

# CONNECTION

NEW ENGLAND'S JOURNAL

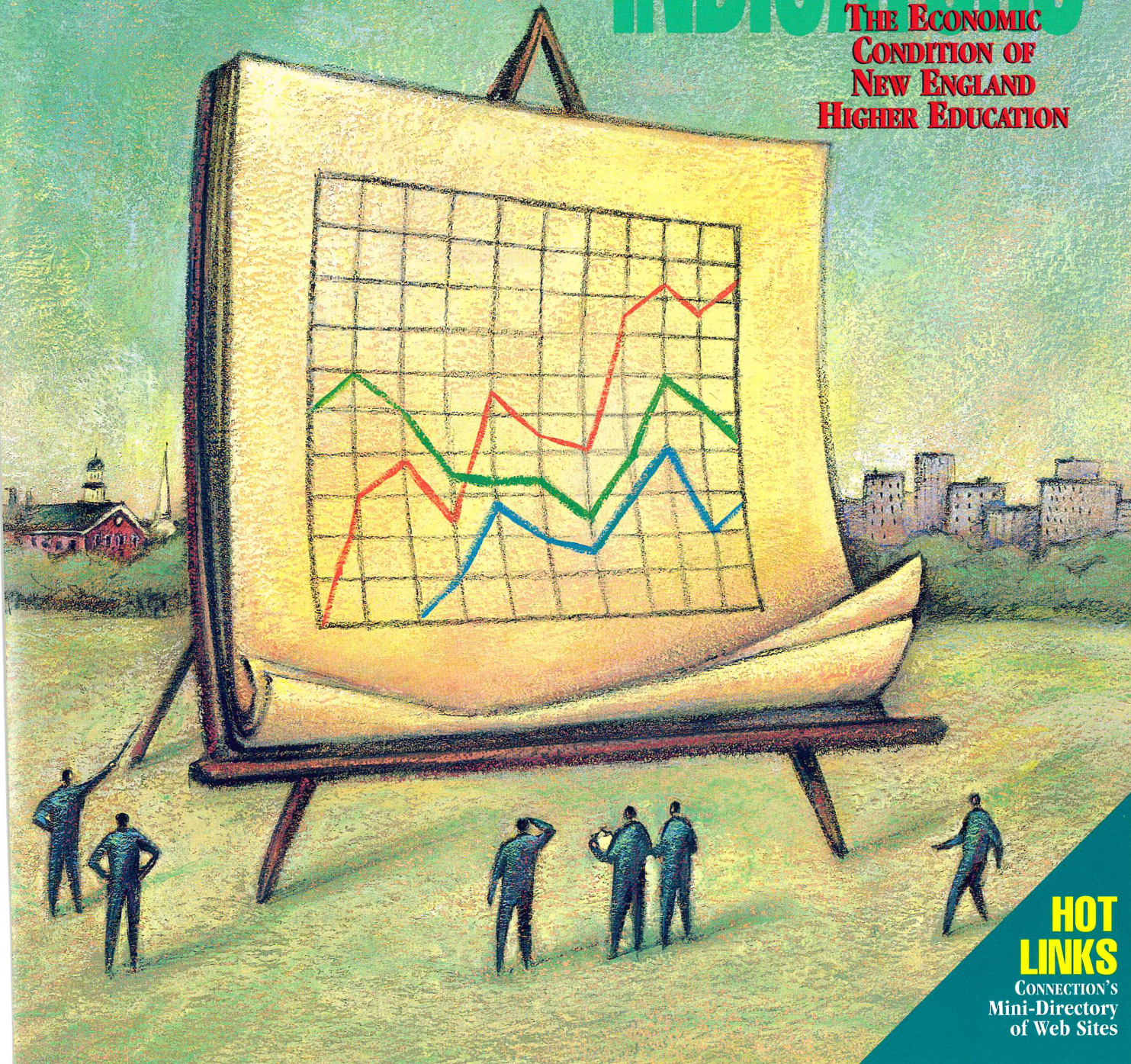
OF HIGHER EDUCATION AND ECONOMIC DEVELOPMENT

