

CONNECTION

NEW ENGLAND'S JOURNAL

OF HIGHER EDUCATION AND ECONOMIC DEVELOPMENT

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Technology Commercialization
Research for the Community



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The New England Board of Higher Education is a nonprofit, congressionally authorized, interstate agency whose mission is to foster cooperation and the efficient use of resources among New England's approximately 280 colleges and universities. NEBHE was established by the New England Higher Education Compact, a 1955 agreement among the states of Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. NEBHE operates a variety of programs for New England students, including the tuition-saving Regional Student Program, and advances regional discussion of critical issues through a conference series and the quarterly journal, CONNECTION.

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EDITOR'S MEMO

Saint Michael's College is a sort of pioneer in encouraging students to do something for the poor instead of the beer companies during spring break. For 16 years, the college has been arranging for students to travel to various sites to serve the needy during the March vacation. This past spring, more than 100 Saint Michael's students worked with homeless people in Hartford, Conn., and AIDS patients in New York City, replanted indigenous plants at the Grand Canyon and built a home in Minneapolis through Habitat for Humanity.

Such service initiatives are increasingly common. As part of an honors course called Grass-Roots Community Development, about 100 University of Massachusetts Amherst students performed emergency home repairs and other services for needy people in nearby Holyoke, Mass., and in rural Virginia.

This fall, the University of Vermont goes a step farther, providing AmeriCorps*VISTA volunteers with the opportunity to provide service to Vermont communities and earn up to nine undergraduate or graduate credits for structured reflection on their experience. The so-called VISTA scholars will attend UVM workshops, create portfolios and work with faculty advisors during residency weekends on campus.

The service programs create unexpected spinoffs. Several Saint Michael's students who spent spring break working at a Florida camp serving migrant farm workers were invited by the camp operator to return as teachers in the summer. Three Fairfield University students who spent spring break conducting research in Nicaragua decided to return on their own in June to build houses for people whose homes were destroyed by Hurricane Mitch.

Service programs also teach unexpected lessons. One group of Saint Michael's students who spent spring break working with AIDS patients in Haiti reported back to the Saint Michael's board of trustees that it seemed unfair for them to do the work when jobs are so scarce for Haitian nationals.

Then there is the touchy question among academics of whether a week of grueling work in a Hartford soup kitchen is worthy of academic credit. At Saint Michael's, which does not award credit for the programs, President Marc A. vanderHeyden says it's more important that the service experience inform a student's regular coursework: "I'd like to see a history major who spends the spring working with homeless people in Hartford go back to classes and write a paper on homelessness in ancient Venice—to connect the experience with what he's into anyway," says vanderHeyden.

Now, some of the region's research-based programs are harnessing the creativity and practical good sense of service-oriented learning. The Cover Stories in this issue of CONNECTION recount, in particular, how two distinctly different New England institutions—the University of Rhode Island and Bates College—are encouraging students to apply their research in the public interest. It's a case of student activism meets experiential learning meets resume-building. As Bates College President Donald Harward says of the college's applied research in Lewiston and Auburn, Maine: "Bates is able to enhance hands-on learning while addressing community needs."

Our Cover Stories also offer a look at the changing world of knowledge applied in the *private* interest—replete with issues of patents, licenses, incubators, venture capital and, yes, conflicts of interest.

Just as we went to press, two things happened that seemed to reaffirm the timeliness of this exploration. First, Harvard launched its new Research Matters website to show how its scientific research affects people's lives. Then, the industry-sponsored Business Higher Education Forum issued a major study of university-industry collaborations that was quickly assailed for glossing over the ethical snares presented by corporatized academic research. These issues will bear watching, for in New England, *knowledge matters*, especially when it's applied—and applied generously.

John O. Harney is executive editor of CONNECTION.

Raising Pell

In March, Democrats in the U.S. House proposed raising the maximum Pell Grant for needy students to \$6,000 in fiscal 2002, up from the current \$3,750. The maximum grant would grow another \$500 in each of the following two years to a total of \$7,000 in fiscal 2004.

But President Bush's budget for fiscal 2002 would increase the maximum Pell by only \$100 to \$3,850.

Bush proposed raising funding for TRIO programs for disadvantaged students by \$50 million to \$780 million, but slashing \$68 million from the GEAR UP initiative that helps middle-school students prepare for college. Current funding allows only 5 percent of eligible students to be served by TRIO, according to the National Alliance for Equity in Higher Education.

Bush proposed no additional funds for campus-based, federal student-aid programs, including College Work-Study, Supplemental Educational Opportunity Grants and Perkins Loans.

Bush's budget would raise student-loan forgiveness limits to \$17,500, from \$5,000, for math and science majors who teach those subjects for five years in schools with large numbers of disadvantaged students. The budget encourages greater college savings by raising to \$5,000, from \$500, the annual cap on contributions to tax-free education savings accounts.

On the research front, Bush would increase funding for the National Institutes of Health by 14 percent over fiscal 2001. But funding for NASA and the National Science Foundation would not keep pace with inflation.

A House Science Committee Democratic staff memo critiquing the Bush budget pointed out a new fissure in research politics, warning that "the existing imbalance between biomedical R&D and R&D in the physical sciences has become much more pronounced."

The War on Poor Students

One of the more controversial provisions of the federal Higher Education Act of 1998 denies federal financial aid to students convicted of drug offenses.

Under the HEA Drug Provision, which took effect last July, about 8,000 students were denied aid for 2000-01. An estimated 280,000 students left the question on the federal aid application about drug convictions blank and were not denied aid. But this year, the Education Department warns students explicitly not to leave the question blank.

Like earlier rules that hinge financial aid on Selective Service registration, the drug provision targets students who can't afford to attend college without financial aid but ignores higher-income students who may use or sell drugs or neglect to register for selective service.

U.S. Rep. Barney Frank of Massachusetts has co-sponsored legislation to repeal the provision. "Someone who commits murder or armed robbery is not automatically barred from financial aid eligibility," Frank noted, "but if you have even one nonviolent drug conviction you can't get any aid for a year, with longer bans for people with additional convictions."

Frank added that it may make sense to bar aid for major drug dealers but not

for less severe offenders and students who are rehabilitating themselves.

In 1999, Hampshire College became the first college to institute a loan program to permit students affected by the provision to borrow funds directly from Hampshire.

"Education is the best antidote we have to most of our social ills," said Hampshire President Gregory S. Prince Jr. "Why would we want to exclude people from the educational stream when trying to keep them in the stream is one of the most important things we can do?"

Ombudsman

The University of Massachusetts Lowell's creation early this year of the new position of ombudsman reveals just how complex the business of handling complaints involving race or other conflicts on campus can get. UMass Lowell's administration newspaper, *The Shuttle*, noted, "In the past, there were limited routes to the solution of such problems. You could go to

Snippets

"Higher education remains very vulnerable ... and when the present boom economy begins to slow, the double-digit tuition increases of the past could well return."

—*Introduction to January 2001 Institute for Higher Education Policy working paper titled "Looking Back, Going Forward: The Carnegie Commission on Tuition."*

"Although their revenue sources differ, all sectors in higher education will probably take a significant hit in a prolonged recession."

—*Macalester College President Michael S. McPherson and Williams College President Morton Owen Schapiro, writing in The Chronicle of Higher Education.*

"String Theorists for a Living Wage."

—*Sign seen during spring demonstrations by Harvard University students demanding a mandatory minimum wage of \$10.25 for all Harvard workers and contractors.*

"They've gotten more attention because, for the most part, the students at Harvard are white, wealthy and prestigious. Over here, we're mostly working class and black."

—*Northeastern University student Justin Brown quoted in the weekly Boston Phoenix on why the Harvard protesters got more media attention than their Northeastern counterparts who staged a sit-in to protest the university's plans to relocate the John D. O'Bryant African-American Institute.*

the Affirmative Action office, or to a dean, or the provost, or possibly the campus police. But you knew that, in doing so, you were starting down a slippery slope; that once the process was started—once the university was officially involved—it would be hard to slow it down.” And that’s from the university news office!

Meanwhile, a 1999 Survey on Racial Understanding at Rhode Island College found that 70 percent of students did not know where to report racial incidents on campus.

Clarification:

The “Selected Websites” in the Winter 2001 issue of CONNECTION contained an incorrect URL for the Vermont Department of Economic Development. The correct URL is <http://thinkvermont.com>. The URL listed [www.det.state.vt.us] is the Vermont Department of Employment & Training.

Words of Wisdom

We need you to formulate and implement the next Marshall Plan, the next G.I. Bill, the next Civil Rights Act. We need your commitment to find a cure for AIDS, breast cancer and Alzheimer’s. And we need your vision and courage to confront the threat of global warming.

That modest plea delivered by U.S. Sen. **Joseph I. Lieberman** to graduates at Trinity College’s 175th commencement in May was hardly the only invitation to greatness in this season of sage advice (though **President Bush** used the occasion of Yale’s commencement to joke about his bad grades at the college).

Following is a sampling of other spring 2001 commencement speakers at New England campuses:

- U.S. Secretary of Education **Rod Paige**, *University of Connecticut*
- Former U.S. Attorney General **Janet Reno**, *UMass Dartmouth*
- Former U.S. Secretary of State **Madeleine Albright**, *Brown University*
- Former U.S. Sen. **Bill Bradley**, *New England Institute of Technology*
- Former Texas Gov. **Ann Richards**, *Lasell College*
- Puerto Rico Gov. **Sila Calderón**, *Boston University*
- Former Rwandan Assembly Speaker **Joseph Sebarenzi**, *Marlboro College*
- Former NAACP Chair **Myrlie Evers-Williams**, *Simmons College*
- Rock star **Bono** of U2, *Harvard University*
- Mister Rogers creator **Fred Rogers**, *Middlebury College*
- Educator **Guadalupe Quintanilla**, *University of New Hampshire at Manchester*
- Composer **John Corigliano**, *New England Conservatory*
- Actor **Kelsey Grammer** and Monster.com CEO **Jeff Taylor**, *UMass Amherst*
- Journalist **Juan Williams**, *Bryant College*
- Journalist **Gwen Ifill**, *University of New Hampshire*
- Journalist and author **Edward Humes**, *Hampshire College*

New England’s Clout in Washington

CONNECTION recently conducted an informal analysis of New England’s representation on some national education-related boards and legislative committees. Findings:

Organization	Body	Total Members	Representatives of New England Institutions	%
U.S. Senate Committee on Health, Education, Labor and Pensions		20	6	30%
The College Board	Board of Trustees	30	5	17%
Educause	Board of Directors	13	2	15%
Assn. of Telecommunications Professionals in Higher Education	Board of Directors	9	1	11%
New England higher education institutions as a share of U.S. total				7%
Council of Independent Colleges	Board of Directors	32	2	6%
American Association for Community Colleges	Board of Directors	32	2	6%
American Association for Higher Education	Board of Directors	20	1	5%
Association of American Colleges and Universities	Board of Directors	22	1	5%
Association of Governing Boards of Universities and Colleges	Board of Directors	22	1	5%
U.S. House Committee on Science		47	2	4%
American Council on Education	Board of Directors	24	1	4%
U.S. House Committee on Education and the Workforce		49	1	2%
National Association of State Universities and Land-Grant Colleges	Board of Directors	28	0	0%
Council of Graduate Schools	Board of Directors	13	0	0%
AGB Center for Public Higher Ed. Trusteeship and Governance	Advisory Council	23	0	0%

Former U.S. Congressman Robert A. Weygand Named President of New England Board of Higher Education

Community College President Carole Cowan Elected Chair

The New England Board of Higher Education (NEBHE) named former U.S. Congressman Robert A. Weygand of Rhode Island to be the next president and CEO of the nonprofit, six-state education agency, effective July 1, 2001.

The 48-member board of the regional higher education agency approved Weygand's appointment in May during its annual spring board meeting at the Endicott House in Dedham, Mass. The board is comprised of distinguished academics, business leaders and elected officials from Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island and Vermont.

Weygand succeeds John C. Hoy, who is stepping down after 23 years in charge of the six-state organization.

A landscape architect by training, Weygand earned degrees from the University of Rhode Island in 1971 and 1976 and served on a variety of public boards before being elected to the Rhode Island Assembly in 1984. He served as a state representative from East Providence from 1985 to 1993 and then as Rhode Island's lieutenant governor from 1993 to 1997.

In 1996, Weygand was elected to the U.S. House of Representatives where he served two terms and was a member of the House Budget Committee and the House Banking and Financial Services Committee.

"Bob Weygand fulfills NEBHE's leadership needs in that he is skilled in state and federal education policy formation and persuasive and energetic in policy implementation," said former New Hampshire state Rep.



Weygand: *persuasive and energetic.*

William Belvin, who chaired the NEBHE Presidential Search Committee. Weygand was chosen after a national search that attracted roughly 100 candidates from the education, business and government sectors.

NEBHE was established in 1955 by a congressionally authorized, interstate compact designed to encourage cooperation among New England colleges and universities, which now number nearly 280. NEBHE programs focus on the relationship between New England higher education and regional economic development.

Hoy became president in 1978 and served in the position longer than any previous NEBHE chief executive. Raised in Yonkers, N.Y., the son of a sheriff, Hoy graduated from Wesleyan University and went on to serve there as dean for special academic affairs, dean of admissions and freshmen, and assistant to the president. He also served stints as director of admissions at Lake Forest College and as the first dean of admissions at Swarthmore College. From 1969 to 1978, he was vice chancellor for university and student affairs at the University of California, Irvine.

In the 1980s, under Hoy's leadership, NEBHE commissioned benchmark stud-



Cowan: *led college through tough times.*

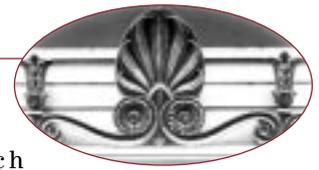
ies on New England economic issues ranging from the promise of then-emerging industries such as biotechnology to the underrepresentation of minorities in New England higher education and the workforce. Many of these reports led to action-oriented NEBHE initiatives in the 1990s.

Cowan Elected Chair

NEBHE elected Middlesex Community College President Carole A. Cowan to be its next chair, beginning in spring 2002.

Prior to becoming Middlesex Community College president in 1990, Cowan served for two years as the college's dean of administration and finance. She was chair of the business division from 1979 to 1988 and a full-time faculty member in the business division from 1976 to 1979.

Established in 1969, Middlesex Community College is the largest community college in the Commonwealth of Massachusetts, enrolling more than 7,200 full- and part-time students. Under Cowan's leadership, Middlesex weathered severe budget cuts while securing permanent campuses in Bedford and Lowell, Mass. The college has established partnerships in 27 countries and become a key player in



education reform and workforce development at home.

Cowan earned her bachelor's and master's degrees from Salem State College, a certificate of advanced graduate study from the former Boston State College and her doctorate in higher education administration from the University of Massachusetts Amherst.

Cowan will succeed Vermont state Sen. Nancy I. Chard. Other NEBHE chairs have included: former New Hampshire Gov. Walter Peterson, former University of Maine System Chancellor Robert L. Woodbury and the late Tufts University President Jean Mayer.

A Telecom Alliance

Telecommunications technologies are transforming higher education and the nonprofit sector, but many organizations have a tough time accessing reliable information on cost-effective telecommunications options and solutions.

Now, NEBHE has joined with three other regional education agencies to address the problem. The organizations recently launched a national alliance designed to provide schools, colleges, state agencies, libraries and other nonprofit groups with low-cost access to quality telecommunications programs and to provide leadership in creating technology policies and standards.

The American TelEdCommunications Alliance (ATAlliance) was formed by a groundbreaking agreement among the nation's four regional educational compacts: NEBHE, the Midwestern Higher Education Commission (MHEC); the Southern Regional Education Board (SREB); and the Western Interstate Commission for Higher Education (WICHE) along with MiCTA, a national telecommunications association of more than 12,000 nonprofit organizations. The presidents of the five organizations will serve as founding members of the ATAlliance board.

"The new partnership makes it possible for any New England nonprofit organization to take advantage of the collective purchasing power of the ATAlliance and its negotiating power in bringing the highest level of telecommunications technologies to New England

institutions at the lowest cost," said NEBHE President John C. Hoy.

The ATAlliance will accomplish its goals in several ways:

- Through the ATAlliance, education organizations will be able to make telecommunications purchases at lower costs.
- ATAlliance members will receive up-to-date information on quality telecommunications services.
- Colleges, schools, state agencies and libraries will have access to better and faster solutions to telecommunications problems.

During 2001, the ATAlliance plans to issue RFPs for the best services available in Web and application hosting, alternatives to local phone service providers and network hardware vendors.

Colleges and universities, schools, state agencies, libraries and other nonprofit organizations may participate in ATAlliance contracts and programs for an annual membership fee of \$75.

NEBHE's ATAlliance website can be found at www.nebhe.org/alliance/NewEnglandATAAlliance.html. Information about the ATAlliance is also available on the national website at www.ATAlliance.org.

Seeing the Light

One of the cutting-edge fields fueling New England's Information Economy is photonics—the generation, manipulation, transport, detection and use of light energy. In the same way that electronics was critical in 20th century technological advances, optics will play a profound role in the 21st century. Mass-produced semiconductor chips are manufactured using optical lithography. Lasers are increasingly used to replace traditional surgery. And fiber optics has transformed the telecommunications industry.

About 350,000 photonics technicians were employed in the United States in 1994 and the number was expected to exceed 740,000 this year, according to the Center for Occupational Research and Development. Another study conducted by the University of Connecticut

Photonics
Research

Center reveals that five of the six New England states rank among the top 10 in photonics firms per 100,000 populations. (The only exception was Maine.) Economists at a recent meeting of the New England Economic Project spoke of an "optical valley" developing in Boston's northern suburbs and southern New Hampshire, comprised of optics companies such as Stocker Yale.

