from minority districts. After a statewide series of hearings, Pesqueria himself came to agree that more time would be needed to phase out remedial classes.

In January 1996, the trustees adopted a compromise policy calling for a gradual reduction in the numbers of first-time freshmen needing remediation—by ten percent in fall 2001; 50 percent by 2004; and 90 percent by 2007.

The policy also called for all freshmen to be tested before they begin classes (in the past, some had waited until their senior year before taking what was supposed to be an entrance exam). The board also urged Cal State campuses to work closely with local public schools so students would be better prepared for college-level work. And the trustees called for improvements in teacher education, since Cal State campuses train about 60 percent of California’s new public school teachers.

The numerical goals set forth in the trustees’ policy are not likely to be achieved.

Many believe the percentages of first-time freshmen needing remedial help in math or English have edged upward.

In 1997, former Cal State Chancellor Barry Muniz issued an executive order stating that “campuses are encouraged to establish and enforce limits on remedial education four years ago. Northridge chose to emphasize summer programs, hoping to prepare as many first-year students as possible for university work by the time fall classes began.
Deep Springs College
A little-known educational experiment in the remote California desert

By Kathy Wittowsky
DEEP SPRINGS, CALIFORNIA

One clear September morning at 6:15, an hour unknown to most college students, Michael Thoms and David Hambrick began their day at Deep Springs College. The distinct scent of fresh-cut hay permeated the air, and to the west, in the far distance, the sun lit the peaks of the Sierra as the two students wheeled a small squeaky hand-truck carrying leftover milk past the school’s circle of stone buildings and down the gravel road to the pig pen.

They poured the milk into the trough and watched, bleary-eyed and amused, as the pigs eagerly devoured it. Afterwards, they headed across the road to the cow corral, where Michael slung a rope around Helga—“She’s the one with the bag that sways!” he pointed out—and led her into the barn. There David swabbed the old Holstein’s udder with antiseptic, and then the two positioned themselves on stools flanking her hind end, grabbed hold of her teats and gently squeezed.

“The first week was very painful,” admitted David, 18, recalling his first clumsy efforts as “Junior Dairy Boy.” “Mike would do a bucket in about ten minutes, and it took me like half an hour! But you get used to it after that, and it’s not bad at all,” he said, watching with satisfaction as milk ran into his bucket.

Twice a day, every day, Michael and David earn the satisfaction that comes with work, prodding animals, fixing fences and machinery. An “ag” school for future farmers? Hardly. Try, instead, an elite institution where two dozen of the nation’s highest academic achievers—all male, and mostly white upper-middle class suburbanites—are getting a lesson in life, democracy and community obligation.

With an average combined SAT score of nearly 1,500, most Deep Springers could have attended any number of the nation’s top universities. (And since they stay at Deep Springs for only two years, occasionally three, before transferring, most will wind up completing their education at one of them.) But instead of matriculating at Harvard or Stanford or equally prestigious schools, they chose to become part of an ongoing and little-known educational experiment in the remote high desert of California: what Deep Springs President Jack Newell describes as “an idea, not a campus, nor a college nor a ranch. It is an education based on democratic self-governance, personal responsibility, and an ethic of service to others.” Put more simply, it’s based on work, prodigious amounts of it.

That philosophy appeals only to a select few. Each year, the school receives about 130 applications; 40 of those applicants are invited to complete the rigorous process, which includes seven essays and an on-site visit. Once accepted, every Deep Springs student is awarded a full-ride scholarship covering tuition, room and board, worth an estimated $35,000 a year. In exchange, each of them is expected to labor at least 20 hours a week, and often more, for the good of the school and community.

The gratification is immediate. The milk that Michael and David bring back from the dairy barn that morning will be on the tables of the Deep Springs dining hall the same day. Likewise, were Michael and David to oversee the community, the community would have to forego its milk—and Michael and David would be held accountable.

“One of the unifying things here is work,” explained Michael, 19, a New York City native who, in addition to serving as “Senior Dairy Boy,” also has been the school butcher, and is currently student body president. “I might not like someone, but if they put in a full day’s work I don’t feel frustrated or antagonistic toward them. I feel like, ‘Thank you.’ And they should feel the same way.”

That’s just the sort of statement that would no doubt have pleased L.L. Nunn, the founder of Deep Springs, a 19th-century entrepreneur who made a fortune in mining and hydropower (and who has the dubious distinction of owning the first bank robbed by Butch Cassidy’s Hole in the Wall Gang), believed traditional educational institutions weren’t turning out the kind of leaders the world needed. Nunn figured he could do better. So he bought an 1,800-acre ranch (later expanded to 3,500 acres) and all the water rights in California’s Deep Springs Valley.

There, sandwiched between the rugged Inyo and White mountain ranges close to the Nevada border, Nunn founded and endowed the valley’s namesake college in 1917. The school’s two dozen students (never more than 26), plus about another 18 faculty, staff and their families, are the valley’s only inhabitants. They are 30 miles from the nearest town, and 45 miles from phone service (the college is responsible for maintaining its own phone lines, which means communication with the outside world is dicey at best).

They are alone, but they are alone together. And that’s the way Nunn wanted it. Such isolation, he reasoned, was the best way to encourage the character development that was at the heart of his educational goal. “Gentlemen, what came ye into the wilderness?” Nunn wrote to the student body in 1923. “Not for conventional scholastic training; not for ranch life; not to become proficient in commercial or professional pursuits for personal gain. You came to prepare for a life of service, with the understanding that superior ability and generous purpose would be expected of you, and this expectation must be justified.”

Nunn was a small man, just over five feet and only 115 pounds, so it’s no surprise that his hero was Napoleon. But nearly 75 years after his death, his presence looms large at Deep Springs. A portrait of Nunn looking drawn and dour—he wasn’t known for his sense of humor—hangs on the mantle of the dining hall, and his name is invoked on a daily basis, kind of like God at a seminary.

Just hours after he finished milking, for instance, Michael Thoms was seated in an ethics seminar with eight other scruffy-looking but attentive students, puzzling through essays on love and solitude by the philosopher-monk Thomas Merton. Classes are held in the mornings, while the afternoons are generally reserved for work,

With an average combined SAT score of nearly 1,500, most students at Deep Springs College could have attended any number of the nation’s top universities.