VOLUME XII, NUMBER 3

FALL 1997 \$2.50

## INDICATORS

THE ECONOMIC  
CONDITION OF  
NEW ENGLAND  
HIGHER EDUCATION



**HOT  
LINKS**

CONNECTION'S  
Mini-Directory  
of Web Sites



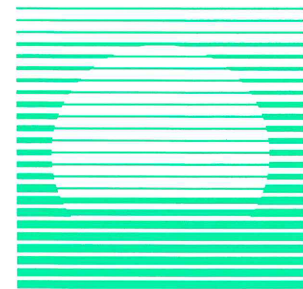
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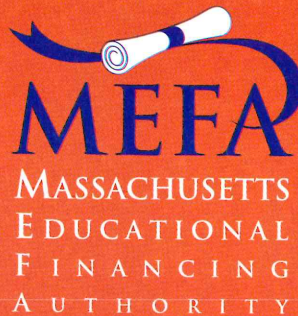
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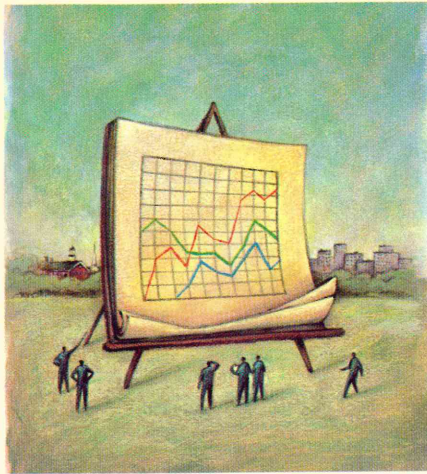
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The **New England Board of Higher Education** is a nonprofit, congressionally authorized, interstate agency whose mission is to foster cooperation and the efficient use of resources among New England's approximately 260 colleges and universities. NEBHE 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.

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With this issue, CONNECTION launches three new editorial projects, each of which we expect to fine-tune with the help of readers.

First, our Cover Stories on the economic condition of New England higher education mark an initial step in developing a reliable set of *indicators* to periodically measure the vitality of this crucial New England industry.

The central role of higher education in New England is confirmed by a spate of recent reports on the economic impact of this or that state's public *or* private colleges and universities (usually as if the other sector and the other states didn't exist.) But the relative economic health of the New England higher education enterprise itself is often difficult to discern.

If the region's policymakers, academic leaders, business people, philanthropists and others are to allocate resources wisely, they need a sound way to check New England higher education's vital signs. They need a sense of where the enterprise is headed financially and where it has been.

This first time around, we chose to look at six broad areas: college enrollment, state support of higher education, private support of higher education including endowment growth, student financial aid, academic research and development (R&D) and library holdings.

To be sure, the ideal *index* of higher education economic indicators might include other variables as well, ranging from total campus employment to the value of physical plants. That's where reader feedback will be so important.

We did not attempt to look at the academic or cultural condition of higher education. And though some of our indicators such as R&D expenditures and library holdings offer a glimpse into the current shape of academia, we understand that the economic condition of higher education which we are trying to assess here may have little to do with what students learn, how they get along and how they fare upon graduation. Indeed, a separate index of academic indicators may be needed as well.

The second work in progress is CONNECTION's mini-directory of World Wide Web sites. As more and more New England higher education and economic development organizations step into cyberspace, we will attempt to offer readers the addresses of interesting and useful Web sites on a regular basis.

In this issue, we are particularly pleased to provide Web addresses for some of the more than 200 public policy research centers and institutes that the New England Board of Higher Education has surveyed as part of its New England Public Policy Collaborative. The Collaborative — which itself has roots in CONNECTION (see the Summer 1996 issue on "Think Tanks") — aims to provide a framework for coordinating the region's policy research expertise both on the Web and in the flesh.

Finally, in this issue, we inaugurate a new "Books" section, in which we intend to review books and other publications related to trends in higher education as well as New England's economy.

The ultimate success of all three projects will depend upon input from CONNECTION readers. As always, we look forward to hearing from you.

*John O. Harney is executive editor of CONNECTION.*

**Tax and Spend**

Maine, Rhode Island and Vermont got more back from Washington than their residents paid in federal taxes in 1996, while Connecticut, New Hampshire and Massachusetts got back less than they paid in, according to a new report by the Rhode Island Public Expenditure Council (RIPEC).

For every \$1 collected from Maine taxpayers, the federal government spent \$1.29 in Maine on defense and other procurement, Social Security, Medicare and Medicaid payments, grants to state and local governments, federal payrolls and other items. The feds spent \$1.08 for every \$1 collected from Rhode Island taxpayers and \$1.03 in Vermont, RIPEC reports.