Yet just three New England community-technical colleges currently train technicians at the associate degree level, and these programs graduate fewer than 30 technicians a year.

Last summer, NEBHE received a \$490,000 grant from the National Science Foundation to train New England middle-school, secondary-school and postsecondary educators and career counselors to introduce photonics education into the classroom.

The two-and-a-half year PHOTON project, under the direction of Judy Donnelly, a physics professor at Three Rivers Community College in Norwich, Conn., features a series of professional development workshops designed to establish a foundation for introducing basic optics and laser principles into existing educational programs. Three Rivers offers Connecticut's only photonics engineering technology associate degree program.

In the first year of the program, PHOTON workshops will give participants in-depth theoretical and hands-on instruction in basic optics and laser principles along with applications tailored to appropriate educational levels. Educators will receive a comprehensive optics laboratory kit to use in demonstrating laser technology principles at their home institutions. The workshops will also include tours of local photonics industry sites.

During the following academic year, participants will receive technical assistance to implement new curricula. A final two-day workshop allows participants to share implementation models and strategies. ■

Knowledge Applied



New England university research is famous for creating lifesaving medical breakthroughs, new super-strong materials and pollution-fighting environmental technologies. The region's university research labs also spawn new companies—sometimes whole new industries—while providing hands-on learning opportunities for undergraduate and graduate students.

Indeed, New England colleges and universities conducted more than \$2 billion in academic research and development (R&D) in 1999 and continued to lead the nation in university R&D expenditures *per capita* at \$160, compared with \$102 nationally, according to a New England Board of Higher Education analysis of National Science Foundation data.

But New England's share of all R&D expenditures by U.S. universities slid from over 10 percent in 1983 to 7.9 percent in 1999. Had New England maintained the 10 percent share of total university research and development expenditures it had in the 1980s, more than \$1 billion in additional R&D funds would have flowed into the six-state region in the past three years.

Change in Research and Development Expenditures at New England's Top 25 Research Institutions, 1990-1999

U.S. RANK	INSTITUTION	1990	1999	Percentage Change 1990-1999
9	Massachusetts Institute of Technology *	\$311,767,000	\$420,306,000	35%
18	Harvard University	220,812,000	326,193,000	48%
27	Yale University	180,706,000	274,050,000	52%
70	Boston University	73,651,000	141,102,000	92%
74	University of Connecticut	117,932,000	134,986,000	14%
91	Tufts University	47,009,000	101,728,000	116%
100	University of Massachusetts Amherst	**	86,576,000	**
103	University of Massachusetts Worcester	**	83,040,000	**
109	Brown University	46,763,000	76,330,000	63%
112	Woods Hole Oceanographic Institution	71,747,000	71,722,000	0%
113	Dartmouth College	43,737,000	69,522,000	59%
117	University of Vermont	45,162,000	64,049,000	42%
124	University of New Hampshire	25,994,000	57,613,000	122%
131	Brandeis University	30,881,000	48,305,000	56%
136	University of Rhode Island	35,846,000	44,452,000	24%
140	University of Maine	23,605,000	41,452,000	76%
158	Northeastern University	14,347,000	30,209,000	111%
186	Boston College	8,052,000	21,726,000	170%
195	University of Massachusetts Lowell	11,291,000	19,413,000	72%
229	University of Massachusetts Boston	**	11,132,000	**
242	Worcester Polytechnic Institute	4,683,000	9,618,000	105%
271	University of Massachusetts Dartmouth	**	5,820,000	**
276	Wesleyan University	4,021,000	5,373,000	34%
282	Radcliffe College	0	4,948,000	0%
283	Wellesley College***	1,692,000	4,943,000	192%
Total of top 25 New England institutions		\$1,319,698,000	\$2,154,608,000	63%
All U.S. institutions		\$16,285,322,000	\$27,489,061,000	69%

* Does not include R&D expenditures at university-administered, federally funded research and development center.

** For 1990, the NSF reported a combined R&D expenditure of \$101,812,000 for University of Massachusetts campuses at Amherst, Boston, Dartmouth and Worcester.

*** Imputed by NSF.

Source: New England Board of Higher Education analysis of National Science Foundation data.

Selling Knowledge?

R&D Soothsayers and High Priests of Venture Capital Are in the Temple of the Academy

ALAN ROBERT EARLS

New England colleges and universities have long led the United States in research and development (R&D) funding, especially from federal agencies such as the National Science Foundation (NSF), the National Institutes of Health (NIH) and the Pentagon, but also from industry. The region's university labs spent \$2 billion on research in 1999—that's \$160 for every New England man, woman and child, compared with national per-capita spending of \$102. New England university research is big business. And it's begun to sound like one, immersed as it is in activities such as technology licensing and commercialization, spinning off and incubating new business, and even high-risk venture capital investing.

These activities often support core institutional activities and surely benefit communities by creating new industries or applying academic expertise to real problems. But they also represent a major shift in resources and focus from a generation ago. And while the commercialization of knowledge has profound eth-

ical and financial implications, the shift has generated little public attention. (The spotlight is approaching, however. As CONNECTION went to press, a report on industry-university research collaboration by the national Business Higher Education Forum had raised a storm of protest from academics and others who

Research and Development Expenditures at New England's Top 25 Research Institutions by Field: 1999

U.S. RANK	INSTITUTION	ALL FIELDS	ENGINEERING	GEOSCIENCES	LIFE SCIENCES
9	Massachusetts Institute of Technology	\$420,306,000	\$153,789,000	\$23,494,000	\$66,924,000
18	Harvard University	326,193,000	4,960,000	14,089,000	221,419,000
27	Yale University	274,050,000	6,763,000	1,967,000	236,121,000
70	Boston University	141,102,000	16,110,000	3,775,000	94,478,000
74	University of Connecticut	134,986,000	23,793,000	7,486,000	81,970,000
91	Tufts University	101,728,000	7,346,000	1,155,000	81,075,000
100	University of Massachusetts Amherst	86,576,000	15,146,000	7,587,000	26,596,000
103	University of Massachusetts Worcester	83,040,000	0	0	83,040,000
109	Brown University	76,330,000	9,529,000	5,535,000	34,242,000
112	Woods Hole Oceanographic Institution	71,722,000	12,999,000	58,723,000	0
113	Dartmouth College	69,522,000	7,365,000	727,000	53,543,000
117	University of Vermont	64,049,000	1,444,000	354,000	56,013,000
124	University of New Hampshire	57,613,000	8,207,000	27,107,000	12,765,000
131	Brandeis University	48,305,000	0	0	20,127,000
136	University of Rhode Island	44,452,000	3,426,000	22,602,000	9,095,000
140	University of Maine	41,452,000	5,725,000	11,974,000	16,742,000
158	Northeastern University	30,209,000	13,118,000	0	6,183,000
186	Boston College	21,726,000	0	547,000	2,138,000
195	University of Massachusetts Lowell	19,413,000	7,854,000	2,061,000	1,384,000
229	University of Massachusetts Boston	11,132,000	88,000	780,000	2,422,000
242	Worcester Polytechnic Institute	9,618,000	7,463,000	0	320,000
271	University of Massachusetts Dartmouth	5,820,000	1,636,000	1,288,000	1,085,000
276	Wesleyan University	5,373,000	0	228,000	2,140,000
282	Radcliffe College	4,948,000	346,000	250,000	1,790,000
283	Wellesley College *	4,943,000	0	0	2,696,000
Total of these top 25 institutions		\$2,154,608,000	\$307,107,000	\$191,729,000	\$1,114,308,000

*Imputed by NSF. Source: New England Board of Higher Education analysis of National Science Foundation data.

claimed the report glossed over the dangers of conflicts of interest.)

While several influences have encouraged the corporatization of academic research, the great empowering event seems to have been the 1980 passage of the Bayh-Dole Act. The legislation created a uniform patent policy among federal agencies that fund research and enabled small businesses and nonprofit organizations to retain title to inventions made under such federally funded programs. Since the act's passage, college and university patenting has trended upward steadily as have fees generated by licensing technology. In 1998, licensing revenues to colleges and universities reached \$565 million on products with estimated sales of \$28 billion, according to Association of University Technology Managers data.

In a more direct indicator of Bayh-Dole's impact, patents granted to academic institutions shot from a bare 1 percent of all patents granted from 1969 to 1984 to 5 percent by the late 1990s.

Colleges say the increased licensing and patenting activity reflects a duty to disseminate ideas to colleagues and the public. "That involves traditional publishing, partnering so that companies can carry new ideas forward, and generally getting a public benefit for things that have already been sponsored through us by agencies such as NSF and NIH," says Bill Jackson, director of the Brown University Research Foundation.

Licensing is also more lucrative than simply publishing, but Jackson says the current \$2 million in yearly licensing fees generated by Brown is a small contribution to overall institutional expenses.

William F. Durgin, associate provost for academic affairs at Worcester Polytechnic Institute, notes that science and technology educators feel a need to enhance revenue to pay for increasingly expensive laboratories, equipment and personnel. "Each student costs us about \$35,000 a year, while our after-financial-aid tuition take is only about \$20,000," he explains. Still, Durgin says WPI's patenting and licensing activity does little more than break even, helping to defray some operating costs while ensuring that faculty, student, and institutional intellectual property rights are protected.

Region's leadership

New England's leadership in R&D began to evaporate in the mid-1980s, as the region's share of all U.S. university R&D slipped from over 10 percent in 1983 to just 7.9 percent in 1999, according to a New England Board of Higher Education analysis of National Science Foundation data. In part, the shift may be attributable to the maturation of other players nationally—though there has also been a determined effort by federal grantmaking agencies to broaden geographical research strength.

To maintain the flow of R&D dollars, New England

MATH AND COMPUTER SCIENCES	PHYSICAL SCIENCES	PSYCHOLOGY	SOCIAL SCIENCES	OTHER SCIENCES
\$39,199,000	\$92,189,000	\$1,080,000	\$8,908,000	\$34,723,000
3,060,000	30,424,000	4,548,000	33,073,000	14,620,000
4,765,000	18,596,000	3,625,000	2,213,000	0
3,245,000	11,945,000	2,465,000	1,868,000	7,216,000
1,427,000	4,671,000	5,488,000	6,409,000	3,742,000
1,526,000	3,843,000	2,747,000	4,036,000	0
12,048,000	18,041,000	4,071,000	1,046,000	2,041,000
0	0	0	0	0
12,037,000	8,027,000	2,236,000	4,724,000	0
0	0	0	0	0
2,289,000	3,149,000	1,216,000	772,000	461,000
1,159,000	1,148,000	754,000	109,000	3,068,000
625,000	2,740,000	1,206,000	4,629,000	334,000
11,324,000	3,800,000	1,372,000	21,682,000	0
152,000	828,000	4,365,000	358,000	3,626,000
328,000	4,321,000	417,000	1,945,000	0
1,887,000	6,722,000	1,368,000	931,000	0
9,700,000	6,377,000	327,000	2,637,000	0
641,000	5,464,000	813,000	637,000	559,000
109,000	377,000	439,000	6,776,000	141,000
1,033,000	800,000	0	2,000	0
1,057,000	628,000	20,000	106,000	0
86,000	1,883,000	842,000	194,000	0
227,000	1,491,000	206,000	580,000	58,000
225,000	972,000	0	1,050,000	0
\$98,149,000	\$228,436,000	\$39,605,000	\$104,685,000	\$70,589,000

institutions have joined their brethren from across the country in expensive government lobbying. BU routinely spends three-quarters of a million dollars annually, while Yale, Harvard and MIT spend about half that amount. But smaller institutions also found value in lobbying. In recent years, the likes of Assumption College, Massachusetts College of Law and most New England public universities spent tens of thousands of dollars or more on lobbying.

Meanwhile, the *Boston Globe* and *The Chronicle of Higher Education* are among media outlets that have criticized so-called pork-barrel research funds specially earmarked by members of Congress to labs in their districts, rather than selected through peer-reviewed, research competition. *The Chronicle* reports that in fiscal 1999, “academic pork” reached \$797 million nationally. Massachusetts ranked only 9th; New Hampshire, 24th; Rhode Island 31st; Vermont 41st; and Maine 48th among the states.

Venture capital

New England higher education institutions are increasingly involved in venture capital. For example, Smith College recently invested \$750,000 in Long River Ventures LP, a fund that invests in early-stage e-commerce companies in western Massachusetts. Or consider Boston University’s notorious direct investment in Seragen Inc., a biotechnology company developing receptor-targeted fusion proteins for cancer and dermatology. Over several years, BU poured some \$85 million into the company before the Massachusetts attorney general ordered the university to stop.

Seragen eventually entered into a strategic alliance

with Indianapolis-based Eli Lilly and Co. in 1994 to develop the cancer drug Ontak. In 1997, Seragen sold its manufacturing and human-testing operations to BU, which named the Hopkinton, Mass.-based unit Marathon Pharmaceuticals LLC. Finally, in 1998, San Diego-based Ligand Pharmaceuticals Inc. announced its merger with Seragen. Most published reports regarding the Seragen venture conclude that BU fared poorly on its investment. In recent years, BU has initiated other venture-flavored initiatives including the Provost’s Innovation Fund which provides annual awards of \$25,000 to faculty with ideas that could become licensable technology.

Incubators

Finally, though hardly an avenue for profit, “business incubators” have also become a commonplace feature of many campuses. As hosts of student-run and external private-sector startups, colleges have discovered a role as economic nurturers. Incubators usually include some combination of low-rent space, shared support services and sometimes mentoring or technical help—all aimed at turning startups into sustainable businesses. Business incubation has grown markedly in North America, from 12 programs in 1980 to 600 today—many of them affiliated with college campuses. Recently, for example, Marlboro College began luring Internet startups to its Technology Center in Brattleboro, Vt., with the promise of state-of-the-art facilities and Marlboro faculty expertise. And Springfield Technical Community College was recently lauded by the U.S. Department of Commerce for its Springfield Enterprise Center incubator which is currently nurturing dozens of small businesses.

Until the mid-1990s, it was unheard of for colleges and universities to stand side by side with major corporations in snaring 30 or more patents a year. But by 1995, the University of California captured 213 patents, ranking 41st among all patent recipients. In New England, the Massachusetts Institute of Technology earned 104 patents, ranking 94th among all recipients.

Data File:

Patents Assigned to New England Universities, 1969-1999

Massachusetts Institute of Technology	2,151
Harvard College, President and Fellows	327
Boston University	200
Yale University	200
Northeastern University	117
Brown University Research Foundation	83
Tufts University (or trustees or medical school)	73
University of Massachusetts	66
Brandeis University	58
Dartmouth College	55
University of Massachusetts Medical School (or Medical Center)	48
University of Massachusetts at Lowell (or former University of Lowell)	35
University of Vermont (or State Agricultural College)	33
University of Rhode Island	31
Woods Hole Oceanographic Institution	16
Worcester Polytechnic Institute	15
University of Maine System	13
University of Massachusetts at Amherst	10

(Includes universities and related institutions with 10 or more patents.)

A 1997 study by the University of Michigan, Ohio University and industry groups shows that these support programs for entrepreneurial firms have impressive, measurable impacts on the companies they serve as well as on local economies.

“Business incubation programs treat entrepreneurial companies as important community and national resources, and they provide assistance that ensures company success. This study should convince communities that if they don’t already have a business incubation program, they’ll want to start thinking about one,” says Dinah Adkins, executive director of the Ohio-based National Business Incubation Association.

Fred Andrews, executive director of the Springfield Enterprise Center, says at least 15 of New England’s approximately 40 incubators are affiliated with college campuses. However, he warns, many commercial incubators are little more than low-rent buildings with a few shared facilities. Andrews says that in addition to helping communities, incubators also can generally be self-supporting, perhaps even profitable within an academic setting. Most importantly, he says, incubators benefit the institutional community. “Ideally, an incubator can help support people who are used to the academic culture to get acclimated to what is going on commercially.”

Not-so-sudden impacts

What is the long-term impact of incubators, the new focus on patents and licensing, and more adventuresome investment policies on the academy? New England institutions are not alone in their pursuit of new ways of doing business. For instance, a recently launched project at the Johnson Graduate School of Management at Cornell University—the Big Red Venture Fund—was started a year ago by Park Leadership Fellows. It has successfully raised capital since that time, and is currently sponsoring a business idea competition to inspire young entrepreneurs, who may ultimately benefit from the fund. Other campuses are also bursting with new ideas and fresh initiatives.

In some cases the inspirations came from New England. MIT’s long and successful history of fluttering around the flame of industry—without getting burned—is a case in point. There, a wide range of programs such as the half-century-old Industrial Liaison Program (ILP) encourage entrepreneurs and engage corporations in a variety of relationships. ILP officer Todd Glickman says the program gives large corporations a “window into MIT.” A hefty membership fee gives companies access to

research opportunities and an opportunity to interact with faculty, staff and students. “It is a source of revenue for MIT that is separate from licensing and other activities,” he adds.

So despite the risks, complexities and changed ways of doing business, many are ready to endorse the new world of academic technology commercialization. “It is definitely a culture change,” says Ward. “But it really is just a different way to serve the public.” As an example, Ward says once upon a time Maine’s agricultural programs would simply publish their potato research and pass along new potato varieties to anyone interested. Now, though, he says they would be more likely to seek a way to use licensing strategically—with the goal of benefiting local farmers first.