Deep Springs student Eli Goldman-Armstrong works some of the college's 300 head of cattle.

PHOTOS BY ROD Searcy
nights for meetings and class assignments. This class was called Personal Values and Social Ethics, and it is taught by Jack Newell, himself a Deep Springs alum and former professor at the University of Utah, where he specialized in the history of education. When Newell suggested to the class that Nunm had set up an isolated system much like what Merton was espousing, students wound up in an earnest discussion about the intent and purpose of such deliberate calls to service aren’t confined to the ethics classroom. Two nights later, for instance, Michael Thoms stood in the school’s dining hall, where he and half a dozen other students were checking out the sourdough cultures each had prepared as part of their bread-making class. At any other school, bread-making, if taught at all, would likely be a “gut,” or easy, course, an automatic “A.” At Deep Springs, the class included a 400-page reading and recipe packet with information on the history of grains and the structure and content of wheat. But that’s not all.

“Cooking is fundamentally an act of generosity,” teacher Cecilia Michel Lopez told the students. “At some point during the term, you will be asked how this class prepares you for leadership,” she warned. “And that’s a serious question.”


“Deep Springs is a very introspective place, and it’s a place where people live very self-consciously,” acknowledged Newell. “But the thing that keeps it from being kind of an airy place that floats off into the ozone is the fact that we all have serious work to do here.” In a very literal sense, the farm and ranch aspect of the school keeps it grounded. There’s extensive debate about just about everything at Deep Springs. Newell said, “but there’s a practical deadline that says, ‘Well, it’s time to decide.’”

In keeping with the school’s goal of promoting articulate leadership, all students are required to take public speaking and composition. The rest of the course offerings change every 15 weeks but attempt to expose the students to as broad and challenging a liberal education as possible.

That is accomplished by a continually revolving faculty door: Teachers, many of whom are on sabbatical from other institutions, stay a maximum of six years. Many visit for a semester or two. This fall, Rick Jerrard, an emeritus math professor from the University of Illinois, is teaching set theory.

In addition to the ethics, composition, public-speaking and bread-making classes, recent course offerings included linear algebra, painting, botany, Greek history and the history of the First Crusade. Students also may take music instruction from a teacher who visits once a week.

Farming and ranch duties are supervised and dictated by a professional farmer and rancher, who make the financial decisions that keep the school’s agricultural interests economically self-sustaining (the ranch has an annual budget of about $80,000). But when it comes to the school itself, the students wield a remarkable amount of power. Newell was quick to insist that students do not completely “run the place,” as the popular phrase goes, but the fact is that they very nearly do.

Each student serves on one of four main committees, and weekly student body meetings are mandatory. Through this committee process, students contribute to every aspect of life at Deep Springs. They make recommendations about who to accept for next year’s incoming class; whether to allow current students to return for a second year; who to hire; and what courses to offer. They discipline each other and even have to approve articles like this one.

A student-run curriculum committee also has to weigh in before anyone can take more than the usual three courses.

**A strict isolation policy—the school also prohibits alcohol and female students—prevents students from interacting with the outside world unless they’re on school business.**

Such requests are taken seriously, because the more classwork a student has, the less likely he will be able to fulfill his community obligations. So the students don’t cut each other much slack.

At a “Cur-Corn” meeting in September, for instance, Eliot Michaelson found himself on the hot seat. Eliot was in charge the next page.
of the animals. But the cattle had been getting out and there also were concerns about the dirty troughs and chicken house. After considerable discussion, and an offer by Eliot to squeeze in an extra hour of work each day, his request to add an independent study in math set theory was approved. Eliot looked pleased, but chastened—which was no doubt exactly the intent of his peers.

“I’ve never realized what a luxury most people have to rage against the system,” said Nick Gossen, a second-year student from Albany, New York. At Deep Springs, at least, students are not allowed to leave except for medical reasons.

“Is there anything you want to deal with at Deep Springs, it’s probably meetings!” said first-year student Sam Houshower, who had been to his share since the school year began in July. No doubt plenty of people would argue that all these meetings are a fine preparation for modern-day life (especially if the students wind up in academia!). But there’s a difference: In the outside world, people go home after those meetings. At Deep Springs, that little cluster of stone buildings where the meetings take place is home—and during academic terms, students are not allowed to leave except for medical reasons.

A strict isolation policy—one of the few rules Nunn insisted on when he founded the school (the school also prohibits booze and female students)—prevents them from interacting with the outside world unless they’re on school business.

Such close quarters force students to figure out how to get along, and in general they’re pretty successful at it. One of the most impressive things about Deep Springs is the level of civility. Students may push the envelope when it comes to personal grooming: most students bathe infrequently at best, often eschewing showers for a swim in the school’s reservoir, and wear the same tattered clothes several days in a row.

Some 60 percent of Deep Springs alumni have gone on to earn doctoral degrees, choosing careers in a variety of professions, including government, teaching, business, agriculture.

“It’s an image thing,” one student explained.

But considering the testosterone level, there’s astonishingly little evidence of machismo. On an old road sign behind the school’s machine shop that reads: “Soft Shoulder,” someone has added: “to cry on.” About a third of the students are vegetarians, and the one openly gay student at Deep Springs said he hadn’t encountered any harassment. When second-year student Michael Pihos was killed in a tractor accident in mid-September (the school’s first-ever student fatality), the students painted a wildly colored mural of his face on the homemade basketball court. At a subsequent memorial service, they hugged and cried unabashedly. (The accident also has prompted the Deep Springs administration to examine its safety procedures.)

—that’s not to ignore the occasional displays of male bravado. Last spring, eight students walked 30 miles back naked—save for hiking boots and sunscreen—to the Eureka sand dunes in Death Valley National Monument. They still proudly tell the story of how one incredulous driver pulled over to ask: “Haven’t you heard of heat stroke?” And every year, students help brand and castrate the cattle. But in general, these guys are less John Wayne than Al Bundy (or, to put it in terms of their generation, Leonardo DiCaprio).