But New England states with relatively high per-capita incomes — and therefore high federal tax payments — posted a less favorable balance. Connecticut and New Hampshire received just 71 cents and 74 cents respectively for each \$1 their residents paid in federal taxes, while Massachusetts received 94 cents.

RIPEC notes that patterns in federal spending reflect, among other things, the age of a state's population, income distribution and defense activity.

**Town-Gown Rundown**

Yale University tapped an alum and key figure in urban revitalization to be its first vice president and director of New Haven and state affairs.

Bruce Alexander, a 1965 Yale graduate, retired last year from the Rouse Corp., where he directed developments such as New York City's South Street Seaport and Baltimore's Harborplace.

Through its Office of New Haven Affairs, Yale has launched a variety of initiatives to bolster its struggling host city. Indeed, more than 270 Yale employees have taken advantage of university incentives to buy homes in New Haven, while a "Buy in New Haven" program has led to a 23 percent increase in Yale's routine purchases from city vendors.

The university also has launched significant community literacy programs, school improvement initiatives and research partnerships with local hospitals.

Alexander was named to the new post after Yale Vice President and Secretary Linda

Koch Lorimer, the driving force behind much of the university's town-gown involvement to date, assumed responsibilities for Yale's alumni affairs.

Among other recent town-gown developments around New England:

- New Hampshire College was awarded \$399,278 by the U.S. Department of Housing and Urban Development to establish a Community Outreach Partnership Center serving distressed areas of its host city of Manchester.

The center will offer training programs for minority- and women-owned businesses as well as grassroots community leaders and staffers of non-profit agencies. The center will also provide education on tenant and homeowner rights and organize consumer cooperatives allowing low-income people to bargain collectively for lower utility rates.

Meanwhile, Notre Dame College's graduate program in counseling psychology features a community internship program serving uninjured and low-income Manchester residents.

- The University of Massachusetts at Amherst allocated \$210,000 to bolster its biomedical research program with Baystate Medical Center in nearby Springfield, while the university's Center for Economic Development launched a \$40,000 study of Springfield's strengths and weaknesses in attracting biotech companies.

**Webbed Administration**

College admissions and other campus administrative functions are increasingly carried out in cyberspace.

Maguire Associates, a Bedford, Mass.-based higher education research firm, recently found that more than half of college-bound high

school students planned to use the World Wide Web in their college search.

Boston University, Worcester Polytechnic Institute and other New England colleges increasingly permit prospective students to apply to college electronically. And a BU computer system called The Link allows students to check everything from their grades to the status of their tuition payments with a few clicks of the mouse.

Meanwhile, more than 1,000 Wesleyan University students registered for fall classes via the World Wide Web under a new system that enables students to explore course offerings and reserve a spot in a given class — all on-line.

**What's Cookin'?**

Johnson & Wales University offers college-bound students some food for thought.

For nearly a decade, the Providence-based culinary arts school has provided annual scholarships to high school students who submit the best original recipes for healthy dinners and desserts.

In March 1998, the grand prize winner in each category — full dinner or bread and dessert — will be awarded renewable scholarships worth \$5,000 each toward annual tuition at Johnson & Wales.

The contest is cosponsored by the American Cancer Society and the American Heart Association.

Last year, 20 finalists were chosen from a field of 400 and flown to Providence for the competition. Chad Nix of Colorado won in the dinner category for his braised rabbit with Port wine mushroom sauce, while Jonathan

**Supplying the Peace Corps**

More than 150,000 Americans, mostly college graduates, have served in the Peace Corps since President Kennedy launched the program in 1961. Recently, agency officials released a list of the U.S. colleges and universities that have produced the most Peace Corps volunteers:

**U.S. Top 5**

University of California at Berkeley	.....2,960
University of Wisconsin at Madison	.....2,237
University of Washington	.....1,990
<b>Harvard University</b>	<b>.....1,966</b>
University of Michigan at Ann Arbor	..1,821

**New England Top 5 (with U.S. Rank)**

Harvard University (4th)	.....1,966
University of Massachusetts at Amherst (20th)	.....953
Boston University (24th)	.....842
Yale University (26th)	.....798
University of Vermont (46th)	.....554



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1. *Standard & Poor's Insurance Rating Analysis*, 1997; Lipper Analytical Services, Inc., *Lipper-Directors' Analytical Data*, 1997 (Quarterly).