And what of less noble efforts to single out beneficiaries of research? The Clinton administration was concerned enough about the rising stakes in debates over ethics in research to propose sweeping new guidelines that would have particularly affected those working in the medical area.

University of Vermont Research Administrator Regina White, who is president of the National Council of University Research Administrators, says: “It is important to recognize that even though the field has changed greatly the principles of governance have remained the same, built around the autonomy of the principal investigator.”

Fundamentally, she notes, the culture of academic institutions supports autonomy, openness, and responsibility. Thus, even when a research administrator is cast in a watchdog role there is little resistance to such oversight or critical examinations of methods. “I have never seen and cannot imagine a situation where an administrator would be ignored or overruled for telling an institution that some activity was not appropriate,” she says.

“Research administrators are recognizing the challenges posed by conflict of interest and conflict of commitment and we continually talk to principal investigators about real or potential conflicts of interest—and even the appearance of conflicts of interest,” she adds.

“Yes, there are challenges in this new environment,” admits Jackson of Brown. “When we add money to the equation, we must be cognizant of potential conflicts of interest and we must have the right guidance and appropriate documentation,” says Jackson. But he adds, “as we gain experience we learn more about how to do this effectively.”

Alan Robert Earls is a freelance writer and frequent contributor to CONNECTION.

Combining Research, Outreach and Student Learning

A New Model in Rhode Island

DEBORAH GROSSMAN-GARBER, ARTHUR GOLD AND THOMAS HUSBAND

American research universities are renowned for applying cutting-edge science to the improvement of the world's health and environmental systems. Indeed, as a society, we have come to expect this type of intellectual leadership from our great universities. Less appreciated is the robust opportunity for state and local governments to harness the intellectual power of the academy to help solve community problems.

Yet these kinds of partnerships are particularly strong at the nation's land-grant and sea-grant institutions, where federal investment over the past century-and-a-half has generated innovative solutions to problems at the local, state, regional and national levels.

Typically, this university research and resulting outreach unfolds in dedicated scientific settings that are removed from another of the university's primary missions—the education of future problem-solvers. Yet the implementation of scientific solutions to some of our most complex environmental and human problems requires colleges and universities to face the important and challenging task of preparing undergraduate students to be expert problem-solvers, adept at addressing emerging issues and implementing programs that draw on a range of disciplines and technologies. Complex contemporary problems demand nothing less.

Traditional universities are well-equipped to educate students in classrooms about scientific problems that are already understood and solved. They are less prepared to introduce students to the complexity and challenge of emerging scientific problems. This frontier of discovery and excitement exists in the university's

research laboratories and in its outreach settings, but it rarely spills over into the classroom perhaps a few-hundred feet down the hall. The challenge is clear. If we are to prepare students with a full range of skills and a passion for learning, we must expose them to both worlds. In the American educational landscape, research universities have the capacity to offer a unique form of education by melding their research and outreach missions with their teaching mandate. (In fact, these imperatives are echoed in two national reports on American research universities: the Carnegie Commission on Educating Undergraduates in the Research University's *Reinventing Undergraduate Education: A Blueprint for American's Research Universities* of 1998, and the Kellogg Commission on the Future of State and Land-Grant Universities' *The Engaged Institution* of 1999.)

Shift to learning

Since his arrival at the University of Rhode Island in 1991, President Robert Carothers has sought to shift the focus of the undergraduate experience from teaching to learning. He has initiated institutional self-examination to identify URI's engines of research excellence and encourage faculty and departments to weave student learning into those fields. This has resulted in an effective approach to community-based outreach and to student learning at URI.

One of URI's successes in fostering active learning has been in the area of marine and environmental science. Over the past five years, the URI Coastal Fellows Program has provided capstone experiential learning for more than 265 students in various scientific disciplines and attracted more than \$1 million in outside funding to URI. The program infuses externally funded research teams of faculty, staff and partners with the principles of undergraduate experiential learning.

Coastal Fellows range from sophomores to seniors. They are formally assigned to work for at least eight months within a vertically integrated research or outreach team. After learning about the dimension of a



PHOTO BY ROMY FERENBAUGH.

Technical expertise. *Susan Baxter, a Coastal Fellow with the URI Environmental Data Center, digitizing maps for the National Park Service in 1999.*



Spreading knowledge. Coastal Fellow Linda Green training a volunteer to monitor the ponds of Rhode Island for water clarity and nutrients.

particular research or management initiative, students begin to work on an aspect of the team's investigation, for which the student accepts primary responsibility. Fellows are supported in their work and learning by other members of their team, usually a mix of faculty, more senior research or outreach staff, postdoctoral fellows, graduate students and senior undergraduate fellows. Research funding is obtained through competitive, peer-reviewed processes.

Most of the research teams are multigenerational, with the capacity to embrace and nurture students throughout their education. These teams offer students a range of learning experiences and project-related support. Among the most valuable benefits to students is the informal learning that takes place in the teams—the networking and casual reflection, but also the conversations that help them acquire the language of their discipline and, thus, a professional voice. At the conclusion of their fellowship, students present their findings to an assembly of fellows, mentors, other university faculty and staff, partners from external agencies and the university's provost and president. Coastal Fellows receive a summer stipend and academic credit for their work.

This model provides a powerful forum for undergraduate learning, particularly when set in the context of applied community problem-solving. As a junior, Ben Galuardi worked with state officials and coastal zone managers at the URI Coastal Resources Center to research and draft natural hazard mitigation strategies for Rhode Island. This plan was presented to the state

THE PROGRAM HAS BRIDGED THE
GULF THAT SEPARATED GRADUATE
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FROM UNDERGRADUATE LEARNING.

and later published. Galuardi says the fellowship allowed him “to give something to the community.”

In the early 1990s, the City of Warwick, R.I., began a substantial initiative to improve its water quality and restore the shellfishing industry of Greenwich Bay — a central feature of the city's economy and heritage. In response to discussions between Warwick Planner Jonathan Edwards and URI's Peter August, an expert in the development of computerized mapping from remotely sensed data, Warwick funded three Coastal Fellows to develop a digital, high-resolution spatial database of the coastal lands in the town. The Coastal Fellows, in conjunction with August's staff at the URI Environmental Data Center, played a key role in helping the city prioritize its investments in septic and sewer infrastructure to improve water quality.

Another longstanding Coastal Fellow project has united a local community in its efforts to preserve open space for future generations. Coastal Fellows have been selected by the Town of Richmond to work in conjunction with Stephen Swallow, a renowned URI researcher in the field of survey-based valuation methods, and Richmond Town Planner Joe Lombardo to assess the commitment of the community to fund preservation of open-space initiatives. Over a four-year period, the town has funded three undergraduate Coastal Fellows to apply the results from a public preference economic model to identify and prioritize land parcels for conservation. These results provide key information to the town's Rural Preservation Land Trust and have been instrumental in helping balance economic growth while preserving the rural character of the community. Moreover, town staffing is limited, and the work wouldn't have been done if not for the Coastal Fellows.

The Coastal Fellows Program has generated a burst of enthusiasm on campus and contributed to a marked attitudinal change toward undergraduate education among research faculty and staff at URI. In particular, the program has bridged the gulf that separated graduate faculty, outreach educators and research professors from undergraduate learning. Many local communities and state and federal agencies have recognized the power of this connection to access nationally renowned research and outreach programs at URI to meet their own local needs. They regularly utilize Coastal Fellows, supervised and mentored by a URI faculty or staff member, to pursue independent projects on the agency's behalf.



At work. Coastal Fellows in the field, recording water table depth and studying movement of nitrogen through the watershed.

Experiential model

The Coastal Fellows model is clearly a powerful one for faculty and students, researchers and communities alike—potent enough to inspire the URI Department of Natural Resources Science to implement a paradigm shift in educating all its majors. The new curriculum encourages students to pursue fully one-half of the work in their major through hands-on, experiential opportunities such as the Coastal Fellows Program. This represents a radically different approach to education and a stark departure from other models on campus.

The new curriculum blends traditional classroom instruction and hands-on experiential learning with student reflection and synthesis to solve real-world problems such as those addressed in university research and outreach settings. The model curriculum embraces and extends the concept of vertically oriented learning teams, fostered by the Coastal Fellows Program. It provides a variety of learning opportunities throughout

UNDERGRADUATES GAIN SUBSTANTIVE
EXPERIENCE IN THEIR FIELD,
ALONG WITH CLOSE CONNECTIONS
TO FACULTY, STAFF AND OTHER
STUDENTS IN TEAM SETTINGS.

a student's time at URI—from the first semester of freshman year through the senior year. These opportunities include internships, Coastal Fellowships, cooperative education placements, research apprenticeships at different academic levels, teaching practica with faculty, student-generated research and senior theses. Other hallmarks of the curriculum are peer teaching and mentoring and inquiry-based approaches to learning.

This type of radical revision requires faculty supervision to ensure academic legitimacy. The Natural Resources Science Department has structured a system that will establish expected learning outcomes for each student and set criteria and rubrics for measuring student achievement. In the near future, a dynamic portfolio system—in conjunction with careful advising and mentoring—will require students to demonstrate competency and achievement of educational goals. A senior capstone course asks students to demonstrate their capacity to synthesize knowledge by addressing a real-world problem. Seniors present their best research or outreach effort to a forum of faculty and peers.

The Natural Resources Science curriculum is attracting large numbers of students, and four other departments are moving to institute a similar curriculum. Why is this approach gaining momentum? For faculty, the chief reason is the opportunity to spend more time working and teaching within the context of their research. University administrators see an opportunity to reduce seat time and thus costs. Graduate students learn valuable teaching and mentoring skills. Undergraduates—the primary beneficiaries—gain substantive experience in their field, along with close connections to faculty, staff and other students in team settings. Communities tap a powerful resource for solving local problems. Ultimately, this new paradigm offers a venture of discovery in which everybody wins.

Deborah Grossman-Garber is director of student programs and academic outreach at the University of Rhode Island's College of the Environment and Life Sciences and coordinator of the Partnership for the Coastal Environment. Arthur Gold is professor of Natural Resources Science at URI. Thomas Husband is chair and professor of Natural Resources Science at URI.

Research for the Community

Bates Students Learn as they Work Magic for Lewiston and Auburn

DONALD W. HARWARD

When a fire breaks out in the twin cities of Lewiston and Auburn, Maine, the firefighter response time is just a bit quicker these days, thanks to student research at Bates College. When the alarm sounds, firefighters click on a computer map that tells them the size of the burning structure, the quickest route to the fire, the closest hydrant and whether it can provide enough water.

Before his graduation in 1999, Bates geology student Peter Beeson researched and developed a Geographical Information System (GIS) for firefighters in the two cities. The system also is used to gauge environmental impact of road developments, and for other geographical purposes such as optimum routes for sewerage. Municipal officials say that Beeson's research has saved them nearly \$200,000.

For Beeson, it was a heady experience: "I was learning too much to realize that I was volunteering a lot of time," Beeson said in an interview for the college magazine. "When I offered a suggestion, people would listen and act on what I had to say. It's gratifying, especially for a young student who doesn't know the value of what he knows."

This experience illustrates the mutual advantages that research projects provide colleges and their communities—in this case, Bates College and its community development partner, an initiative of 36 local business, civic and institutional leaders in Lewiston and Auburn called LA Excels.

Recently, Bates and LA Excels were awarded an \$80,000 grant from the national Consortium for the Advancement of Private Higher Education's "Engaging Communities and Campuses" program. Over the next two years, the grant will fund 10 summer Community Research Fellowships. These fellowships will take qualified students into Lewiston and Auburn to undertake research projects identified by the community as essential building blocks of ambitious community development efforts. The research fellows then prepare reports that are put to immediate use by community groups as they plan, finance, and realize community improvement projects.

LA Excels insists that the process be rooted in the community and that citizen involvement characterize any meaningful partnership. The LA Excels agenda is based on two years of community conventions bringing hundreds of residents to planning sessions with the college and LA Excels leadership. The agenda focuses on:

- Strengthening local educational aspirations with special focus on children from birth through age 5.
- Enriching local arts and culture by developing a community arts learning center, a performing arts center and possibly a cultural heritage museum.
- Creating stronger neighborhoods and business districts, initially through development of a series of neighborhood housing projects.
- Creating a greenways system of bicycle and walking trails linking some of the finest amenities of both cities: the Androscoggin River, Lake Auburn and a bird sanctuary in Lewiston.

The Bates Community Research Program is connected to these objectives. Each Community Research Fellow is assigned a community adviser and a Bates College adviser. Fellows work either at Bates or in community offices on their research, and funds are available for travel and other expenses.

Art history and political science major Apostolia Hantzara will spend this summer investigating models of successful community arts centers in college communities similar to Lewiston and Auburn. She plans to concentrate her search on how an arts center can serve as an exciting gathering spot for children, teens, adults and college students. Hantzara says she suspects that bringing together such a diverse group of citizens in the name of creative pursuits can invigorate and unify a community.

The fellows, selected through essay applications, have strong academic and research skills. They are independent thinkers who can work well on their own, but who also are prepared to interact with professionals in community agencies. They are eager to put their liberal arts training to the test in the real world. They are curious about careers in community development, arts administration, land-use planning and city planning. And they recognize the responsibility implicit in the fact that a research project that they complete this summer is likely to have a direct impact on Lewiston-

Auburn's community improvement goals in housing, the arts or greenways development.

The community research fellowships provide \$3,500 stipends to students who work eight to 10 weeks full-time in the summer on one of the community-designed research projects. Each project is linked to specific community development goals, and each research report completed by a fellow contributes essential information for moving Lewiston and Auburn toward a better future.

Bates students last year provided 59,381 hours of service—mostly connected to academic service-learning projects—to 139 nonprofit groups and government agencies, according to a college survey. And Bates has integrated forms of service into its curricula, including creating a center to coordinate and support service that is rooted in academic experiences and expectations—enhancing the contexts for learning. Research is a natural next step in college interaction with its community. The applied research opportunities afforded through the Community Research Program further expand how service and undergraduate academic experience can be connected by enabling students to put their academic work into practice.

Moreover, Bates is able to enhance hands-on learning while addressing community needs. "It is based on the premise that to prepare students for a lifetime of contributions to society, colleges should enable students to connect with the world beyond the campus while still in school," says LA Excels Executive Director Rebecca Conrad.

Many private colleges already provide access to resources and expertise that reaches beyond the community; they bring visibility that reinforces community



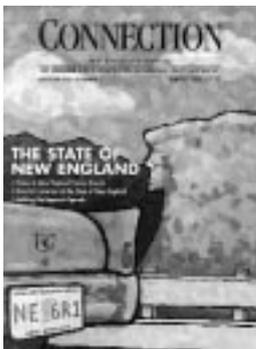
Serving. Peter Beeson and other Bates students analyzed the environmental impact of a proposed road near a local bog in Lewiston, Maine. The city manager praised the students for an "absolutely stupendous job."

aspiration; and they contribute committed leadership and energy from students, staff and alumni.

For colleges and communities now engaged as civic entrepreneurs, forming a community-wide strategic partnership can lead to strengthening structures for change, growth and development. For residents of Lewiston and Auburn, the hometown private college's commitment to its "place" and to a genuine community-based partnership, there is already an important result: a palpable attitudinal change, a confidence in the future and an expectation for success.

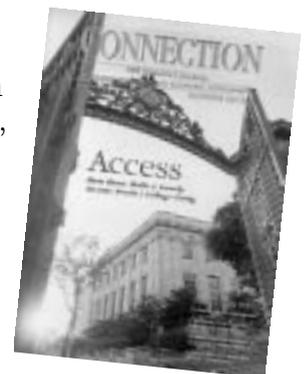
Donald W. Harward is president of Bates College and chair of LA Excels.

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The End of Economic Exuberance

New England's Economic Outlook

ROSS GITTELL

Like the nation as a whole, New England is in the midst of a significant economic slowdown. Growth rates across a range of economic indicators have dropped from very high levels in 2000 to much lower rates similar to those last experienced in the early 1990s. On an annual basis, real growth in gross state product (GSP) will have declined from 7.8 percent in 2000 to 2.2 percent in 2001, based on currently projected year-end totals, while employment growth will have dropped from 2.3 percent to 0.9 percent.

This represents not the previously anticipated soft landing, but rather a significant slowdown. (See Figure 1.) The sharp decline in growth makes the New England economy feel like it is in recession, but it is not. It is like cruising at 80 miles an hour on the highway and then getting behind a tractor and slowing down to 30 miles an hour. The end-of-the-century era of economic exuberance in New England is over.

New England's economy, however, does not appear to be headed toward

the kind of deep or prolonged recession it experienced in the late 1980s and early 1990s. The region's employment base is more diversified than it was then, both within high technology and across different sectors. There has not been the same degree of real estate speculation, and the banking community is stronger. Plus, the labor market remains tight with slim prospects of a return to high levels of unemployment. The current outlook is for continued growth with no recession.

In fact, the outlook is for the regional economy to begin to improve in the second half of 2001. Overall growth for the five-year forecast period is expected to be below the rates of the last five years, but higher than the growth rates of the early 1990s, and close to the U.S. average. (See Figure 2.)

To be sure, the economic outlook for New England changes if the national economy goes into recession. There is no consensus about the likelihood of a U.S. recession. But if one were to occur, New England would suffer a drop in annualized growth from the baseline rates presented in Figures 1 and 2. The drop would be on the order of half a percent a year for GSP—from 3 to 2.5 percent a year in GSP—and from 1 to 0.8 percent a year in total employment.

Under a recession scenario, New England would perform slightly below the U.S. average. The main elements of a national recession would include continued weaknesses in high technology and equity values. Both of these would have a disproportionately negative effect on New England because of the region's relatively high dependence on high-technology and financial service industries and relatively high levels of personal income, wealth and investment in equity markets.