In part, that’s just because they’ve been brought up that way. But in part, it’s self-preservation. After all, they have to live with each other all day, every day, so it doesn’t make sense to make enemies or make a scene. “You learn how to comport yourself in an honorable way,” explained Jack Murphy, the college dean and a Deep Springs alumnus. Added Iris Pope, the school’s long-time nurse and office manager: “They run into things here they wouldn’t run into at other universities. They run into themselves.”

Arguably, the kind of articulate, motivated young men who are attracted to Deep Springs would be leaders no matter where they wound up. “In many ways, these students are going to succeed wherever they go,” said Jack Newell. “And so it’s the distinctiveness of the mark that Deep Springs can make on them, the extent to which we can raise their ideals, the extent to which we can make them aware of both the problems of the world and their potential to be part of the solution [that matters],” he said.

That doesn’t mean Deep Springs is a school for would-be politicians. Some 60 percent of Deep Springs graduates have gone on to earn doctoral degrees, choosing careers in a variety of professions, including government, teaching, business, agriculture.

And that, said Newell, is how it should be. “I think the genius of the founder of Deep Springs was that he didn’t define precisely what a life of service was. He said you’ve got to devote yourself to the welfare of your society and to the world, but he didn’t say you do this by studying medicine or by going into politics.”


But as any Deep Springer will tell you, utopias are fragile, and Deep Springs has weathered its share of rough times. In the 1950s, it suffered through a Red-baiting president who spied on his own students. In the 1980s, a proposal to turn the school into a co-educational institution nearly ripped the place apart. And in 1995, a financial analysis predicted that Deep Springs would have to close its doors before the end of the century.

The so-called “Doomsday Report” spurred the school’s trustees into action, and under Newell’s tutelage, they launched into a fund-raising campaign that so far has garnered pledges and cash totalling $12 million of the $15 million goal.

Thanks in part to that money, Deep Springs is experiencing both a physical and spiritual renaissance. Last year, students moved into a new dormitory, which they decorated with second-hand furniture they bought themselves.

“They didn’t want it to feel institutional, so they convinced the board of trustees to give them the $65,000 that had been budgeted,” explained Linda Newell, the president’s wife, who serves as a sort of unofficial den mother.

The main building, which had been constructed by the first class of Deep Springers back in 1917 and “would have been condemned” if any inspector had bothered to come see it, according to Linda Newell, has likewise been completely renovated, with Oriental rugs and leather couches.

The best evidence that the students are excited about the place is their plans to improve it. There’s talk of building new greenhouses, planting more flowers, starting a weight lifting program. A new renovation statement that the student body hammered out this summer also reflects a ‘90s kind of sensibility. It calls for the school to move toward sustainability in terms of food, animal feed and energy, and to explore ways to attract a more diverse student body. It does not address the issue of co-education, which has been one of the most divisive issues at Deep Springs, and which, now that the financial situation has been rectified, the trustees are likely to take up again in the near future.

Deep Springs is well known to the handful of colleges and universities that routinely welcome its alums as transfers. Indeed, few if any schools can match its impressive transfer record. Of 14 Deep Springers who—over the last year, for instance, three enrolled at Harvard, one at Yale, two at Brown, one at Cornell and one at Swarthmore.

But among the general public, even in the neighboring communities, Deep Springs remains an enigma. One rumor reportedly floating around the nearby town of Bishop had Deep Springs pegged as a reform school for boys who had killed their mothers. When Nick Gossen applied, his high school counselor was so alarmed—what in the world was this ranch college place?—that she called Nick’s parents.

Eventually, Nick, an accomplished pianist, turned down Harvard and Princeton to come to Deep Springs. And while he misses the cultural opportunities—and no doubt the women—that would have been available to him at a larger institution, he hasn’t regretted his decision.

Neither first-year student Scott Fort, 18. One afternoon this fall, John was working in the garden, rototilling beds in preparation for the annual garlic-planting. Taking a break to munch on a fresh carrot, the lanky, soft-spoken Tennessean talked about his dream of making the college self-sustaining. He’d begun to realize that would take a lot of work, he said, maybe beyond what was possible. “But I’m definitely interested in finding out what that limit is,” he said.

“I think the thing of why I’m out here is to see, you know: How much work can I do? And how much work can I get other people to do? And together, how much can we get done?”

By all accounts, Deep Springs founder L.L. Nunn wasn’t a man given to smiles or compliments. But if he had been in the garden with John that fine fall day, he might well have nodded his approval. ◆

Freelance writer Kathy Witkowski lives in Missoula, Montana.
**A Babel of Standards**

Students face a confusing array of tests and assessments

By Michael W. Kirst

**E D U C AT I O N S TA N D A R D S** have swept across the U.S., engulfing almost every state. Forty-six states have created K–12 academic content standards in most academic subjects, and all but Iowa and Nebraska have statewide K–12 student achievement tests. At the state level, there is progress toward focusing on, and clarifying: 1) what students must be able to know and to do in the K–12 grades, and 2) how to align standards, assessments, textbook selection, and accountability measures at the K–12 level. A gaping hole in this reform strategy, however, is the lack of coherence in content and assessment standards between higher education institutions and systems and K–12 systems.

Unless we close this standards gap and align K–16 policies, students and secondary schools will continue to receive a confusing array of signals and will not be able to prepare adequately for higher education. The current scene is a Babel of standards, rather than a coherent strategy. The roots of this problem go very deep in the history of American education standards policy. The U.S. created two separate mass education systems (K–12 and universities and colleges) that rarely collaborated to establish consistent standards. Often, economically disadvantaged students are overrepresented in non-honors courses and do not receive college admissions-related information from either school or non-school sources. Improving the policy signaling process, and the alignment of K–16 policies, will benefit all students.

Not all countries have a history of such a disconnect between education systems. In England, for example, senior secondary education exams and standards were designed solely to prepare and sort out students for university entrance. Now that England sends about the same percentage to universities as the U.S., this system uses two exams that are designed to align K–16 standards.

We rely on the SAT (Scholastic Assessment Test) and ACT (American College Testing) to provide some uniformity, but neither of these assessments is aligned with the recent upsurge in K–12 standards. The situation is even more disjointed concerning higher education placement tests. In the southeast United States, for example, there are nearly 125 combinations of 75 different placement tests devised by universities with scant regard to secondary school standards. The only nationally aligned K–16 standards effort is the Advanced Placement program—a stalactite that extends from universities, utilizing a common content syllabus and exam.

The result of this confusion is that K–12 and university entrance and placement assessments usually utilize different formats, emphasize different content, and take different amounts of time to complete. For example, Kentucky’s K–12 assessment relies heavily on writing examples, but the SAT and ACT assess writing through multiple choice.

Massachusetts’ state K–12 assessment contains performance items that are dissimilar to the closed-end multiple choice format of SAT and ACT. California’s newly-augmented STAR test includes math that is considerably more advanced and difficult than SAT and ACT. Texas’ K–12 assessment (TAAS), however, does not include sufficient algebra or geometry so it is not as challenging as the SAT.

Some state K–12 assessments permit students to use calculators, but the university placement exams do not. Texas has a statewide postsecondary placement test (TASP), but many Texas universities also use their own placement exams. Interviews with students demonstrate that they have no idea about placement standards. Many state assessments do not go beyond tenth grade and do not test every pupil (they use a matrix sample). Consequently, they do not provide individual scores for use in admissions or placement.

Illinois is implementing an expensive new state test to be given in the 11th and 12th grades, but there are no plans to use it for college admission and placement.

Universities provide some good reasons why they pay little attention to K–12 standards or assessments. Universities emphasize that they were not involved in the process of creating or refining K–12 standards. Moreover, state K–12 standards keep changing because of political or technical problems. The K–12 assessments are not evaluated to see how well they predict freshman grades (although this is not difficult to do). Universities hope that the SAT and ACT will make adjustments to accommodate these new K–12 standards, and feel more comfortable with the two assessments they know and can influence.

These disjunctures will be hard to fix unless there is an institutional center for K–16 reform. Very few states have any policy mechanism that can deal with K–16 standards alignment. As president of the California State Board of Education for several years, I never met with my higher education counterparts.

Higher education coordinating bodies do not include K–16 standards alignment within their purview. In short, there are few regular opportunities for K–12 educators to discuss standards issues with college and university faculty or policymakers. The professional lives of K–12 and higher education proceed in separate orbits.

In some states, the governor’s office is the most logical place to put these fractured standards systems together, but higher education leaders want to guard their political independence from gubernatorial and legislative specification of admissions criteria. Because each state has a distinctive K–12 standards and assessment system, it is not clear what can be done nationally. President Clinton’s advocacy of a national voluntary test has died after protests about states’ rights in education. Perhaps the College Board could assume a leadership role.

Something should be done to assist students, who increasingly are asked to pass a bewildering array of K–12 and higher education tests and assessments that might make some individually, but that do not add up to a coherent whole.

---

**Teacher Education**

The movement from omission to commission

By John L. Goodlad

**T E A C H E R EDUCA T I O N** has been a neglected enterprise suffering increasingly from status deprivation. Some colleges of education found it prudent to downplay their teacher education role in seeking status through identification with the research criteria of the arts and sciences. Many eschewed pre-service, undergraduate teacher preparation entirely in moving exclusively to graduate status.

The top-ranked schools of education in the Carter Report of 1977 prepared only a handful of teachers or none at all. Since each of these is housed in a major, research-oriented university, an observer might conclude that there is no dwelling place for teacher education in the most prestigious institutions of higher education.

My primary assumption in what follows is that higher education has a moral responsibility to provide leadership in ensuring well-educated teachers for the nation’s schools. Deliberately eschewing teacher education rather than elevating it to a position of high priority is, in my book, a mark of shame rather than of prestige.

The absence of teaching as a career choice among freshmen overwhelmingly choosing continued next page
A profound sea-change is becoming apparent. The relatively mild waves of intrusion—requirements mandated by legislatures—that lapped on the shores of academe are picking up into white-capped breakers.

From preceding page

The choices of the past in regard to institutional stance in the domain of teacher education are narrowing down to just three, the options of which is probably untenable: opt out, comply, or assume moral and programmatic leadership.

A National Network of School-University Partnerships

There exists today in the United States a rather unusual educational improvement initiative named the National Network for Educational Renewal (NNER). The NNER’s agenda—the Agenda for Education in a Democracy—guides the efforts of educators in thirty-three colleges and universities and more than one hundred school districts and more than five hundred schools joined in partnership for the simultaneous renewal of schooling and the education of educators. Three of these partnerships educate more than half of the teachers produced in their respective states each year, in programs quite different from those in place just a few years ago.

One of the most remarkable features is that key leaders in these settings made a voluntary choice. The impetus for change was not derived from state mandates with their carrots, sticks and other external prods for change. The settings of the NNER are doing what they are doing for the best of reasons: They want to.

The agenda’s three parts—mission, conditions necessary to the mission, and strategies for implementation—present a daunting challenge.

The four steps of teacher and teacher educators enculturation of the school-age population in a social and political democracy, comprehensive introduction of the young to the human conversation, the exercise of caring pedagogy, and the moral stewardship of schools and teacher education programs. The necessary conditions to be addressed in the normal course of doing business in a relatively well-understood, stable enterprise. It is an agenda of mission in an essentially moral endeavor where there is little present public agreement. It is an agenda to be taken on only after careful deliberation.

To claim victory and task accomplished would be both playing with the truth and a grievous mistake. It must be remembered that this is not the customary agenda of topics or tasks to be addressed in the normal course of doing business in a relatively well-understood, stable enterprise. It is an agenda of mission in an essentially moral endeavor where there is little present public agreement. It is an agenda to be taken on only after careful deliberation.

Lacking the common agenda, it is unlikely that the three long-separated cultures, each with a piece of the curriculum, would have come together in partnership to put the programmatic pieces together in a reasonably coherent mission-driven whole.

To claim victory and task accomplished would be both playing with the truth and a grievous mistake. It must be remembered that this is not the customary agenda of topics or tasks to be addressed in the normal course of doing business in a relatively well-understood, stable enterprise. It is an agenda of mission in an essentially moral endeavor where there is little present public agreement. It is an agenda to be taken on only after careful deliberation. And it is an agenda of symbiotic consequence in that the price of satisfying self-interest is that of satisfying the interests of others.