More "normal" growth

Overall growth in GSP from 2000 to 2005 in New England is expected to average 3 percent per year. This is well below the region's annual growth rate of 5.8 percent over the previous five years, but significantly above the 1.2 percent annual growth rate the region experienced as it emerged from the recession of a decade ago. New England's growth in GSP is expected to be the same as the U.S. average, though Rhode Island and Maine are expected to grow at rates below the U.S. average.

Figure 1: New England Real Gross State Product and Employment: 1995-2005

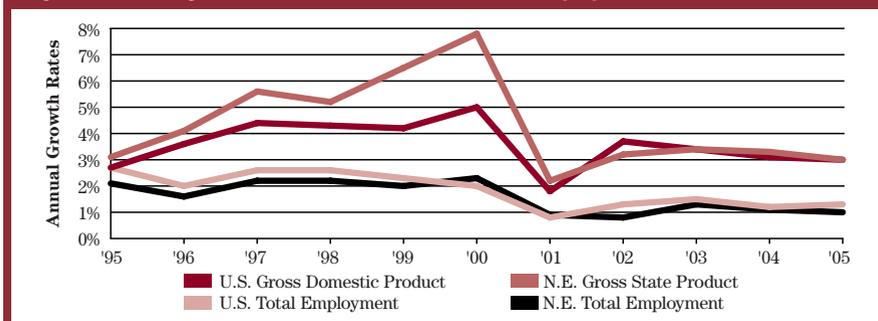
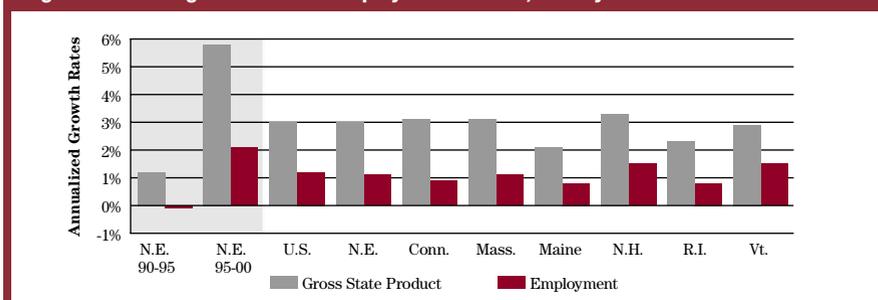


Figure 2: New England GSP and Employment Growth, History and Forecast: 2000-2005



Total employment growth in New England is expected to average slightly above 1 percent per year from 2000 to 2005. This is well below the region's 2.1 growth rate over the previous five years and below the expected U.S. average, but significantly above the negative growth experienced in the region coming out of the last recession.

Employment growth below the U.S. average is not surprising or particularly disconcerting given New England's history of slow population, labor force and employment growth. Below-average growth in employment occurred even during most of the boom years of the last decade. New Hampshire and Vermont are expected to continue to experience the strongest employment growth in the region with both states growing faster than the U.S. average. Maine and Rhode Island will have slower employment growth.

Significant variation in growth is anticipated across major industry sectors. Manufacturing in New England is expected to be stronger than it was in the last decade. The relatively positive outlook reflects the potential in-migration of high-technology manufacturing firms escaping energy uncertainties in California and seeking proximity to agglomerations of similar types of firms, to skilled labor and to New England's sophisticated research and development capabilities.

Silicon Valley-based companies such as Cisco and Sun Microsystems moved some of their manufacturing and R&D operations to New England even before the California energy crisis as they sought a "bicoastal" presence with access to top quality labor. The Golden State's energy market problems are expected to extend New England's attractiveness to Silicon Valley companies.

Overall growth in New England's manufacturing employment is expected to be slightly positive, compared with a 0.3 percent decline nationally and the 0.7 percent decline experienced in New England during the previous five years. Massachusetts and

Vermont are expected to have the strongest manufacturing sectors, due largely to anticipated growth in high-technology manufacturing at companies such as IBM in Vermont. Maine is expected to see the weakest growth due to a continuing decline in traditional manufacturing industries such as paper and pulp products and leather goods.

In contrast to manufacturing, New England's services sector is expected to be relatively weak compared to the U.S. average and the previous five years in the region. Employment growth in New England services firms has dropped from 3.5 percent in 2000 to an anticipated 1.4 percent in 2001.

The drop in employment growth in business services is expected to be even more pronounced than in services overall, plunging from 8.5 percent to 2.8 percent. This reflects consolidation and layoffs at software development and services companies such as Kana Communications, the California firm which a year ago merged with Manchester, N.H.-based Silknet, and Bottomline Technologies, the Portsmouth, N.H.-based maker of check-writing software, which each laid off approximately 20 percent of their workforces in the past six months. It also reflects a drop in growth rates in temp services employment, which had increased significantly during the late 1990s.

The expected average annual growth in New England service industry employment for the next five years is just 1.7 percent—significantly below the 3.3 percent average over the previous five years and projected national average growth of 2.3 percent.

Economic fundamentals

New England's economic fundamentals will continue to include: relatively high levels of educational attainment, high concentration of employment in high technology and other high value-added industries (such as advanced business and professional services), high per-capita income, slow population growth, and unemployment rates well below

the U.S. average. These economic characteristics are highly interrelated.

New England's national leadership in educational attainment contributes to its high per-capita income. New England ranks first among all the U.S. census regions in percentage of adults with a four-year college degree or higher; nearly 30 percent of New England adults hold bachelor's degrees or more, compared with less than 25 percent nationally. The region also ranks first in the percentage of employment in high-technology industries—6.4 percent, compared with a U.S. average of 4.6 percent. Concentration of employment in high-technology industries marked by high-value-added-per-worker has contributed to personal income growth. Indeed, the four highest ranking states in terms of percentage of total employment in high technology industries, according to the American Electronics Association, are among the top five ranking states in the United States in personal income growth in 2000. These include two New England states: Massachusetts and New Hampshire. Three New England states—Connecticut, Massachusetts and New Hampshire—rank in the top six nationally in per-capita income.

Slow population and labor force growth in the region have contributed to low unemployment rates persisting even in the current environment of layoffs and increases in unemployment claims across New England. The combination of slow population growth, below average labor force growth and low unemployment is expected to continue.

In short, the outlook is for a less exuberant, but still strong New England economy. Higher education and the development of skilled workers will continue to be critical factors—perhaps *the* critical factors—in the region's economic future.

Ross Gittell is an associate professor at the University of New Hampshire's Whittemore School of Business and Economics and vice president of the New England Economic Project.

Editor's Note: Twice a year, the New England Economic Project (NEEP), a nonprofit association of economists from New England banks, higher education institutions and other organizations, presents its economic "outlook" for each of the six New England states and the region. Recently, NEEP and the New England Board of Higher Education agreed to publish periodic reports on the regional economy in CONNECTION. For more information on NEEP, visit: <http://www.neepecon.org/what.is.neep.htm>

New Fabric

A Community College Spins Partnerships in Southeastern Massachusetts

JOHN J. SBREGA



During recent inaugural activities at Bristol Community College (BCC), David Pierce, president emeritus of the American Association of Community Colleges (AACC), reviewed the history and unprecedented growth of two-year public colleges since Joliet Junior College of Illinois opened with six students in 1901 as an experimental postgraduate high school program. Today, the community college movement has grown to 1,132 institutions, educating 10.4 million students each year, including about 44 percent of all U.S. undergraduates.

The new AACC mission statement boldly asserts that the community college is the premier institution for life-long learning, transfer, vocational and remedial programs.

Pierce, like many others, sees critical challenges for these distinctly American institutions. Among them: equity, credentialing mixed with certification of skills and competencies, new formats (e.g. applied baccalaureate, dual enrollment, e-learning, etc.), workforce training and economic development. His observations couldn't be more relevant to New England.

The region's community colleges have provided a vital entry point for underprepared students and underserved populations since the G.I. Bill of Rights breached economic and social barriers to educational opportunity after World War II. New Hampshire Community Technical College-Manchester/Stratham traces its roots to 1945, and my father taught at Holyoke Junior College, now Holyoke Community College, as early as 1946. But New England's community colleges truly blossomed in the decades of

the 1960s and the 1970s. Between 1960 and 1973, New England experienced an explosion in 37 new two-year colleges, including 15 in Massachusetts, 14 in Connecticut, and the new Community Colleges of Rhode Island and Community College of Vermont. (To be sure, private two-year colleges have a long history of service to the region. Casco Bay College traces its beginnings to 1863; Dean College to 1865; Champlain College to 1878; McIntosh College to 1896; Post College to 1890; and Fisher College to 1903.)

New populations

As the face of New England changes, it is imperative that everyone who aspires to a better life through education has access to college. Tuition and fees have been on a troubling trend, and community colleges particularly must ensure that their costs do not impose limitations on access.

The 2000 census indicates that the total population of southeastern Massachusetts has risen to just under 600,000. Earlier census data reveal that

only 66 percent of the area's population had completed high school, compared with 80 percent statewide. Moreover, while 27 percent of Massachusetts residents age 25 and older hold bachelor's degrees or higher, the figure in southeastern Massachusetts is 16 percent. The area's underachievement in education is echoed in its grim economic profile. In 1999, unemployment rates in many southeastern Massachusetts communities exceeded the state average of 3.2 percent and even the national average of 4.2 percent. (The few exceptions included Plainville, North Attleboro, Mansfield, Norton and Mattapoisett.) Per-capita income in Fall River and New Bedford, meanwhile, is 29 percent below the state average.

Former Miami-Dade Community College President Robert McCabe, now a senior fellow at the League for Innovation in the Community College, noted in his landmark 2000 study titled *No One to Waste*: "Immigrants and Hispanics will account for most of the population growth in the next 50 years. These populations are disproportionately underprepared for 21st century

employment, presenting a daunting task for education.” This national situation mirrors demographic trends in southeastern Massachusetts. For the period 1990 to 2010, Fall River’s minority population is projected to grow by 52 percent, while New Bedford’s will grow by 63 percent.

New models

At the same time, employers are increasingly impatient with old-fashioned, time-specific modes of instruction. Traditional 15-week semesters may have made sense in less technological times and for certain segments of the population. But this format now has become a hindrance to workforce development.

We must be prepared not only to grant credit-bearing credentials (e.g. degrees, certificates, courses, letters of recognition) but also to certify specific skills, competencies and abilities (some of which are acquired through non-credit instruction). Moreover, abbreviated, concentrated formats and distance learning offerings seem ideally suited to meeting employer needs *without* sacrificing quality or eroding academic standards. Nearly all community colleges have created training centers that specialize in developing course formats tailored to individual companies’ needs. The center at the Community College of Rhode Island, for example, has conducted on-site training at Stanley-Bostitch, while the center at BCC has fostered a close relationship with Texas Instruments.

Some community colleges offer “applied baccalaureate” degrees in occupational/technical fields. The degrees, requiring about 120 semester credits, emphasize work skills and address employers’ needs for expanded, post-associate instruction that adopts a more practical, hands-on approach than the traditional bachelor’s degree in technical fields. Depending on its scope, the degree can be either a bachelor of applied science or a bachelor of applied technology. Many community colleges envision offering applied baccalaureate degrees as an extension of their existing associate in applied science degrees; Springfield Technical Community

College, for one, is already developing a proposal to offer this degree. My preference would be to integrate these new degrees within the framework of our existing partnerships with bachelor’s degree-granting institutions. In other words, community colleges could continue their highly successful traditional pattern of offering freshman and sophomore courses, while partner four-year institutions would provide the upper-level courses culminating in the applied baccalaureate degree. Thus, only in those (rare?) cases when a baccalaureate-granting institution chooses not to respond to a demonstrated need would a community college accept responsibility for offering the applied baccalaureate. The state of Arizona has drawn up elaborate procedures to follow this protocol which would abide by the spirit of long-established practice within the world of higher education and would disrupt only minimally existing areas of responsibility.

Community colleges also bear the responsibility to serve currently employed and dislocated workers who are looking to change careers. In one notable example, Middlesex Community College of Massachusetts offered special courses to workers upon the unfortunate closing of both the Prince Spaghetti factory and the city of Lowell’s Computer Learning Center. Related to this emphasis on life-long learning is the fact that more than 20 percent of current community college students already hold at least a bachelor’s degree—and a surprising number hold doctorates.

Emphasis on work

Many years ago, my preparation for the dreaded “college admissions interview” incorporated a firm decision never to link my quest for knowledge as an undergraduate with an impure desire to obtain employment. *How crass!* Now, students throughout higher education demand relevance and they want to be equipped to enter the workforce. All higher education institutions, including highly specialized graduate schools, face this challenge. But the community college mission is particularly suited to preparing people for work that is technologically based, market-responsive

and globally sensitive.

Indeed, community colleges prepare the workforce of the future, the present and the past. The future refers to our current traditional-age students (ages 18-20) who we prepare to become productive members of the workforce for decades to come. We also train the present workforce by making sure that they update their skills to keep pace with our fast-changing environment. BCC, for example, assisted People Inc. in obtaining a grant from the Workforce Training Fund, and as a result, we now offer them computer applications training. In addition, we work with a workforce of “the past”—primarily dislocated workers whose career fields have been eclipsed or whose individual skills have lapsed, to refurbish those skills or train them for new careers.

BCC earned national recognition through a grant from the U.S. Environmental Protection Agency to prepare unemployed or underemployed residents of New Bedford to work in brownfield sites; this 17-week program prepares students for jobs as ground-water technician aides, field sampling technician aides, lab assistants and lead or asbestos abatement workers. Another innovative program focuses on literacy training through a “Perkins Career Access Center Liaison” who alternates between Fall River and New Bedford.

New hallmarks

How will community colleges meet the challenges before them? Partnerships, collaborations and regionalism are the hallmarks of the future. The various dimensions of the education world—elementary and secondary, community colleges, bachelor’s degree-granting institutions, graduate schools—must form a seamless career (yes, “career”) path to ensure the expeditious flow of students across the continuum. Educators must also form strong links with public and private entities—businesses, chambers of commerce, government agencies, foundations—to marshal precious resources in a common effort.

Elaborate networks already exist inside the world of education. Articulation agreements with four-year

HIGHER EDUCATION INSTITUTIONS—WORKING WITH THE U.S. DEPARTMENT OF EDUCATION,
THE STATE BOARD OF HIGHER EDUCATION AND CONCERNED LEGISLATORS—SHOULD
ACT IN CONCERT TO GUARANTEE SCHOLARSHIPS AND TEACHING POSITIONS TO
SECONDARY SCHOOL STUDENTS WHO EARN BACHELOR'S DEGREES AND AGREE TO A TERM
OF SERVICE IN A PREDETERMINED TEACHING POSITION OF THEIR CHOICE.

institutions ensure smooth transitions for community college students. In addition, across the country, community colleges have developed "Tech/Prep" partnerships with local high schools to encourage seamless pathways into higher education and to reduce high school dropout rates. In Massachusetts, community colleges are teaming with high schools to refine curriculum frameworks for MCAS and to provide support for those who may not fare well on this high-stakes test.

One outstanding example of the promising role community colleges can play in fostering regionalism and economic development is in the field of teacher education. Over the next decade, America faces a critical shortage of K-12 teachers, with some studies projecting more than 2 million vacancies. Working in partnership with school superintendents, four-year colleges and graduate schools, community colleges can help develop a seamless path of recruitment, teacher education and job placement. Indeed, my conversations with superintendents in southeastern Massachusetts and with Bridgewater State College President Adrian Tinsley and University of Massachusetts Dartmouth Chancellor Jean MacCormack uncovered fertile areas for developing these pathways.

These different types of higher education institutions—working with the U.S. Department of Education, the state Board of Higher Education and concerned legislators—should act in concert to guarantee scholarships and teaching positions to secondary school students who earn bachelor's degrees and agree to a term of service in a predetermined teaching position of their choice.

Portfolios and other assessment instruments could be used to formally recognize experience as a valid method of learning. Free or reduced tuition, funded by the state, would enhance the recruitment of prospec-

tive teachers. And will we ever see the reduction of bureaucratic hurdles to certification?

In addition, community colleges could use their already extensive services in lifelong learning to help recruit professionals in other fields to embark upon this teaching pathway armed with appropriate credentials from their prior experience. Community colleges could readily put into place similar arrangements for other critical fields including health care and information technology (IT).

Serving southeastern Mass.

BCC is involved in two major projects that focus national attention on workforce development. In conjunction with the American Association of Community Colleges, Microsoft has created a \$10 million grant initiative called *Working Connections* for community colleges to develop IT programs that respond to 21st century needs. These model IT programs integrate a "career ladder" structure which not only prepares students for entry-level positions but also incorporates advanced training components for experienced workers. The four primary objectives of the *Working Connections* initiative are: business and industry outreach, IT curriculum development, workforce development and faculty/staff development. BCC is one of just 63 community colleges in the country selected to participate.

Within this collaborative effort to close the Digital Divide, BCC has carved out a unique program called the Bristol Information Technology School or BITS. This fledgling program uses holistic and cohort models to prepare minority and low-income students for entry-level positions in IT. Students participate in career/academic interest assessment, mentoring by business partners, tutoring, and two college-level courses. Graduates can enter the BCC Computer Systems degree program and

earn certifications in Novell Network Administration, A+, or Windows NT Administration. In its first year, BITS equipped 20 economically disadvantaged students with a free desktop computer. Students who complete the program are eligible to purchase the computer at a discounted price.

As one of about 250 U.S. partners with American College Testing Inc. (ACT), BCC is opening an ACT Center that will offer over 1,200 instructional modules in asynchronous, on-line formats. Instruction through the center (either on campus or through distance learning) can incorporate full-blown courses or specific training modules. This flexibility enables individuals to progress on a self-paced, convenient schedule. Topics include computers and IT, small business operation, managerial/leadership, safety skills, adult literacy, English as a second language, and personal/professional development. In the first 60 days of this year, more than 15,300 visitors accessed the ACT Center's website, and this national networking system holds great promise.

Last year, BCC received a five-year, \$1.75 million federal Title III grant to strengthen underprepared students. In addition, BCC is currently starting a three-year grant of over \$800,000 from the National Science Foundation to develop educational pathways to computer integrated manufacturing (CIM) for nontraditional students. This is an outstanding example of regional collaboration: the CIM project involves 30 high schools, two community colleges (Bristol and Massasoit), four-year institutions and several businesses including Texas Instruments, Sapphire Electric and Quaker Fabrics.

Not all alternative sources need be in huge amounts, however, as colleges remain grateful for all categories of support. For instance, BCC recently earned a \$3,000 grant to promote safety measures for children in automo-

biles. Institutions of higher education across the country continue to benefit from a generous spirit among the local communities. Like many colleges, Bristol has established a foundation to help raise private funds to support scholarships, purchases of equipment, professional development activities and capital campaigns. Now in its 20th year, the BCC Foundation has developed assets with a net worth of \$4.5 million.

These kinds of partnerships and development efforts will become even more important as a device to cope with budgeting imbalances. Public higher education in the United States has experienced declining state support as a percentage of operating costs; consequently, colleges and universities have imposed higher prices

on students. A 1997 report by the Commission on National Investment in Higher Education, ominously entitled "Breaking the Social Contract," concluded that higher education found itself in a fiscal crisis because "costs and demand are rising much faster than funding." In some instances, colleges such as BCC have enjoyed increases in state funding but have found that mushrooming expenses exceed these relatively modest increases. Demographic projections exacerbate the effects of this fiscal crisis. By 2005, more than 20 million students will reach high school and an additional 19.2 million will enter elementary schools. If the continuing growth of immigration is also taken into account, the world of education

will be hard-pressed under current financial trends to meet these formidable challenges.

The American community college is ideally placed within both the world of education and the global marketplace. Our mission takes us across a considerable landscape: transfer education (to a bachelor's degree or beyond), occupational/technical education, developmental and remedial education, workforce training and economic development. Community colleges are the jewels of their communities and their regions. No place is that more true than in southeastern Massachusetts.

John J. Sbrega is president of Bristol Community College.

Scholarship City

How Fall River Is Creating American Dreams

In the hardscrabble industrial city of Fall River, Mass., where an optometrist named Irving Fradkin quietly opened the nation's first Dollars for Scholars chapter nearly half a century ago, some new college access initiatives may also deserve national attention and replication.

Fall River has historically lagged the state and region in educational attainment and economic development. When the city's towering textile industry fell, unemployment rates soared to 12 percent. During the economic miracle years of the 1980s, the city's unemployment was roughly double the state average. Much of Fall River's economic hardship could be traced to poor educational attainment. Indeed, fully half of southeastern Massachusetts residents age 25 and over had no high school diploma in 1980. Fradkin remembers when the high school dropout rate in Fall River hovered around 45 percent. All that has changed. State data suggest the city's dropout rate has decreased to 5 percent. And by December 2000, Fall

River's joblessness rate, though still higher than the state average, was 4.1 percent.

The city has provided fertile ground for a variety of economic development initiatives including special loan programs for city businesses. But some of the credit also goes to a series of education programs aimed at changing attitudes in the city. A sampling: **American Dream Challenge.** Fradkin founded the American Dream Challenge in 1994 based on the belief that students who have a dream as well as financial support will be more likely to stay in school and stay away from drugs. The challenge, launched as part of the Fall River Dollars for Scholars program, rewards students who maintain high

academic standards and good school attendance records, perform public service and write an essay focused on how education can help them appreciate freedom and achieve the American Dream. In grade four, students compete for \$100 awards toward college. They may reapply for additional grants in grades six, eight and 10, creating the potential for a total scholarship worth \$1,000. The scholarship funds are generated by private donations at no cost to Fall River.

The goal of the program, says the 80-year-old Fradkin, is to create a cascading effect whereby more students are inspired to reach their educational goals, school dropout rates decline, young people value good citizenship, and the city benefits from volunteer

community services. Fradkin counts on peer pressure to attract students who see their friends earning support and want to do the same.

Like Dollars for Scholars, Fradkin's other initiatives employ fun ways to raise money and awareness. A Pennies for Scholars program organized by Fradkin last year encouraged students ages 9 to 13 to empty their piggy banks for the American Dream Challenge. At one middle school, students raised \$400 for scholarships—all in pennies.

Living Heroes. It's no secret that children adopt role models from Hollywood and the world of sports. Educators can clarify misconceptions of what a hero is by showcasing everyday people who make a difference in their communities. As Robert Lawrence, pastor of Fall River's First Congregational Church, wrote in the *Fall River Herald*, "America needs real heroes—not just the ones we read about in our daily newspapers, but also those who are behind the scenes and in a low-key, humble manner become a hero to some unknown child who has the potential for greatness."

In 1997, Fradkin started the Living Heroes program featuring an annual ceremony in which fourth-graders who write winning essays meet adults who have made a difference in the city. Students take home biographies of the living heroes; the heroes take home essays by the students. The goal is for students to see the heroes as role models and emulate them.

In addition, a Perpetual Scholarship program allows contributors to memorialize these heroes by making \$2,000 tax-deductible donations in their names toward fourth-grade scholarships.

Unsung Heroes. With support from a bilingual literacy consultant named Odete Amarello, Fall River has also begun shining a light specifically on outstanding teachers and parents who are nominated by their principals or fellow teachers or chosen based on

essays they write about why they love teaching or how they have motivated students. Last year's winning teachers were Denise Ward, now principal of the Frank M. Silvia School, Harvey Ussach of Bishop Connolly High School and Susan Lanyon of the Wylie School. The city plans to hold an annual event at the city's Portuguese Cultural Center where the exemplary teachers will receive citations and the gratitude of about 400 local citizens. Ward will be the keynote speaker. Fradkin, meanwhile, tirelessly pitches the story of the unsung heroes to local newspapers and radio stations as a way of highlighting the value of teaching.

Choices. Fradkin also has appeared at two or three local elementary and middle schools each week to talk to students in grades four through eight about the dangers of using drugs and making bad choices. In 1998, Bristol County Sheriff Thomas Hodgson, whose no-nonsense law enforcement has earned him both praise and criticism, began collaborating with Fradkin to urge youngsters to stay in school and to draw attention to how government investment in prisons could be redirected to support schools and social programs. During one visit, Hodgson asked student volunteers to stand on a 7 x 10 foot block of paper for 10 minutes to experience what it's like to be locked up. "Bad choices lead to waking up at 7 every day, even on weekends, having no privacy, no walls, and not being able to call mom or dad," warned the sheriff.

Fradkin and Hodgson have pitched their approach on choices to national law enforcement groups, and the American Dream Challenge model is being shared among Dollars for Scholars chapters across the nation. Fall River once supplied the nation with textiles. The city just might do the same with education access initiatives.

—John O. Harney

Education Melting Pot?

A recent Brown University study of more than 300 Dominican, Cambodian and Portuguese parents in Providence and East Providence finds a relatively low level of involvement in children's education including attending teacher conferences and setting aside a place for homework. Cambodian parents were the least involved, partly because of low levels of maternal education (just five years on average), difficulty with English and a cultural belief that questioning teachers would be disrespectful, according to the study's author, Brown professor of education, psychology and pediatrics Cynthia Garcia Coll.

Language Barrier

In a lot of southeastern Massachusetts manufacturing firms, you can still tell a manager from a line worker by the language they speak. Recently, English-speaking managers at the Quaker Fabric Corp. in Fall River were having difficulty communicating with their mostly Portuguese-speaking workforce. So at Quaker's request, the University of Massachusetts Dartmouth began offering managers a customized conversational Portuguese program between shifts at the company's learning center in Fall River.

—J.O.H

Calling Minority Teachers

ELEANOR M. McMAHON

In 1988, the Education Commission of the States (ECS) established the Alliance for Minority Teachers after a series of forums about the future of the teaching profession had dramatized the need to address a growing shortage of black, Hispanic and American Indian teachers in the United States. The alliance, which I co-chaired with Norman Francis, president of Xavier University of Louisiana, included representatives from 22 education, research and policymaking organizations. The resulting report, entitled *New Strategies for Producing Minority Teachers*, recommends that colleges and high schools work together to ensure that schools and school districts can identify talented minority students early and see that they get the preparation and guidance they need to enter and succeed in college.

The report concludes that state, institutional and local policy has the potential to alleviate the shortage of minority teachers over the long term. The report also notes that state education officials too often lack information about minority teachers, including their preparation and their assignments. When this information is available, the report suggests, institutions and school districts will be able to make decisions that will result in a sufficient supply of minority teachers in the future.

Strategies

The ECS report also makes note of a number of initiatives around the country designed to increase the number of minority teachers. For example, in Minnesota, the St. Paul school district had a minority recruitment team comprised of teachers, principals and administrative staff, which identified minority high school students interested in teaching. ECS also noted a joint effort by New York's Queens College and La Guardia Community College to recruit minority teachers.

Many of these initiatives are ongoing, and a number of new ones have been put in place. One of the most exciting and effective has been the Rockefeller Brothers Fund (RBF) Fellowship Program for Minority Students Entering the Teaching Profession. Launched in 1992, the program provides minority college students with the financial assistance, personal support and professional development opportunities they

need to become exceptional teachers.

One principle underlying the RBF fellowship program is the belief that minority teachers provide students of color with a positive sense of cultural identity and are more likely to include the concerns and perspectives of America's increasingly heterogeneous society in curricular and education policy.

Since its inception, the fellowship program has benefited 150 students of education, including nine New Englanders. Eighty-nine of the former fellows were teaching in schools across the country by the year 2000, and 49 more were on their way to becoming classroom teachers.

The RBF plans a continuation of its first program—specifically, nominations have been solicited from selected colleges and universities in fall 2000 and a new class of fellows will be admitted in spring 2001.

Last year, the RBF published *Voices of Insight & Power* which reported on the recruitment effort and support of minority teachers in public schools. RBF Chair Steven C. Rockefeller noted that the *Voices* report “clearly illustrates how outstanding minority teachers can enrich and strengthen America's public schools.”

In assembling material for its report, the RBF encouraged the fellows to tell their own stories. One story was provided by Debby Saintil who, after graduating from Milton Academy and attending Wellesley College, decided to become a teacher. She studied for a year at the Harvard

Graduate School of Education before taking a teaching job at the Jeremiah E. Burke High School in the Dorchester section of Boston.

In a compelling profile titled “Not for the Faint of Heart,” Saintil emphasizes that education is a gift that must not be taken for granted. “It's not a ticket to a house in the suburbs or a car,” she concluded. “It's something to be invested in the community as a whole.” Saintil also notes that while her interest in the fellowship was financial, she soon discovered another dimension to the program. “I was introduced to a diverse group of educators from around the nation. I met people who shared the same commitment as I have toward the education of black and Latino students. I met people who unapologetically laughed and cried as they recounted their experiences working with youth of color. The fellowship,” she says, “has connected me to a community of people who are driven by their hearts to make positive steps to enforcing justice in all our communities.”

Eleanor M. McMahon is distinguished professor at the Taubman Center for Public Policy and American Institutions at Brown University and a member of the Futures Project Advisory Committee. McMahon is a former chair of the New England Board of Higher Education. She served as co-chair of the ECS Alliance for Minority Teachers and as a member of the Rockefeller Brothers Fund Minority Fellowship Board.

Recruiting Minority Teachers ...

More than 25 percent of students in Connecticut schools are minorities, but just 7 percent of Connecticut teachers are. Now in its third year, Connecticut's Minority Teacher Incentive Grant Program provides minority college juniors and seniors as well as college graduates with up to \$5,000 a year for the first two years of full-time study in an undergraduate teacher preparation program at a Connecticut college or university. About a dozen public and private colleges participate in the teacher incentive program. Students who complete the program may also receive up to \$2,500 a year for up to four years to help pay off college loans if they teach in a Connecticut public school. The program has made grants to nearly 100 minority students, a third of whom are already teaching in Connecticut public schools ... **The minority population of Burlington, Vt., grew by 55 percent from 1990 to 2000, while the city's white population shrank, according to new census data. The Vermont Legislature recently granted state funds to the Coming Home Foundation which provides postsecondary scholarships to minority students who agree to teach in elementary and secondary schools in the state after graduation from college ...** In Massachusetts, where minorities constitute 24 percent of students, the Andover Woodrow-Wilson Institute for Recruitment of Teachers at Phillips Andover Academy, provides a four-week summer training program and \$1,000 stipend to African-American college juniors who are planning to teach following graduation or pursue a graduate degree in education. Springfield College, in partnership with Springfield Public Schools, sponsors Project SPIRIT, a program focusing on recruiting minorities to teach in the local community. ... **Salve Regina University in Rhode Island offers full-tuition scholarships to ethnic minorities who plan to major in education. Seven students have been granted scholarships since the program's inception in 1992 ...** In Portland, Maine, the University of Maine has teamed up with Portland Public Schools to move bilingual paraprofessionals into teaching positions.



PHOTO COURTESY OF ALISON MCKENZIE.

A Matter of Degrees

New England and the United States

With their workforce development emphasis and low prices, community colleges have been among the fastest-growing higher education institutions nationally. Yet, as the number of associate degrees conferred by U.S. colleges grew by 10 percent between 1993 and 1998, the number granted by New England colleges shrank by 10 percent to 26,530, according to a New England Board of Higher Education analysis of federal data published in FACTS 2001, the special annual directory of CONNECTION.

The number of bachelor's degrees granted by New England institutions also declined during the five-year period, while the number of graduate degrees grew.

DEGREES CONFERRED BY REGIONS: 1993-1998

ASSOCIATE DEGREES

	1993	1998	% Change
New England	29,644	26,530	-11%
Middle Atlantic	85,783	86,042	0.3%
South Atlantic	89,162	101,663	14%
East South Central	36,632	28,285	-23%
West South Central	36,591	42,853	17%
East North Central	90,449	87,928	-3%
West North Central	37,483	44,776	19%
Mountain	28,574	39,023	37%
West	80,438	101,455	26%
United States Total	514,756	558,555	9%

BACHELOR'S DEGREES

	1993	1998	% Change
New England	85,411	80,143	-6%
Middle Atlantic	188,600	182,117	-3%
South Atlantic	188,880	199,971	6%
East South Central	65,965	67,140	2%
West South Central	108,874	115,433	6%
East North Central	207,842	203,674	-2%
West North Central	101,925	102,433	0.5%
Mountain	67,257	78,124	16%
West	150,424	155,371	3%
United States Total	1,165,178	1,184,406	2%

MASTER'S DEGREES

	1993	1998	% Change
New England	32,162	37,735	17%
Middle Atlantic	68,298	75,856	11%
South Atlantic	58,472	72,160	23%
East South Central	17,519	21,568	23%
West South Central	31,903	36,797	15%
East North Central	65,631	74,624	14%
West North Central	25,634	31,680	24%
Mountain	20,043	25,486	27%
West	49,923	54,258	9%
United States Total	369,585	430,164	16%

DOCTORATE DEGREES

	1993	1998	% Change
New England	3,386	3,746	11%
Middle Atlantic	7,277	7,385	1%
South Atlantic	6,714	7,422	11%
East South Central	1,758	2,017	15%
West South Central	3,510	3,954	13%
East North Central	8,055	8,541	6%
West North Central	2,819	3,509	24%
Mountain	2,288	2,647	16%
West	6,325	6,789	7%
United States Total	42,132	46,010	9%

FIRST-PROFESSIONAL DEGREES

	1993	1998	% Change
New England	4,896	5,671	16%
Middle Atlantic	12,929	13,206	2%
South Atlantic	12,791	14,360	12%
East South Central	3,658	4,222	15%
West South Central	7,761	8,030	3%
East North Central	12,683	12,825	1%
West North Central	7,238	7,341	1%
Mountain	2,152	2,168	1%
West	11,279	10,775	-4%
United States Total	75,387	78,598	4%

Source: New England Board of Higher Education analysis of U.S. Department of Education data.

Local Color

How Community Heritage Enhances Education

MICHAEL HOBERMAN



Once upon a time, many New England towns had gathering places—general stores, usually—where locals met informally every day and, as we like to think, “told stories.” Gradually, as second-growth forests marched across once open fields, and cars closed the distances between villages and towns, many of the gathering places became empty shells or disappeared altogether. With their demise, we tell ourselves, the stories came to an end. But that’s not quite true.

To begin with, those people sitting on the bench in front of the general store weren’t really *telling stories*. They were simply talking to each other. What rural New England farmer in his right mind would ever have left his barnyard or orchard in order to swap anything but actual goods? What farm wife could abandon her childrearing, food-preparing, wood-stacking and clothes-repairing in order to gab aimlessly with friends and neighbors?

Although rural New Englanders might never have told stories, they kept on talking to one another—and they still do. The stories are the things they say. We all tell stories like that. In this way, we contain and embody community heritage, and the sooner we disabuse ourselves of the tendency to sentimentalize it and treat it as an item of nostalgia, the sooner we will realize its full worth.