A Sea-Change in Expectations for Teacher Education

Once upon a time, not long ago, colleges and universities routinely received from the state a set of requirements for the preparation of teachers. These were changed every few years, and each year the legislature mandated additional requirements such as a course in audiovisual education or substance abuse. Accreditation by the National Council for Accreditation of Teacher Education (NCATE) was an option.

The mandates were sufficiently intrusive to create periodic internal ripples on the part of campus committees on teacher education responsible for compliance. However, with the school, college or department of education (SCDE) the designated unit for accountability, campus life was little affected.

Except in those small colleges where the education of teachers represented the major curricular and budgetary commitments, neither the chief academic officers nor the chairs of the arts and sciences departments were very much involved in any of this. And the faculty were in the enviable role of being able to gripe about both the impositions and the “Mickey Mouse” courses perceived to come with them.

A profound sea-change is becoming apparent. The relatively mild waves of intrusion that lapped on the shores of academe are picking up into white-capped breakers. Although the rise has caught the attention of many campus administrators, many faculty members have simply blocked out the noise with earplugs. Disappointing performance by teachers and prospective teachers on tests addressed primarily to the subject matters of general education imply a deeper malaise and a much wider university responsibility.

Troublesome questions arise.

Passive Compliance or Vigorous Leadership?

For most public colleges and universities, opting out of teacher education is not a choice. It is reasonable to envision the board of regents of a state system such as California State University or the State University of New York allocating responsibility to modest but not all of its campuses, given nearby availability of alternatives in some regions served, or providing specialized programs in some but not others.

Given the fact that aspiring teachers come predominantly from nearby constituencies, however, such decisions are sensitive. A legacy handed down from generation to generation that seriously interferes with quality in teacher education is the notion that becoming a teacher is virtually a right and that preparation programs should be handily nearby and minimally demanding.

Positive Compliance or Vigorous Leadership?

The 1996 report of the National Commission on Teaching & America’s Future mapped this terrain, drawing from the work of the Holmes Group, NNER, other improvement ventures, and a body of research sufficient to rule out the need for a new comprehensive study. This report carries with it a rare commodity: the clout of the policy genre joined in agreement with specialists in the field.

The major elements of agreement are rapidly becoming part of the conventional wisdom regarding the improvement of teacher education, although far from such in practice. These include the necessity of school-university partnering, of commitment and involvement as part of the normal activity of the arts and sciences departments, of the need for these schools and the university campus components to renew together—and hence the concept of simultaneous reform guiding the change strategy introduced into the NNER circa 1986 and subsequently adopted by the American Association of Colleges for Teacher Education and the Holmes Partnership.

Not quite as widely articulated is considerable agreement on the need for top-level leadership in both higher education and the N-12 school system to elevate teacher education to a priority.

A profound sea-change is becoming apparent. The relatively mild waves of intrusion that lapped on the shores of academe are picking up into white-capped breakers.

An observer might conclude that there is no dwelling place for teacher education in the most prestigious mansions of higher education.
road of institutional commitment to be fraught with difficulties little envisioned in the recommendations of commissioned reports. The cultural differences between schools and institutions of higher education are such that perhaps talking together about common problems often is taken as a mark of success. When such conversation then leads to serious partnering, the time and effort required to plan and effect simultaneous renewal begins to separate the truly committed from those individuals who find it necessary to effect discrete withdrawal.

Greater involvement in teacher education is readily perceived as one more burden. For many professors in the arts and sciences, the preferred course is to regard participation in the schools and in teacher education as a short-term service contribution before the time consumed is shifted back to the teaching and research in the disciplines that really matter.

Institutional leadership is challenged to maintain a stance of commission rather than the omission that will result in mere compliance with state regulations. The National Commission on Teaching & America’s Future set as a goal a qualified, caring, competent teacher for every child by 2006. Given the membership of the commision, it is difficult to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

Lessons and Implications for Institutional Planning

In the minds of many would-be reformers, teacher education is in the quick-fix category. At a conference of educational leaders several years ago, a state superintendent of public instruction gave the back of his hand to complexity with the proposal that “several of us sit down together over a weekend and come up with a plan for taking care of this teacher education thing.” There are others in positions of power who come close to sharing such a view.

Like it or not, higher education does not enjoy a long time frame for determining its stance, planning a course of action, and taking care of this teacher education thing. There is now some experience from which lessons can be learned and time saved without any loss of individual institutional identity and prerogatives. Thoughtful inquiry into the history of teacher education, its neglect in the emergence of the current era, provides some potentially useful lessons to guide institutions committed to major improvement.

Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.

American university, and the recommendations for major change now gaining attention provide some potentially useful lessons to guide institutions committed to major improvement.

First, continuation of the myopic tendency of colleges and universities to look at only their own role will spell doom. There must be a symbiotic partnership between the two sets of institutions pursuing a common mission with both engaged in renewal.

Second, the time and work involved in creating and maintaining this partnership for simultaneous renewal necessitates a continuous relationship somewhat akin to that between a medical school and a hospital, except that several “teaching” schools are needed.

Third, the more collaborative schools and universities become, and the more they recognize the need to believe collective naivete of such magnitude that its members talked themselves into believing in the attainability of this goal. Rather, it was elevated to the masthead as a challenge to be worked toward.

There are two reasons, both familiar, for institutions of higher education to join with partner schools in picking up the challenge. The first is practical to the point of being efficient. Survival is at stake, as are the conditions of survival. Mere survival, as evidenced by token compliance, is likely to be negatively viewed in states’ fiscal allocations. The second reason is a moral one: Exerting leadership in designing programs that will attract and produce superb teachers for the nation’s schools is simply the right thing to do.
One of the more popular ways to use “paradigm” is to marry it to a common modifier. Congresswoman Ellen Tauscher referred in the Washington Post to “the post-Cold War paradigm.” Maureen Hogan of Columbia University’s Teachers College wrote of “an Internet process-oriented paradigm of teaching and learning.”

There are references to “social theory paradigms,” “a traditional outsourcing paradigm,” “a paradigm process for teaching writing,” a “current-traditional paradigm,” a “deschooling paradigm,” a “results paradigm,” “social theory paradigms,” “the Future Empowerment Paradigm,” “debate paradigms” and, of course, “the American paradigm”—whatever that is.