The chief value of community heritage in the classroom is not its quaintness nor its capacity to strengthen our attachment to some departed golden age. Rather, when schoolchildren explore the culture of their neighborhoods, towns and villages, they discover what firsthand learning is all about. They learn that history and tradition continue into the present—that we can

literally touch the past instead of just looking it up in the encyclopedia. Moreover, this approach removes one of the primary barriers to real education—the mistaken notion among so many students that the history and culture they’re being taught isn’t *theirs*, but rather a dead and distant set of abstractions in a textbook.

The idea that informally exchanged *talk*—call it storytelling if you like—is of immediate cultural value is a commonplace assumption. Folklorists, ethnographers, oral historians and others have been “collecting” the stuff for more than a century—archiving it, interpreting it, re-presenting it. We understand, in fact, that local culture is *culture* nonetheless, that the talk on the store porch and at quilting bees, tells us as much about New England as the poetry of Emily Dickinson and Robert Frost.

Those of us who are educators know that this talk has a certain educational value. Indeed, around the country, students are increasingly exposed to community heritage.

Education in America has always been in a crisis, of course, but in the midst of the current concerns about “accountability,” “alienation” and “attention-deficit,” the exploration of local culture would seem to be espe-

cially appropriate. Its compelling and palpable content and its value as a means of gathering primary source materials lend themselves particularly well to all manner of disciplined applications. English teachers can design a writing curriculum around students’ field reports. Social studies teachers can supplement their textbook accounts of World War II with locally gathered reminiscences from veterans. Science teachers can help their students learn basic concepts in biology and earth science, among others, by taking their classes outdoors and putting them to work observing local vernal pools and rock formations.

Michael Umphrey, the director of the pathbreaking Montana Heritage Project, puts it this way: “Studying history, nature and folklife in the towns and neighborhoods that surround them, young people experience the adventure of discovery while learning the skills of research, documentation, analysis, synthesis, interpretation, creation and presentation.”

This is a gospel we would do well to heed. Will it reveal the Shakespeares in our midst? Will the lore that kids gather in their communities restore some golden age of *storytelling*? Not very likely. But students might learn to *care* about school and look forward to going there.

Consider, for example, how high school kids participating in the Montana Heritage Project discover the settlement history of their own towns. They focus on the history of a single building and arrange for its placement on the National Register of Historic Places. In southern New Mexico, Mexican-American teenagers conduct a detailed oral history in order to

document the life and times of the borderland they call their own.

These students will know that research is more rewarding than a trip to the library's computer terminal. They will come to know their communities not just as places to live in, but as well-springs of culture. And all that talk they collect will instruct them in another way as well. Culture doesn't vanish if you pay attention to what neighbors, parents, volunteer firefighters and short-order cooks are saying.

Community heritage projects are operating in New England as well. Elementary school children in rural Antrim, N.H., fashion their own in-school local history museum and invite the townspeople to view and contribute to it.

In western Massachusetts, I've worked with middle-school kids on several intergenerational interview projects. One video documentary brought us all into a home economics classroom in Turners Falls where a seventh-grade girl and her father made anadama bread from their family's 300-year-old recipe, while the grandmother/granddaughter duo at the next cooking station prepared a batch of Polish *golumpkies*. That particular social studies lesson meant all the more when the kids ate it for lunch.

One year later, another group of middle-school kids spent one morning a week throughout the fall visiting one of the last generations-old family farms in Montague Center. Students watched in wonderment as John Bitzer yoked up his team of oxen, tended his bee-boxes and recounted the history of the house in which he'd been born, the house we were sitting in. But nothing impressed them more than the fact that, on our last day, after we'd treated Mr. Bitzer to pizza, he bent those pizza boxes in half and pushed them into his 100-year old woodstove. He was a real man living in the real world, they saw, a man who knew what to do with all that colored, olive-oil stained cardboard.

Cultural warriors watch with horror as civilization's reputed bulwarks—the plays of Shakespeare, for instance—become less precious in the eyes of young people with diminishing atten-

tion spans and dwindling academic abilities. What the warriors forget, of course, is that those plays were first performed in noisy, beery halls and that those stories had as much a folk origin as the blues. Of course, community heritage will not replace Shakespeare. But if properly taught and understood, local talk—the folklife of the workplace, the kitchen counter, the *bodega*—can be another variety of cultural expression. If kids can learn to appreciate the words of a local dairy farmer—his actual *words*—they'll also know how to appreciate the words of Shakespeare. If kids can be enthralled by an elderly neighbor's tale of crossing the Atlantic in pursuit of a new life in America, they're all the more likely to be enthralled by the *Odyssey*. In fact, the more they explore the "common" verbal forms they encounter in their own communities, the more likely they'll be to *want* to explore the "uncommon" ones we're so eager for them to master—the content of all those MCAS exams and other gauges of cultural literacy that we've devised.

We New Englanders like to think that the past has a home here—that our towns and cities are heritage museums in and of themselves, shrines to Puritan stalwartness, Revolutionary fervor, Industrial Age ingenuity. In my rural section of Massachusetts, every town has a Historical Society all its own. These towns revere their heritage; they heap it up in collected piles of old photographs, dusty Civil War uniforms, barrel-stave skis and bicentennial cookbooks. Some of the historical societies around here possess an archive of another sort—a drawer or two full of cassette tapes—interview footage from someone's oral history project of 10 or 20 years ago. "We have to record those stories before the old folks die," I hear, and as a folklorist I've certainly done my own enthusiastic share of interviews with elders, interviews that were calculated, at least in part, to record the lost lore of a world before cars, reforestation and an urban economy.

Lest we forget, however, New England's uniqueness derives from something other than merely antiquarian leanings. We knew this—

or should have—as long ago as 1836, when Emerson spoke of his own "retrospective" age that built "the sepulchers of the fathers" instead of beholding "God and nature face to face."

Face-to-face encounters with knowledge are what we need most. Higher education institutions can help because many of them can supply resources and guidance in fieldwork and ethnography, as well as ideas for classroom application. And since colleges and universities are our primary teacher training grounds, we ought to be able to look to them for encouragement and sponsorship here; a community heritage curriculum may be a common sense approach to education, but it's also cutting edge.

The University of New Hampshire's Center for the Humanities is sponsoring just such a program. The New England Community Heritage Project, funded by the U.S. Department of Justice, is co-sponsored by the American Folklore Society and several state humanities councils. The project will bring 36 public middle and high school teachers from all six New England states to Durham this summer for a five-day, intensive workshop on fieldwork and classroom application of local culture study. We would like to think the institute will serve as an example of what other New England colleges and universities can do to help promote the study of local culture in New England schools.

If the community heritage curriculum works, it does so because it has life in it and because the students know that. Bringing local heritage into the schools doesn't promote "self esteem" and it's not meant to pander. It's a means, rather, of making education an encounter of living beings with other living beings.

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The Challenge of Innovation

A Call for Risk-Taking in Academia

PAUL LEBLANC AND CLAYTON CHRISTENSEN

The Internet may come to pose no more threat to traditional face-to-face delivery of higher education than did any number of new dot-com companies prove to pose to their brick and mortar progenitors. However, in the area of continuing education, graduate and professional education, corporate training, and a need to meet growing global demand far exceeding the capacity of traditional delivery systems, our colleges and universities may not be best positioned to take advantage of new online technologies and retain their role as market leaders. Other industries provide ample evidence that this might be just the situation facing colleges and universities in the next 20 years.

Innovation often thrives on a new disruptive technology—one that changes the fundamental operating assumptions of an industry. But organizations that create disruptive technologies often fail to capitalize on them and, worse, often fall victim to them in the hands of others.

This was the case with the failure of innovative, well-run minicomputer manufacturers like Digital, Prime, Data General, and Wang Laboratories, all of which failed to launch successful lines of personal computers. It was the case with PC manufacturers who aggressively invested in handheld computing years ago and yet today offer little competition to wildly popular Palm products. It was the case at the turn of the century with sailing ship builders who never became important builders of steamships.

Higher education—one of this country's most successful industries in terms of diversity of offerings, overall quality, international reputation and hold on market—is facing dramatic shifts. Its market is changing. A *minority* of students fit the 18 to 21 year-old residential profile of past years. The global demand for higher education is profound, but many nations lack capital resources to recreate or buy into

our traditional systems of instruction. New technologies are redefining when and where learning takes place, exemplified in distance learning. New providers of instruction such as the University of Phoenix, Jones University and Harcourt Higher Education are entering the marketplace. Most importantly, the value criteria the public is applying to higher education is shifting, with affordability, convenience, just-in-time relevancy, lifelong learning and vocational application becoming increasingly important.

Much of this change is made possible through the Internet, perhaps the ultimate disruptive educational technology. Yet while colleges and universities have all the internal knowledge and skills necessary to successfully innovate with Internet technologies, many fail to do so. The lurching launch of the Western Governors' University and the failure of the California State University's online college speaks to the great difficulty that large, well-equipped institutions are having in making the shift to online education. The high cost/low revenue aspects of other attempts do not bode well.

This is not a crisis of leadership in higher education. University and col-

lege presidents and their staffs are as acutely aware of technological change as anyone. But they labor under a handful of principles that work against effective innovation.

First, a college's ability to procure tuition dollars and charitable contributions dictates its overall financial success. As a result, institutions become very good at killing ideas that their students and donors don't like. This is why boards of trustees, heavily loaded with wealthy and often nostalgic alumni, exert such a powerfully constraining influence on many institutions. It is also why the best-endowed, most powerful and established institutions produce excellent research in *sustaining* technologies, yet community colleges, with tiny endowments and little or no dependence on tuition dol-

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MEANS TAKING MULTIPLE
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lars, have been the great innovators in teaching and learning.

Second, disruptive technologies often allow new markets to emerge and provide opportunity for those who are willing to serve them. (Indeed, success with innovative and disruptive technologies often depends on starting with a market you do not already serve providing less revenue than the established market.) But those markets

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rarely fit the economics of large, well-established institutions. Any administrator would love the idea of offering a \$90,000 MBA like Duke's hybrid distance learning degree. But how many institutions can sustain a substantial commitment to an underserved population such as senior citizens?

Third, while market research and good planning are the hallmarks of effective management, genuine innovation and the accommodation of disruptive technologies defy such practice. Research and planning are critical to sustaining successful innovation, but they have a long history of dismal failure when it comes to making breakthrough use of technology. Institutions and foundations interested in this level of innovation must accept a high level of unpredictability in the strategies and programs that will lead to success.

Finally, and perhaps most threateningly, disruptive technologies are disruptive because while they start small and with underserved markets, they subsequently become fully performance-competitive with the mainstream. Indeed, the evidence strongly suggests that disruptive transformational change almost always *begins* with nontraditional markets. Adult education started as an ancillary revenue generator for colleges and universities more than 25 years ago and adult or nontraditional age students now dominate the college market. Marlboro College has taken only two years to graduate as many students from its online programs as it does from its traditional residential college.

None of this suggests that institutions of higher education should act more like businesses. It does suggest, however, that institutions of higher education and private foundations—among the principle investors in innovation—learn some lessons from the great companies that have failed when confronted with new technologies.

First, make forays into new technologies and new markets fast, inexpensive and flexible. These three qualities fly in the face of academic tradition, but disruptive innovation means taking multiple tries at the target, learning with each iteration, expecting failure, and adjusting quickly. The cost of each try needs to be modest so that the overall effort can be sustained. This suggests a very different funding model than the one currently used by foundations and universities.

Second, don't shy away from new technologies that seem inadequate today. We know that the curve of technological improvement often exceeds the curve of user demand. For example, the online tools of five years ago were inadequate for creating rich, virtual learning environments. Today, distance learning can provide wholly online instructional experiences as rich and fulfilling and effective as traditional face-to-face classrooms. Different, no doubt, but better in many ways in terms of cost, convenience, and customization.

If private foundations are to play a role in changing the conditions that engender successful innovation, they should become more comfortable with risk and failure. They should make more modest investments, but commit to sustained investment over time contingent on incremental learning by the institution and small successes. They should set the funding agenda less narrowly than many of them do now. In particular, if they want to support disruptive innovation, they should welcome initiatives that target new markets and nontraditional customers. They should be wary of proposals that promise disruptive innovation within established institutions for traditional customers.

For their part, colleges and universities should not overstate their case,

suggesting that the idea for which they seek funding is fully thought out, tested, a sure success, and the *only missing piece* is the necessary funding; that the funded initiative will be *transformative* on their campuses; and that once successful there, the model will be *transportable* and *scalable* for campuses across the country—in short, that it will transform all of higher education. These claims are often made, or at least implied, and they never happen this way. Disruptive innovation doesn't happen this way either.

Instead, institutions making a case for funding from a foundation should bring forth a modest proposal, establish its process for agile recalibration and avoid trying to effect such innovation within its core organization or for its traditional, already well-served markets.

This last point is critical. Colleges and universities need to insulate their innovators from the mainstream organization, at least in the early stages. The cornerstones of quality in established institutions—traditional governance structures, curriculum committees, careful and critical consideration of the new, the apprenticeship system of graduate teaching and then faculty ranks—will impede their efforts.

The Ivy League bastions of Harvard and Yale and such Potted Ivies as Amherst and Williams may dominate our collective mythology about American higher education and inform novels and films, but they are hardly representative. Higher education in America is primarily land-grant universities, state colleges, huge community college systems, and small, struggling liberal arts colleges. None of them can remain sanguine in the face of disruptive changes in higher education. But all of them, with those who invest in them, can create a context in which they become innovators.

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Flunking on Costs

National Report Card Raises Alarm over Affordability of Higher Education in New Hampshire

DONALD P. WHARTON

When the National Center for Public Policy and Higher Education released its *Report Card for Higher Education* last December, New Hampshire was one of only three states nationwide to receive an “F” for affordability. The study measured affordability in part by the percentage of family income required to pay for college expenses minus financial aid—30 percent in New Hampshire. Rhode Island also failed in affordability (37 percent), as did Maine (30 percent), which has for the last few years ranked just above New Hampshire in its per-capita contribution from state funds to higher education. While Maine has held onto 49th place, New Hampshire has maintained its place as dead last among the 50 states. For New Hampshire to overtake Maine, it will need to increase its per-capita funding by 30 percent, or \$25 million.

The cost of higher education in New Hampshire is not affordable at a time when the state has the greatest need for college graduates. It has been estimated that New Hampshire must double or triple the number of college graduates to meet the staffing demands of New Hampshire-based industry, especially its high-tech sector. According to the New Hampshire Office of Policy Analysis, the number of high school graduates in New Hampshire is expected to increase by more than 20 percent by 2010. This growth would provide the state with the workforce it needs—if these high school graduates go on to receive a college education in New Hampshire.

The lack of adequate funding for public education in New Hampshire is forcing tuition rates out of the reach of the young men and women who grow up in our state and want to be educated here. Offering affordable higher education to keep New

Hampshire’s high school graduates in the state is vital to developing a skilled and adequate workforce. But without sufficient funding and financial aid from the state, New Hampshire students must pay a larger share of the cost of their education.

University System of New Hampshire Trustees are working to keep annual tuition increases at or below 4 percent in return for 5 percent annual increases from the state Legislature. Capping tuition without significant increases in funding from the state, however, leaves state institutions caught in a tight squeeze.

The cost of operations at Plymouth State College is 12 percent lower than at other comparable institutions; however, only 18 percent of the college’s operating budget is provided by the State of New Hampshire. This is far below the national average, which exceeds 30 percent. Almost 46 percent of Plymouth State’s annual operating budget comes from tuition and fees, and the remainder comes from private gifts, grants and other sources. Counting housing and dining costs paid by residential students, the student share of the operating budget is almost 64 percent. Additionally, the state provides only \$1.3 million in resident scholarships compared to \$7.7 million in Maine and \$12.3 million in Vermont.

In response to the state’s education and workforce needs, the University System of New Hampshire is seeking to partner with the Legislature to control the costs of in-state tuition while maintaining a first-rate public post-secondary education system. This effort calls for a contribution from both the University System and the state. The state has been asked to continue its investment in the System with 5 percent annual increases for University System operating budgets for fiscal

years 2001 and 2002, and to authorize funding for a capital budget of \$185 million over a six-year period. [In the spring, the New Hampshire House sent the Senate an operating budget that includes a 5 percent increase and \$100 million in capital expenditures for the University System.] In return, the System will do its part to maximize the state’s investment by stabilizing in-state tuition rates, maintaining academic excellence and serving as an economic engine for the New Hampshire economy.

In the same *Report Card* that gave the state an “F” for affordability, New Hampshire earned the highest grade in the nation in completion—one of only four “A” grades given nationwide. According to the *Report Card*, New Hampshire has something to teach higher education systems in other states. We know how to keep students in school, keep them engaged and how to prepare them for the workforce that our state needs. However, providing access to higher education is part of the mission of public higher education—a promise that cannot be kept if the price tag is too high.

Certainly, the *Report Card* doesn’t tell the whole story of either completion or affordability of higher education in New Hampshire, but added to other existing data on funding of higher education, it reveals a need for attention—for dialogue between representatives of higher education and the members of the Legislature, and for alumni, friends, parents and students to make their voices heard. The future of higher education in New Hampshire is important to the future of the state.

Donald P. Wharton is president of Plymouth State College. This article is reprinted from the Winter 2001 issue of Plymouth Magazine.

Interstate 6

New England's Higher Education Compact Has Stood the Test of Time

MELVIN H. BERNSTEIN



Interstate compacts are one of the least understood yet most productive legal tools for states to solve problems that transcend their boundaries. Though unfamiliar to many legislators and state officials, the compacts actually predate the U.S. Constitution. They were commonly used by the colonies to settle boundary disputes and the practice was later carried over to and authorized by the Articles of Confederation. The power of states to enter into interstate agreements was then written into the Constitution under Article I, Section 10, in what has become known as the “compact clause.”