One policy expert, in recommending courage on the part of education leaders, warned, “I don’t think it’s a consideration to risk that leadership is still trapped in a paradigm which is completely distanced from the American paradigm.”

Mainstream journalism and popularizing the word’s usage is Thomas Kuhn, a physicist and philosopher born in 1922. Kuhn’s most renowned work, “The Structure of Scientific Revolutions,” written while he was a graduate student in theoretical physics at Harvard, was published in book form in 1962. It has since become a central text in the modern philosophy of science, required reading in many college courses. In academia it qualifies as a best-seller, having sold more than a million copies.

Although some criticized him for his imprecise usage of the term, Kuhn made grand use of the word “paradigm,” which he described as essentially a collection of beliefs shared by scientists, a set of agreements about how theories and problems should be understood.

As Kuhn saw it, paradigms are central to scientific inquiry: “No natural history can be interpreted in the absence of at least some implicit body of intertwined theoretical and methodological belief that permits selection, evaluation and criticism,” he wrote.

Kuhn’s basic argument was that scientific advancement is not a steady process. Periods of “normal science,” typified by experimentation and gradual accumulation of information under widely accepted systems of belief, are punctuated by dramatic “paradigm shifts” which occur when the older, prevailing models can no longer adequately explain all the observed facts.

Science, according to Kuhn, is “a series of peaceful interludes punctuated by intellectually violent revolutions—the tradition-shattering complements to the tradition-bound activity of normal science.” After such revolutions, “one conceptual world view is replaced by another.”

For example, as Kuhn employed the term, the change from an Earth-centered to a sun-centered view of the heavens could be described as a paradigm shift. Likewise, following nearly two centuries of widespread acceptance of Newtonian physics, the revolutionary revision in the understanding of space and time offered by Einstein at the beginning of the 20th century could be seen as a new paradigm.

Ironically, it was not Kuhn’s premise, but his application of the word “paradigm” that generated the most controversy, and elevated his work to pop status. “Though one can question the extent to which Kuhn’s cyclic theory of scientific revolution fits what we know of the history of science, in itself this theory would not be very disturbing, nor would it have made Kuhn’s name more than a nameless physicist,” wrote Steven Weinberg, a professor of physics at the University of Texas at Austin, in a recent article for The New York Times. “For many people, it is Kuhn’s re-invention of the word ‘paradigm’ that has been either most useful or most objectionable.”

Weinberg went on to suggest that this linguistic quarrel was unimportant. But for editors, who have encountered the word so many times they roll their eyes at its mere mention, and for language purists, it has become something of a cause.

An article of Educational Researcher warned of “paradigm proliferation,” and asked, “What’s a journal editor to do?”

“Paradigm” is everywhere. Even the most glancing search of the Internet, especially one concentrating on sites catering to higher education types, reveals how frequently the word is being used. Scores of instances appear readily, with some writers invoking it ten or more times in the space of a few paragraphs.

Under Kuhn’s definition of the term, paradigm shifts are extremely rare. Today, however, it seems that someone is claiming the dawn of a new paradigm every 20 minutes.

One can hope that, like styles of dress, the popularity of trendy words waxes and wanes with the passage of time, and that “paradigm” will prove to be no exception.

Perhaps the cyclical popularity of diet fads—first high protein, then low protein, then no protein, and so on—is a good example. While each may have a kernel of validity amidst its overloaded catchphrases, in the end they tend to work best only when used in moderation.

Moderation. This could be the beginning of a whole new paradigm. ♦

Todd Sells has come face-to-face with the “paradigm” problem many times as an editor and production manager for this publication.

BERKELEY-NOVARTIS

continued from page 1

“Now we can tell grad students and post-docs that we can think longer term and say ‘here’s the direction’ and we’re going to go!” said Peggy Lemaux, a member of Buchanan’s department. An expert on using genomics to improve wheat and corn production, Lemaux received a $150,000 grant from Novartis this year. “Now we have the opportunity to say we’d like to try this sort of bare-brained scheme, because the university sees you have a track record of producing,” she said.

“Under the federal system, the project virtually has to be done before you can apply for money.”

The arrangement also differs from far more typical contracts with private companies, in which individuals or small groups of faculty do specified research that might entail confidentiality and the sponsor’s exclusive rights to findings.

The Berkeley agreement has inspired other major American research universities to seek similar agreements with industry. Dean Gordon Rausser, of the Berkeley College of Natural Resources, who directed the successful negotiations, said he personally knows of at least three such efforts.

Rausser said the alliance provides “a network of resources for our infrastructure and graduate programs.”

Many agree with Rausser. “This is a brilliantly conceptualized model for virtually every institution in the country,” said Louis Berneman, managing director of the Center for Technology Transfers at the University of Pennsylvania and president of the Association of University Technical Managers. “It preserves academic freedom (but) allows knowledge created responsibly to be applied for the public good from the laboratory to the market place.”

The pact provides that Novartis has the right to submit the first bid on faculty discoveries sponsored by it or by government agencies, up to the proportion of its support for department research—about one-third of the total.

Novartis’ new partner—Berkeley’s Department of Plant and Microbial Biology—is regarded by peer as one of the best in the world. For instance, Buchanan and others in his laboratory have discovered a way to exploit a naturally occurring protein, called thioeductin, to make proteins, such as those found in wheat and milk, more digestible and less allergenic.

Eleven members of his department have internationally known research programs in biotechnology, and the faculty includes some of the world’s leading experts on plants and microbes. Their
That gets to the heart of the objections, according to Robert C. Spear, chairman of the Academic Senate and director of the Center for Occupational and Environmental Health in the School of Public Health.

Spear is “ambivalent” about the agreement but said “there are faculty members within the college who feel that they’re not a part of this and don’t want to be part of the contract,” adding that “there’s a sense of it just because of the way the agreement was concluded. I think they’re worried about guilt by association in a way, because this agreement was entered into without their consent. That’s what bothers people.”

“We’re not in our public university, a professor’s ability to attract private investment will be more important than academic qualifications, taking away the incentives for scientists to be socially responsible,” two of Chapela’s department colleagues, Associate Professor Miguel A. Altieri and Professor Andrew Paul Gutierrez, wrote in a letter published in the UC Berkeley alumni magazine California last summer.

Altieri said in an interview that he spent the last two decades “trying to make a cultural system efficient enough to deal with natural enemies that cannot be captured by corporations, so that farmers don’t need to buy their pesticides.” But Berkeley lost support for such efforts eight years ago when it eliminated its division of biological control, which had concentrated on such goals.

“For more than 40 years we trained leaders in the world about biological control…A whole theory was established here, because pesticides cause major environmental problems,” Altieri said. “They lose their impact, and the cost of human poisoning of farm workers in California and worldwide is alarming.”

Altieri says angrily that the leadership at Berkeley headed in the wrong direction, where they “are a part of this green-altering research, while his and all colleagues’ research has received no such support.” Who are they to decide for the university?” he asked. “This is a public university. We have social responsibilities to the state. Who gave the right to a group of professors and deans to do this deal, when it’s supposed to be a public university with faculty governance?”

Donald T. Kaplan, a professor of plant biology who is in his 35th year at Berkeley, agrees with Altieri. Kaplan is one of the two department faculty members who refused to sign an agreement with Novartis, saying that the deal “drives a further wedge between research and teaching…The university no longer is an independent force. Its research is done as a tool for industry.”

Chancellor Berdahl believes there is no alternative to accepting research support from private sources, something that has in fact been happening for decades. The Novartis agreement is different only in that it was negotiated with an entire academic department rather than with an individual, he said. The chancellor contended that the university cannot depend solely on publicly-funded research, although “our public interest has to be of paramount concern to us.”

The Novartis contract has its roots in earlier efforts at Berkeley, plus a steadily growing commitment among firms to sponsor university research. Nationally, industrial support reached $1.8 billion in 1998, a 33 percent increase in five years, and double the amount spent a decade ago. Last year, industry support repre...
I C E

[Image 22x568 to 175x749]

Page 16

C R O S S

worries about pressures the agreement of the UC Berkeley Academic Senate, number of patents produced and in patent Novartis agreement.

Donald R. Danforth Plant Sciences Center headquartered in St. Louis, provides grants to publish results.


institutions preceded the Berkeley-awards are based “more on scientific merit s u e s,” according to Andrew Neighbour, the Washington University technology planning board to develop strategies for stable long-term arrangements with corporations for technology transfers in biotechnology. The model provided for undesignated research support in return for the first right to negotiate for a fixed percentage of patentable discoveries.

Tien, a professor of mechanical engineering, had watched nearby Stanford University flourish with such arrangements involving computer and related technologies that helped create Silicon Valley. He also had watched UC Berkeley faculty and graduates help establish some of the world’s leading biotech firms, such as Genentech and Chiron. So Tien and his advisors anticipated that medical and cell biologists would provide Berkeley’s first model of corporate interest, because it would have a large pharmaceutical firm through and five years passed before the plan was used successfully by Dean Rausser and the Department of Plant and Microbial Biology.

The Monsanto Company has been providing varying amounts, currently about $5 million a year, for biomedical research at the Washington University of St. Louis medical school since 1982. The company, headquartered in St. Louis, provides grants through a committee composed of three Washington University faculty members and two Monsanto employees, and the awards are based “more on scientific merit than on industrial relevance or market issues,” according to Andrew Neighbour, associate vice chancellor for technological management. “It’s a valuable program, and both parties are delighted with it,” he said. Monsanto has the right to first bid on research it has funded, but all Monsanto-sponsored research is subject to campus patents, and faculty investigators are free to publish results.

An outgrowth of the long-standing ties, Neighbour said, has been the non-profit Donald R. Danforth Plant Sciences Center in St. Louis, involving Monsanto, Washington-ton and Purdue universities, and the University of Illinois.

A decade later, Scripps Research Institute (SRI), which is not affiliated with any university, agreed to terms with San- doz, a pharmaceutical company that subsequently merged with another firm to become Novartis, for $30 million a year in exchange for the right to first bid on all biomedical research findings. The National Institutes of Health entered because it did not want a single private company to monopolize the research of a major center that receives NIH funding. As a result, the agreement was amended to limit Sandoz to 39 percent instead of 100 percent, and funding was reduced to $20 million annually, about ten percent of SRI’s budget.

Grants are unrestricted, and one of the benefits has been to recruit new scientists, including beginners, SRI officials said. “At no time can Sandoz tell us what research to do or to do or prevent us from publication,” said Arnold LaGuardia, SRI’s senior vice president. “We preserved academic freedom with unrestricted money.”

Shortly after the SRI agreement was signed, former Berkeley Chancellor Chang-Lin Tien established a biotechology planning board to develop strategies for stable long-term arrangements with corporations for technology transfers in biotechnology. The model provided for undesignated research support in return for the first right to negotiate for a fixed percentage of patentable discoveries.

Tien, a professor of mechanical engineering, had watched nearby Stanford University flourish with such arrangements involving computer and related technologies that helped create Silicon Valley. He also had watched UC Berkeley faculty and graduates help establish some of the world’s leading biotech firms, such as Genentech and Chiron. So Tien and his advisors anticipated that medical and cell biologists would provide Berkeley’s first model of corporate interest, because it would have a large pharmaceutical firm through and five years passed before the plan was used successfully by Dean Rausser and the Department of Plant and Microbial Biology.

The Novartis agreement caused no stir among members of the UC Board of Regents, according to Bill Bagley, a former state legislator and a regent for the past decade. In fact, Bagley could recall no board discussions on such issues, and he regards increases in industrial support as inevitable. “Forty years ago the state covered 60 percent of the operating budget,” he recalled. “It’s been going down steadily, so it’s no longer a state university but a state-subsidized one.”

Clark Kerr, a former UC president and Berkeley chancellor, said agreements such as this require “supervision—an individual faculty member’s right to get his money and isn’t concerned with all the repercus- sions about what he’s doing. So you can’t leave it up to the individual research-er.”

The contract illustrates Dean Rausser’s vision of a successful research university: one surrounded by a cluster of industries feeding on “usable research” produced on the campus. The path from innovation to the marketplace travels full circle, he told a national meeting of fellow agricultural econom-ists in August, because the industries hire the graduates, enriching the campus with patent royalties, and helping to make the campus attractive to the best faculty and students.