Relying on constitutional authority and longstanding practice and inspired by the precedent of earlier education compacts among the southern and western states, New England's governors, one by one from 1954 through 1957, entered into a New England Higher Education Compact to share the region's higher education resources and work together to meet workforce needs.

The original signatories to the compact included Massachusetts Gov. Christian Herter, who as a state legislator in the 1930s championed the idea of using interstate compacts to solve regional problems in New England. Herter went on to become secretary of state under President Eisenhower. Other governors who signed the compact included Abraham Ribicoff of Connecticut, who later served as secretary of health, education and welfare in the Kennedy administration and Maine's Edmund Muskie, who became secretary of state under President Carter, as well as Lane Dwinell of New Hampshire, Dennis J. Roberts of Rhode Island and Joseph B. Johnson of Vermont.

The original signatories shared an understanding of the historic importance of higher education to New England and the foresight to

see its potential contributions to the region's economy and quality of life.

Special agreements

An interstate compact is a constitutionally authorized agreement between two or more states that is both recognized as a legally binding contract and has the force of statutory law. There are 192 interstate compacts in force in the United States today, including nine in New England, according to the Kentucky-based national Council of State Governments, which tracks the agreements. In addition to education, interstate compacts cover the operation of multistate port facilities, the distribution of regional river water among states, energy management and conservation of natural resources. New England's compacts apply to water pollution control, law enforcement, health protection, dairy pricing, trucking and emergency military aid, as well as higher education.

The wide range of interstate compacts in use today enable states to do in concert what they legally cannot do acting individually. Most of those in existence today were entered into during the period from the end of World War II to the mid-1970s. Impetus for

that surge was given by the landmark article by Felix Frankfurter, a Harvard Law School professor who would later become a distinguished justice of the U.S. Supreme Court, and James M. Landis writing in the *Yale Law Journal* (1925) on “The Compact Clause of the Constitution.”

The idea of using the regions as laboratories for seeking new creative policies in the states became popular during the postwar period. The idea was to shift the states away from a distant, top-heavy federal government and more toward state and local control, which is closer to the people. It was felt that neighboring states in a geographic area could be more creative in seeking solutions to regional problems beyond the competence of any single state to resolve.

In recent years, there has been more emphasis on adding new states to already existing compacts and revising operating compacts to reflect rapid changes in information technology, communications, finance and trade, and the evolving need for environmental protection, energy resources and conservation.

Sharing resources

The governors who created the New England Higher Education Compact built four basic purposes into the agreement: broaden educational opportunities for New Englanders; use state education resources on a regional basis to reduce tuition costs for out-of-state students; avoid duplication of high-cost education programs in the states; and strengthen the regional economy by producing more college graduates in scientific, medical, engineering and technical fields.

The founding governors also gave their successors good reason to stick

together through tough times. They built into the compact a two year "cooling-off" period, so a state contemplating withdrawal from the compact has time to reconsider the costs and benefits of membership, and the remaining states can continue operating effectively under the regional agreement.

The New England Board of Higher Education (NEBHE) was created in 1955 as the interstate agency charged with carrying out these purposes. Within a few years, NEBHE had established what remains its flagship program—an initiative enabling New England residents to pay reduced tuition at out-of-state public colleges and universities within the six-state region if they pursue designated degree programs not offered by their home-state public institutions.

NEBHE began this Regional Student Program (RSP) in 1957 and enrolled 301 students in 1958-59. By the year 2001, nearly 160,000 New Englanders had passed through the program. Last year alone, 7,616 New England students saved an average of \$5,230 each in tuition costs for a total of nearly \$40 million.

RSP students pursue majors in such high-demand fields as laser optics technology, biomedical engineering and neurobiology, fields critical to the region's fast-changing, knowledge-driven workforce. Pamela Gaetani, a Connecticut resident who majored in clinical lab science at a community college in Massachusetts, explains: "As a mother of three children with no financial aid at all, the reduced tuition was extremely helpful. I was able to go to an out-of-state school that was only seven miles from home."

The six states, meanwhile, save millions of dollars because they don't have to duplicate expensive programs in fields such as pharmacy, biophysics and industrial technology.

NEBHE's contributions to the education and economic growth of New England are by no means limited to the regional student exchange. NEBHE's New England Technology Education Partnership, for example, has brought \$1.7 million in National Science Foundation grants to New England since 1995. The partnership provides

state-of-the-art educational programs and equipment to colleges and secondary schools in the emerging fields of fiber-optics technology, telecommunications technologies, photonics and aquaculture.

Short-term pressures

Despite the big tuition savings to New England's residents, capital cost savings to state governments and a record of productive regional programs, the compact's existence has been imperiled from time to time by short-term budget pressures in the largest states, namely Connecticut and Massachusetts.

By way of background, each state is represented on the NEBHE board by eight delegates appointed by the governors and legislative leadership. Basic funding to support NEBHE programs is provided by the six New England states through annual assessments. The New England Higher Education Compact's funding provision authorizes annual contributions based on state population unless the board adopts another basis for making its budget recommendations to the states. That base funding provision is largely drawn from the nation's first interstate education compact, the Southern Regional Education Compact, which was formed by 15 southern states in 1948, and similarly relied on state population as the formula for funding with the provision that another basis for funding could be adopted, and indeed, each member state now pays an equal amount annually. That agreement was followed by the Western Regional Education Compact, which was approved by 13 western states in 1953. The western compact took a different tack, requiring that annual operating costs be equally divided among the compacting states. In practice, NEBHE has followed a midway position in exercising its budget responsibility, assessing an initial flat \$10,000 fee to each of its member states with the remainder assessed on the basis of state population relative to the total New England population.

The first challenge to the compact arose in 1980 when the Connecticut Legislature approved a bill declaring

that it was in its best interest to withdraw from the New England Higher Education Compact and proceeded to notify the five other states of that intention. Seeking to establish an alternative to NEBHE's regionwide RSP, Connecticut sounded out the other states to see if they would enter into separate agreements for student exchanges instead of operating under the regional compact. The member states stood firm in their resolve to uphold the compact, and a year later, Connecticut lawmakers repealed the withdrawal legislation.

The cooling-off period worked just as the founding governors hoped it would work for future generations: The five other New England states kept the regional program intact, while bringing before the Connecticut Legislature the facts demonstrating that the compact's benefits far exceed the costs of membership.

It did not take long before the cooling-off period was tested once again. Maine Gov. Joseph Brennan officially notified NEBHE and the five other member state governors in June 1981 that his state intended to withdraw from the compact, effective in two years. Brennan based that decision on "our feeling that though beneficial, the [NEBHE] program was not essential to our state ..." The two-year breathing period allowed NEBHE and its Maine delegates to show the Brennan administration and the state Legislature the cost-benefit evidence that led Maine to reverse its decision in July 1983. Brennan declared in his reinstatement letter that after evaluating his state's participation in NEBHE programs, the legislative and executive branches of government "have concluded that Maine derives substantial benefits from membership in the Compact," and that NEBHE was both pursuing important priorities and pursuing them effectively from Maine's point of view.

The next major battle over the compact occurred in 1989 when Massachusetts Gov. Michael Dukakis, a Democrat, defaulted on payment of its annual assessment after two years of being in arrears. After much delibera-

tion, NEBHE declared Massachusetts to be in legal default of its financial obligation and sent letters to Bay State students in the RSP warning them that their tuition savings were in jeopardy. The *Patriot Ledger* of Quincy, Mass., ran an editorial headlined “State Defaults, Students Pay,” in which it noted that 1,400 Bay State students “are faced with immense tuition increases because Massachusetts has reneged on its financial obligations” under the regional compact. The *Patriot Ledger* added, “The reciprocal agreement is a sensible way to share educational resources in the region” and warned that provoking the sharp rise in tuition “is not the kind of thing Massachusetts—a world leader in education—should be doing to thousands of New England students.”

Confronted with the reality of Massachusetts residents seeing huge tuition increases and losing affordable access to valuable academic programs in the five other New England states, Dukakis relented and agreed to pay state funding obligations in full.

In 1996, Connecticut Gov. John G. Rowland, a Republican, proposed zeroing out NEBHE funding, and a bill was introduced in the state Senate to terminate Connecticut’s membership in the compact. But once again when state legislative leaders studied the actual costs and benefits of compact membership, they quickly moved to restore NEBHE funding to the budget, and it was approved without further debate. The funding in question totaled \$307,670—a microscopic 0.0033 percent of that year’s total state expenditures of \$9.2 billion.

Last year, Massachusetts went through a similar exercise when Gov. Paul Cellucci, a Republican, omitted NEBHE’s line item from his proposed budget. The Legislature later restored the funding, amounting to \$714,292—again, coincidentally, 0.0033 percent of total state expenditures of \$21.5 billion.

Compacts compared

Curiously, none of the nation’s other three regional higher education compacts have experienced either a default or a formal notice of withdrawal from any of their original member states. Both the southern and western regional

agreements served as useful models for New England’s own higher education compact, including the cooling-off provision which they share.

The Midwestern Higher Education Compact, created by seven midwestern states in 1991, was the last of the four operating regional education agreements to be approved, and also includes the two-year cooling-off provision approved by its sister compact organizations.

In view of its precarious budget history, it is remarkable that the New England Higher Education Compact has managed to survive intact for nearly a half-century. The basis for that durability can be found in the provisions of two unique documents that have made its survival possible. The first is the provision that the founding governors wrote into Article IX of the compact, requiring that no withdrawal action of the state become effective until two years after formal notice had been sent to the governors of the other compacting states. The second is the special status conferred by Article I, Section 10 of the U.S. Constitution, which authorizes states to enter into compacts with one another with the consent of Congress. That same section of the Constitution further prohibits any state from passing a law impairing the obligation of existing contracts. In one of the most influential cases involving interstate compacts, *West Virginia ex rel. Dyer v. Sims*, the U.S. Supreme Court ruled in 1950 that a state cannot unilaterally nullify a compact, that a compact is an enforceable contract and that only the nation’s highest court has the final power to resolve the validity and obligations of compacts between states. The Supreme Court in an opinion written by Justice Frankfurter, reversed an unwarranted interpretation by the West Virginia Supreme Court of its own state constitution holding that the state auditor could not lawfully withhold payment of the state’s financial obligation to the Ohio River Valley Sanitation Compact.

To be sure, another factor behind the New England Higher Education Compact’s durability is the growing public interest in the RSP. There is

hardly a legislative district in New England that does not have constituents who have benefited from the program. It is fair to assume that public support for the tuition-savings program became clear to Dukakis administration officials in 1989 when the threat of losing RSP savings sparked a huge outcry from the public and media alike. It also appears clear to most of the region’s current governors. As Gov. Lincoln Almond of Rhode Island has observed: “The RSP is one of the most affordable and comprehensive programs for students in our region. By pooling the resources of the six New England States, we broaden educational opportunities for young people and also contribute to the growth and development of the region.”

Over the course of more than a half-century, despite several close calls, there has never had to be a court case in New England to enforce state obligations under the compact. But questions raised by state officials have brought forth advisory opinions from the attorneys general of both Maine and Connecticut, upholding the legal requirements of the compact and the compact’s language requiring a two-year waiting period once a state gives notice of intention to withdraw. There are no attorney general opinions in New England to the contrary.

It seems reasonable to expect that as long as New England residents benefit from lower-cost, broader educational opportunities made possible by the New England Higher Education Compact, NEBHE’s forward looking programs are likely to grow and prosper. The modest sums of money that the states pay under the compact to fund NEBHE, in fact, pale before the savings associated with avoiding duplication of costly academic programs and the increased opportunity to educate citizens for the demands of New England’s knowledge-driven economy.

Melvin H. Bernstein is a senior fellow at the New England Board of Higher Education. A lawyer and political scientist, Bernstein wrote two 1990 legal briefs on state responsibilities under the New England Higher Education Compact.

BOOKS

Adjunctivitis

Deborah Hirsch

Teaching Without Tenure: Policies and Practices for a New Era, Roger G. Baldwin and Jay L. Chronister, *The Johns Hopkins University Press*, 2001, \$32.50

As colleges and universities of all kinds struggle to maintain financial resources and staffing flexibility, they increasingly turn to both part-time and non-tenure-track faculty.

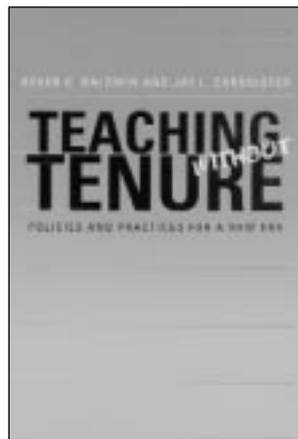
Education scholars Roger G. Baldwin of the College of William and Mary and Jay L. Chronister of the University of Virginia describe the growing cadre of full-time, non-tenure-track faculty and its impact on higher education as well as institutional policies aimed at integrating these faculty into the academic community.

The authors conducted a national study of the growing use of full-time, non-tenure-track faculty in four-year colleges and universities. They examined 1988 and 1993 national studies of postsecondary faculty in addition to their own survey of higher education institutions, and conducted extensive interviews on 12 campuses.

Their study reveals the diversity of interests and motivations, career goals and aspirations among the one-fifth of all full-time faculty at four-year institutions who are non-tenure-track. Baldwin and Chronister offer a typology of these faculty members based on their roles and educational attainment.

One type are the “teachers.” With teaching their primary activity, they

are less likely to have doctorates, serve on fewer committees and tend to publish less than their tenured or tenure-track colleagues. They are more likely to be women and to be paid less. Some are women on the “mommy track” or “trailing spouses.”



In contrast, the group referred to as the “researchers” are more likely to be young males. About 20 percent of them are minorities. They are prolific scholars in terms of publications. Some are conducting research funded by a grant, others are recent graduates hoping to move into a tenure-track position.

The third category of non-tenure-track faculty, the “administrators,” teach, but also maintain administrative responsibilities such as directing projects or programs. They tend to be more involved in institutional service and sit on more committees than any other group.

Finally, Baldwin and Chronister classify those who don’t fit any of these

groups as the “other academic professionals.” They often come from technical or professional fields and bring real-world experience to connect theory with practice. These faculty may coordinate field programs, serve as principal investigators on grants and oversee special student populations such as minority or international students.

Clearly, some faculty don’t fit neatly into any of these categories, but the typology seems to capture the variation among the groups. Baldwin and Chronister offer compelling fictional portraits of these faculty based on their interviews.

The researchers suggest a similar typology to describe the institutional approaches to incorporating non-tenure-track faculty into the academic community. Though it is likely that elements from more than one of the models exist on a given campus, the categories are helpful in thinking about the range of approaches available for working with these faculty.

Institutions characterized by the “marginalized” model view non-tenure-track faculty as ways to cut costs and maintain flexibility. As a result, these faculty are not well-integrated within the institution. They have little voice in institutional decision-making and departmental activities. They are usually hired on annual contracts, carry heavy teaching loads and are paid less than tenure-track faculty. They are considered less than “real faculty.”

Institutions following the “integrated” model use non-tenure-track faculty to maximize resources as well, but think of them as a way to enhance

program offerings and faculty qualifications. These faculty are viewed as bringing special skills and interests to the institution and, therefore, tend to be better integrated into the academic community.

A growing number of institutions are exploring an “alternative career track” model based on a contract system with built-in benefits, status and respect that serves as a complete alternative to tenure. Though they do not have tenure, these faculty are viewed as equal to their tenured colleagues in all respects.

Not surprisingly, Baldwin and Chronister find that differences in institutional models and faculty roles correspond to the satisfaction level of faculty members and the degree to which they are integrated into campus life. Faculty who fall into the categories of “tenure hopeful” or “trailing spouse” tend to be particularly frustrated as they find themselves stuck in positions with no opportunities for advancement. In contrast, faculty who are enjoying a second career or who are non-tenure track by choice find that they are able to pursue professional interests and meet personal needs through these positions.

One of the most disturbing findings in the study is that the full-time, non-tenure-track category faculty are more likely to be women and minorities. Often occupying a disadvantaged or second-class, these faculty typically do not have equal opportunities for professional development, advancement, salary and benefits or input into institutional governance. They become stigmatized because they don’t publish as much (often due to heavier teaching loads) and are not hired by means of a national search. This is particularly troubling at a time when many institutions are working to diversify their faculties.

It is apparent that higher education is not immune to the changes overtaking the corporate world. The growing numbers of part-time and non-tenure-track faculty demonstrate the need to create a hybrid position to meet both institutional needs and personal circumstances. The authors suggest that institutions consider a number of exemplary policies and practices. These include

ensuring the academic freedom of all faculty, paying comparable salaries with equitable benefits, developing clear evaluation criteria and creating multiyear contracts with probationary periods. The authors also suggest developing a system of ranks with possibilities for advancement, providing a comprehensive orientation as well as support for professional development, offering rewards and recognition for outstanding contributions and ensuring opportunities for meaningful involvement in governance and curriculum development.

The development of flexible, forward-looking institutional policies is critical. But as with most change efforts, the department chair is essential to integrating faculty into the academic community. Most chairs and deans are ill-prepared for this role and need support and guidance for orienting, supporting and evaluating non-tenure-track faculty. Campuses could start by sharing this book with chairs and deans.

Deborah Hirsch is director of the *New England Resource Center for Higher Education at the University of Massachusetts Boston*.