“Without proper policy design and implementation, universities could become pawns of powerful private interests,” Rausser said. But he believes universities must help spawn commercial applications, because the lines between pure and applied research have faded.

“When now that a number of companies have moved forcefully into long-term research and development in the field of life science, their planning horizons have become more aligned with those of research universities,” Rausser said. “If it were not for public/private research partnerships, it is unclear when or if critical technologies such as lasers, protease inhibitors and bioengineering would have made their way into the marketplace...Now, if over time there is a drift away from faculty exercising their best judgment, and their judgment (is) being influenced by the incentives that exist with regard to commercialization, then it’s a failure.”

This prospect nags at Robert Spear, Berkeley’s Academic Senate chairman, who has no doubt that Novartis will influence research in the Department of Plant and Microbial Biology. “The question is: How pervasive is it? The agreement permits Novartis first bid on about a third of the research results. That’s clearly a big chunk.”

Spear expects that new faculty in the department will be under pressure to join in the Novartis contract. But Rausser says that, in fact, two newly hired professors in the department this year declined to be- come part of the alliance at this point. The department was able to hire them because of the overhead funding that came with the contract, he said.

Yet there is that permanent “philoso- phical crevasse,” in Spear’s words, within the College of Natural Resources, between those who favor gene engineering and those who talk of sustainable agriculture through biological control.

The dean is all too aware that such differences won’t end any time soon. During a ceremony in which he publicly announced the Novartis agreement last fall, he spotted a pie sailing toward his head and had to call on his experience as a teenage boxer. Rausser, who had been a welter- weight Golden Gloves title holder, ducked just in time, and the missile splattered harmlessly on a blackboard behind him, only briefly interrupting proceedings. Although the incident involved off-campus demonstrators, it could not have surprised many administrators or faculty.

Carl Irving is a freelance writer who lives in the San Francisco Bay area.——VICE CHANCELLOR

PROVOST CAROL T. CHRIST

“Proponents argue it’s a carefully prepared agreement, an appropriate way to respond to changing conditions of the biotech industry and the changing face of university research.”

Department of Plant and Microbial Biology.

The department sought industrial sup-port, Rausser and Buchanan said, because private spending for food and agricultural research tripled between 1960 and the 1990s, while federal and state support de-clined. By the ’90s support for such studies had dropped to less than two percent of the annual federal research budget.

Rausser led the search for a contract by turning traditional university-industry ne-gotiations upside down. Ordinary campuses and their faculties seek research support by writing requests and then waiting passively for research proposals from government agencies or industries. But Rausser drew up a plan based on the Tien group’s design and called for competing bids. “Contrary to prior practice,” Rausser said, “the alliance was structured by Berkeley, and the corporate candidates were asked to compete among each other to meet its conditions.”

After interviewing a number of inter-ested representatives, the deans asked five firms to submit proposals, and three re-sponded:Monsanto, Novartis, and a part-nership between DuPont and Pioneer Hi-Bred. Assurance of academic freedom, faculty ownership of discoveries and No-vartis’s “adherence to university profes-sional standards” were key points that its offer was accepted after lengthy negoti-ations, Rausser said.

Administrators held 28 meetings with scientists and Novartis officials before the contract signing. “One wonders if as much thought went into the Magna Carta, let alone the Declaration of Independence,” Buchanan said.

The Novartis agreement caused no stir among members of the UC Board of Regents, according to Bill Bagley, a former state legislator and a regent for the past decade. In fact, Bagley could recall no board discussions on such issues, and he regards increases in industrial support as inevitable. “Forty years ago the state covered 60 percent of the operating budget,” he recalled. “It’s been going down steadily, so it’s no longer a state university but a state-subsidized one.”

Clark Kerr, a former UC president and Berkeley chancellor, said agreements such as this require “supervision—an individual faculty member’s right to get his money and isn’t concerned with all the repercus- sions about what he’s doing. So you can’t leave it up to the individual research-er.”

The contract illustrates Dean Rausser’s vision of a successful research university: one surrounded by a cluster of industries feeding on “usable research” produced on the campus. The path from innovation to the marketplace travels full circle, he told a national meeting of fellow agricultural econom-ists in August, because the industries hire the graduates, enriching the campus with patent royalties, and helping to make the campus attractive to the best faculty and students.

“Without proper policy design and implementation, universities could become pawns of powerful private interests,” Rausser said. But he believes universities must help spawn commercial applications, because the lines between pure and applied research have faded.

“When now that a number of companies have moved forcefully into long-term research and development in the field of life science, their planning horizons have become more aligned with those of research universities,” Rausser said. “If it were not for public/private research partnerships, it is unclear when or if critical technologies such as lasers, protease inhibitors and bioengineering would have made their way into the marketplace...Now, if over time there is a drift away from faculty exercising their best judgment, and their judgment (is) being influenced by the incentives that exist with regard to commercialization, then it’s a failure.”

This prospect nags at Robert Spear, Berkeley’s Academic Senate chairman, who has no doubt that Novartis will influence research in the Department of Plant and Microbial Biology. “The question is: How pervasive is it? The agreement permits Novartis first bid on about a third of the research results. That’s clearly a big chunk.”

Spear expects that new faculty in the department will be under pressure to join in the Novartis contract. But Rausser says that, in fact, two newly hired professors in the department this year declined to be- come part of the alliance at this point. The department was able to hire them because of the overhead funding that came with the contract, he said.

Yet there is that permanent “philoso- phical crevasse,” in Spear’s words, within the College of Natural Resources, between those who favor gene engineering and those who talk of sustainable agriculture through biological control.

The dean is all too aware that such differences won’t end any time soon. During a ceremony in which he publicly announced the Novartis agreement last fall, he spotted a pie sailing toward his head and had to call on his experience as a teenage boxer. Rausser, who had been a welter- weight Golden Gloves title holder, ducked just in time, and the missile splattered harmlessly on a blackboard behind him, only briefly interrupting proceedings. Although the incident involved off-campus demonstrators, it could not have surprised many administrators or faculty.

Carl Irving is a freelance writer who lives in the San Francisco Bay area.