What Gives

David Wagner

American Foundations: An Investigative History, Mark Dowie, The MIT Press, 2001, \$29.95

Journalist Mark Dowie’s book on philanthropy begins with a clever “note on semantics” offering a wonderful skewering of overused terms such as “accountability,” “civil society,” “independent sector” and “progressive”—buzzwords Dowie identifies with philanthropy but which are similarly worn out by the academy, liberal corporations and professions such as social work and sociology.

I wish he continued in this vein. His start is not only funny, but an important critique of contemporary liberalism as well as “philanthocracy”—the science of giving money by the rich so that their sins will be forgotten by the rest of us. But while this is an important book for

anyone interested in this topic, Dowie ultimately retreats from structural criticism. By the book’s end, its conclusions add another “progressive” critique to the growing body of literature. One sign of this is that after skewering the meaningless “civil society,” Dowie proceeds to use the word uncritically hundreds of times!

The strength of the book lies in its clear, patient, historical analysis of the *foundation* as an American institution and its accomplishments and shortcomings. Although highly critical, the book is fair and well-documented.

Dowie divides philanthropy’s record into the areas of education, science, health, the environment, food, energy, art and civil affairs. In each cogent and well-organized chapter, we see how vague good intentions in plutocratic hands achieve elite objectives that ultimately succeed in disappointing both policymakers and the foundations themselves.

Education and health care have been improved in the 20th century, but along elitist lines, which have helped the affluent far more than any one else. Having created elitist colleges and developed the “medical model,” foundations now scratch their heads as to why social problems remain. Foundations financed the “Green Revolution” which revolutionized agriculture and food production in the Third World, but, in the process, destroyed village culture and exacerbated inequalities. In the arts, foundation support goes to highly visible projects for elites rather than development of a popular appreciation of the arts among working and poor people.

In each area, it is not evil people nor evil intents at issue, but rather the tendency of social elites who control foundations to fund programs that make the world look more like them—usually Western and wealthy, and, until recently, white and male. What is so strong about the book is its readable, journalistic style which accurately reflects the historical record, while covering a wide range of areas that critics of philanthropy usually find isolated in discrete academic journal articles.

But like so many liberal and left observers, Dowie retreats from his own critique. Early in the book, he describes foundations as “drag anchors” on social change that are “bland, self-congratulatory.” By the last (and weakest) two chapters of the book, Dowie has resorted to platitudes: “A healthy community leads to a healthy community.” And, “If America is to become more progressive in fact and outlook, it will be, in part, because its philanthropists seek social progress.”

Dowie complains that the dominance of conservatives in the “civility” debate must be matched by “progressive” foundations whom he hopes will put more of their money where their mouths are.

I am reminded of the old joke about the group of women who return from a Catskills vacation. They complain the food was bad *and*, of course, there wasn't enough of it! Dowie seems to think philanthropy would improve if only there were more of it.

Ultimately, the book's weakness is its inattention to how the extraction, accumulation and distribution of wealth could change.

The author sees capitalism as eternal, despite its very short history. He is suspicious of the public sector and the intervention of government officials, bureaucrats or special interests in allocating money. Yet these suspicions, though understandable, contradict his thesis about democracy, and his earlier suggestion that foundations are inherently “ademocratic.”

Yes, in these days of Clinton and Bush, Yeltsin and Putin and numerous others, it is hard to imagine an exciting democratic system of public government. Yet the logic of his argument still fails. If foundation schemes to slightly mitigate the worst of capitalist excess through a bit of philanthropy have been a dismal failure for a century, why will it change now?

David Wagner is a professor at the University of Southern Maine's School of Social Work & Sociology and author of "What's Love Got to do with it? A Critical Look at American Charity."

Granite Staters

John O. Harney

The New Hampshire Century: Concord Monitor Profiles of One Hundred People Who Shaped It, Felice Belman and Mike Pride, Eds., University Press of New England, 2001, \$19.95

New Hampshire has been bucking regional and national trends throughout the past century, growing when the rest of the region shrank, embracing local rule as state and federal powers grew, going its own way. Who made it so?

Editors of the capital city's daily newspaper, the *Concord Monitor*, look at 20th-century New Hampshire by profiling 100 famous and not-so-famous people who have called the state home: from teacher/astronaut Christa McAuliffe to poet Donald Hall to U.S. Supreme Court Justice David Souter. There are less famous shapers too, including a stonewall builder, a computer expert and a survivor of the Spanish Flu of 1918.

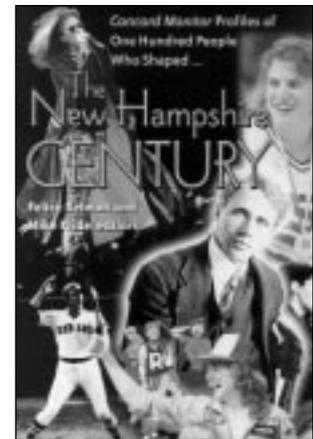
The book is edited by *Monitor* editor Mike Pride and former *Monitor* city editor Felice Belman, now with the *Washington Post*.

The collection is written in the easy journalistic style of newspaper profiles, making some of the pieces frustratingly brief. Exactly five paragraphs are devoted to John Sununu, the high-tech era governor who dogged Massachusetts Gov. Michael Dukakis throughout the 1988 presidential election and was rewarded with the chief of staff job under the elder George Bush.

A profile of the first two women elected to the New Hampshire Legislature, Jessie Doe and Mary Louise Rolfe Farnum, weighs in at just three paragraphs, but is interesting nonetheless given New Hampshire's national leadership in electing women lawmakers. About this phenomenon, the editors quote 1990s House Speaker Donna Sytek: “You can always find women in the world's lowest-paying jobs.” New Hampshire legislators today earn \$100 a year for their service in Concord just as Doe and Farnum did.

A longer essay on Carlton Fisk is a home run, explaining how the Red Sox

catcher grew up in snowy Charlestown, N.H., where “the growing season is just too short” for ballplayers, how Fisk made his home in New Hampshire even after making the majors, and how the church bells rang in Charlestown at 12:33 a.m. after the favorite son famously coaxed a 12th inning home run over Fenway Park's Green Monster to win game six of the 1975 World Series.



The editors offer a fascinating account of the life of labor leader Elizabeth Flynn, from her activist grandfather's role in a plot to set up an independent republic in Canada, through her shuttling the children of striking workers' out of harm's way in Lawrence, Mass., to her leadership of the American Communist Party and her state funeral in Moscow.

Of course, places and times are not really shaped only by people's good sides, and *The New Hampshire Century's* panicky exits when lives go awry gets tiresome. For example, the chapter on Sherman Adams is good enough, but the scandal involving Boston textile manufacturer Bernard Goldfine that ultimately cost Adams the perceived role as Ike's righthand Yankee is relegated to a single mention in the final paragraph. The lack of preparation offered the reader for New Dealer Gov. John Winant's 1947 suicide is even more perplexing. Ultimately, the profiles are endearing, if a bit economical—just like New Hampshire.

John O. Harney is executive editor of CONNECTION.

DURHAM, N.H.—The University of New Hampshire's Center for the Humanities received a \$150,000 grant from the National Endowment for the Humanities to complete work on *The Encyclopedia of New England Culture*. The 1,500-page, illustrated volume, to be published by Yale University Press, will include 1,200 entries on New England history, folklore, and literature as well as architecture, industry, medicine and the environment.

BOSTON, MASS.—Boston University's School of Management was awarded a five-year, \$5 million gift from Lucent Technologies of New Jersey to research and develop new business models that are conducive to the mobile Internet. Among other things, researchers will explore how consumers are affected by the onslaught of wireless devices such as PalmPilots and cellular phones. The London Business School and France's INSEAD business school also received \$2.5 million each under Lucent's Mobility Innovation Initiative.

BIDDEFORD, MAINE—The University of New England was awarded a four-year, \$1.4 million grant from the National Institutes of Health to fund research into why people with diabetes are at greater risk for heart disease. The university, which offers a four-year osteopathic medical school curriculum and two-year family practice residency program, also received a three-year, \$840,000 grant from the federal Bureau of Health Professions to expand pediatrics education and a three-year, \$540,000 grant from the bureau to better integrate its first two years of classroom learning with the second two years of clinical learning.

NEW HAVEN, CONN.—A Yale University economics professor was awarded a two-year, \$1.3 million grant from the Glaser Foundation to develop ways to track and measure economic and social activities that are not reflected in market transactions. William D. Nordhaus, Yale's Sterling Professor of Economics, will create a prototype set of "non-market accounts" to measure economic contributions associated with the environment, non-market use of time, and nonprofit and volunteer activities.

CAMBRIDGE, MASS.—Harvard University pledged \$1 million per year for five years toward a \$23 million partnership created to support after-school programs in Boston. Boston's After-School for All Partnership aims to improve academic achievement while reducing crime rates among young people. The initiative is funded by the city of Boston, the Boston Foundation, the Nellie Mae Foundation and local foundations and corporations.

DURHAM, N.H.—The University of New Hampshire, Dartmouth Medical School and the New Hampshire Department of Health and Human Services jointly established the New Hampshire Institute for Health Policy and Practice to conduct applied research on health policy issues. Among other things, the UNH-based institute will study long-term care and develop ways to convert the state's huge volumes of health data into meaningful community health information.

BOSTON, MASS.—The University of Massachusetts, the Massachusetts Executive Office of Health and Human Services and the governor's office launched a website to offer detailed information about Massachusetts hospitals and health maintenance organizations, Medicare and treatment options.

BURLINGTON, VT.—University of Vermont researchers were awarded a five-year, \$16 million grant from the National Cancer Institute to study how media messages can be used to deter adolescents from smoking cigarettes. Earlier UVM research suggested that messages featuring non-smoking role models are more effective than shocking images such as blackened lungs in preventing teens from smoking. Supported by new Tobacco Settlement money, states and communities are using media campaigns to try to halt sharply rising rates of smoking among youths.

LOWELL, MASS.—The University of Massachusetts Lowell was awarded a three-year, \$4.7 million grant from the National Institute of Environmental Health Sciences to expand a New England-wide worker health and safety training program. The grant will allow the New England Consortium at

UMass Lowell to develop Web-based simulations of hazardous waste or emergency response situations as well as Web-based course evaluation initiatives and environmental literacy projects involving community organizations, labor and health officials in four New England states.

WELLESLEY, MASS.—Massachusetts Bay Community College received \$259,000 worth of engineering software from the Los Angeles-based Structural Research & Analysis Corp. Used in applications from auto manufacturing to medical devices, the COSMOS/M design analysis software allows students to examine parts and assemblies for stress, displacement, buckling and other design flaws, and to modify their models to create a better design.

ORONO, MAINE—The University of Maine's Advanced Engineered Wood Composites Center was awarded \$100,000 from the Maine Technology Institute to establish a wood/thermoplastic extrusion facility. Also supported by the U.S. Department of Agriculture, the National Science Foundation and the Maine Science and Technology Foundation, researchers at the center will combine recycled plastic and some of the more than 500,000 tons of sawdust generated annually by Maine mills to create new products such as decking boards, roof shingles and furniture.

NEW HAVEN, CONN.—Yale University's School of Forestry and Environmental Studies was awarded a \$1.2 million grant from the Henry Luce Foundation to establish a collaborative program focusing on the environmental consequences of industrial activity in Asia. The Luce grant supports faculty and student exchanges between Yale and Asian universities, preparation of teaching materials targeted for Asian audiences and executive training in environmental management in Asia. The school was also awarded a three-year, \$135,000 grant from the Compton Foundation of California to fund research fellowships in environment and sustainability for graduate students. Fellowships will be targeted at students from Mexico, Central America and sub-Saharan Africa who intend to return to their native countries after completing their studies.

CAMBRIDGE, MASS.—Actress Jane Fonda donated \$12.5 million to Harvard University's Graduate School of Education to launch the Harvard Center on Gender and Education. Researchers at the interdisciplinary center will explore how gender affects education in the United States and around the world. The gift includes \$2.5 million to create an endowed faculty chair to be named for Harvard gender studies expert Carol Gilligan, whose three decades of research inspired Fonda to make the donation.

PORTLAND, MAINE—The University of Southern Maine received a \$2.2 million gift from the Bernard Osher Foundation to expand its Senior College which already provides noncredit courses to about 600 older people in the Portland area. The university's largest-ever cash gift will allow the Senior College to introduce a research component focusing on approaches to learning for older adults, create an endowment for operating funds and provide scholarships for low-income seniors. The college will be renamed the Osher Lifelong Learning Institute in honor of the Maine native turned California businessman.

BURLINGTON, VT.—Champlain College was awarded a five-year, \$250,000 grant from the Christian A. Johnson Endeavor Foundation of New York to support its innovative summer reading program. Champlain students, faculty and staff read the same book over the summer, then share their ideas at interdisciplinary workshops. In September, the author visits the Champlain campus.

BOSTON, MASS.—Urban College of Boston and the University of Massachusetts Boston signed an articulation agreement providing a direct path from Urban College associate degree programs into bachelor's programs at the UMass Boston College of Public and Community Service. Established by the antipoverty agency, Action for Boston Community Development, Urban College enrolls about 700 low-income students from the inner city.

WALTHAM, MASS.—Brandeis University announced it would offer the nation's

first masters-level Internet studies program, beginning in fall 2001. The program will allow undergraduates to think critically about the Internet's impact on society. Courses will explore topics ranging from visual culture and the law to social relations in cyberspace.

BOSTON, MASS.—Simmons College established the nation's first master's degree program in competitive intelligence. To accommodate professionals working in the field, Simmons planned to offer certificate- and master's-level courses in competitive intelligence from Thursdays through Saturdays. Competitive intelligence involves gathering and analyzing information about business issues, often using unpublished sources, in an effort to give a firm a competitive advantage.

BOSTON, MASS.—The University of Massachusetts launched UMassOnline, a Web-based learning program offering

bachelor's and master's degrees in fields such as business and public health. The university appointed former Rensselaer Polytechnic Institute distance learning authority Jack Wilson to head the five-campus initiative. UMassOnline also joined 30 other colleges in a five-year, \$480 million project to deliver distance learning programs to U.S. military personnel worldwide.

NORTHFIELD, VT.—Norwich University announced it would sell Vermont College to the Union Institute of Cincinnati. The Montpelier-based Vermont College merged with Norwich in 1972 and has since evolved from a two-year women's college into a progressive campus dedicated exclusively to adult and distance learning. Norwich officials noted that the "separation" would allow America's oldest private military academy to focus on its primary business of educating cadets and civilians in character development.

- Average first-year pay, including signing bonuses, among Boston University's MBA class of 2000: **\$89,560**
- Average one year earlier: **\$69,000**
- Percentage of University of Massachusetts Amherst students planning to seek information technology jobs upon graduation who say they are interested in working in Western Massachusetts: **39%**
- Percentage of local community college students planning to seek information technology jobs upon graduation who say they are: **90%**
- Range in age of spring 2001 semester students at Quinebaug Valley Community-Technical College: **15-82**
- Ratio of male-to-female annual earnings among Hispanic college graduates in 1975: **2.4 to 1**
- Ratio in 1997: **1.3 to 1**
- Percentage of non-whites who say their local newspaper has become more accurate in recent years: **43%**
- Percentage of whites who say so: **27%**
- Number of U.S. students studying abroad in 1990: **70,727**
- Number in 1999: **129,770**
- Respective ranks of Dartmouth College and Worcester Polytechnic Institute among all U.S. doctoral institutions in the percentage of students studying abroad: **1,2**
- Approximate ratio of foreign students on New England college campuses to New England students studying abroad: **4 to 1**
- Minimum contribution for which Worcester Polytechnic Institute permanently displays a corporation's logo on the "Corporate Partners Wall" at the college's new campus center: **\$10,000**
- Number of former administrators at the University of Hartford who are now college presidents: **9**
- Percentage of Americans who have a "very" or "somewhat" favorable impression of college presidents: **66%**
- Percentage who say they "seldom" or "almost never" hear about college presidents: **66%**
- Percentage of Americans who say federal support for scientific research should be increased over the next three years: **37%**
- Percentage who said so in 1995: **19%**
- Percentage of white Americans who say public universities are of lower quality than private universities and offer students less: **20%**
- Percentage of African-Americans who do: **36%**
- Percentage of parents who say private schools have higher standards than public schools: **35%**
- Percentage who said so four years ago: **42%**
- Vote by which the Massachusetts Association of School Committees last November called on the state to suspend use of the controversial MCAS exam to determine high school graduation: **137-30**
- Median salary of athletics directors at U.S. doctoral institutions: **\$125,556**
- Median salary of student financial aid directors at U.S. doctoral institutions: **\$76,683**
- Price paid to Massachusetts growers for one barrel of cranberries, fall 2000: **\$10**
- Price paid to for one barrel three years earlier: **\$80**
- Miles of "working waterfront" among Maine's 7,000 miles of shorefront property: **25**

Sources: 1,2 Boston University; 3,4 Youlanda Gibbons and Elizabeth Williams, University of Massachusetts Amherst; 5 Quinebaug Valley Community-Technical College; 6,7 Educational Testing Service analysis of U.S. Census data; 8,9 *American Journalism Review*/Ford Foundation; 10,11,12 Institute for International Education; 13 NEBHE analysis of Institute for International Education data; 14 Worcester Polytechnic Institute; 15 University of Hartford; 16,17,18,19,20,21 American Council on Education; 22,23 Public Agenda; 24 National Center for Fair & Open Testing; 25,26 College and University Professional Association for Human Resources; 27,28 University of Massachusetts Dartmouth; 29 Maine Sustainable Development Working Group.