2. Source: Morningstar, *Variable Annuities/Life* 11/5/96. 3. Of the 4,121 variable annuity funds tracked by Morningstar, the average fund had total fees combining annual expenses of 0.82% plus an insurance expense of 1.27%. Source: Morningstar, Inc., for periods ending July 31, 1997. 4. *Standard & Poor's Insurance Rating Analysis*, 1997.

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Knapp of South Carolina took the bread and dessert competition with his mango tango tart and chocolate banana scones.

**A Communication Gap**

If students and their parents find the flood of college viewbooks, Web pages and promotional videos a bit lacking in focus, there's good reason.

Though most college presidents think they've identified key messages about their institutions, not many have conducted market research among stakeholders to test their ideas.

That's the finding of a new national study by Hillman & Kersey, a strategic communications firm headed by Carol Hillman, the former vice president of university relations at Boston University and Dallas Kersey, a former higher education consultant with Towers Perrin and KPMG Peat Marwick.

Furthermore, most college presidents place parents well down the list of key stakeholders, below alumni, trustees, students and, in the case of public institutions, legislators.

The study also reveals that most colleges have no strategic plan for marketing communications and the vast majority of college

presidents know neither how much their institutions spend on marketing nor how many people are involved campuswide.

**Going Coed**

Two more New England women's colleges have found the coed option irresistible.

Lasell College of Newton, Mass., founded when all-male Harvard was the only other college in the Boston area, and Elms College, a Chicopee, Mass., Catholic institution, both plan to begin admitting their first male students in September 1998.

Social and economic pressures have reduced the number of women's colleges nationally from 300 in 1960 to about 75 today. But the tradition dies harder in New England. The six-state region is home to roughly a quarter of the survivors, including such prestigious institutions as Smith, Mount Holyoke and Wellesley colleges.

The transition to coeducation may say more about differences between generations than between sexes. At Lasell and elsewhere, alumna vehemently defended the single-sex tradition. But their daughters and granddaughters want nothing to do with it, according to surveys watched closely by college trustees and administrators.

Elms officials reported that just 2 percent of high school women nationally — and even fewer in western Massachusetts — would consider attending a women's college.

And Lasell Dean of Enrollment Management Kate O'Connor observed: "Most [students] do not select Lasell because it is a women's college, but in spite of that fact."

**Business Travelers**

More than 150,000 of the 3.5 million foreigners who visited the United States for business-related purposes in 1995 spent time in New England, according to federal data recently compiled by the Southern Growth Policies Board's Clearinghouse on State International Policies.

The top countries of origin for business travelers to the United States are: the United Kingdom, Mexico, Japan, Germany and China, according to the analysis.

The most popular U.S. destinations for the foreign business travelers are: California,

Florida, New York, Texas and Illinois.

The following table shows how the New England states fare in attracting foreign business travelers:

	<b>Business Visitors</b>	<b>U.S. Rank</b>
Connecticut	32,971	21st
Maine	4,574	42nd
Massachusetts	100,412	6th
New Hampshire	7,460	37th
Rhode Island	5,073	40th
Vermont	3,094	45th
<b>New England</b>	<b>153,584</b>	

**Healthy States**

Two recent studies could make New Englanders feel good all over.

According to *Newsweek* magazine, America's five best health maintenance organizations (HMOs) — and nine of the 15 best — are New England-based plans.

Meanwhile, New Hampshire and Massachusetts rank second and third nationally behind only Minnesota in the overall health of their populations, according to ReliaStar, a Minneapolis-based financial services firm that has compiled such rankings since 1990.

The ReliaStar rankings are based on measures of disease, lifestyle, access to health care, occupational safety and mortality.

**Newsweek's Top 5 HMOs ...**

- Matthew Thornton Health Plan (N.H.) . . . . . 1st
- Kaiser Foundation Health Plan-Northeast (Conn.) . . . 2nd
- Harvard Community Health Plan (Mass.) . . . . . 3rd
- Fallon Community Health Plan (Mass.) . . . . . 4th
- Pilgrim Health Care (Mass.) . . . 5th

**ReliaStar's Healthiest States ...**

- New Hampshire . . . . . 2nd
- Massachusetts . . . . . 3rd
- Connecticut . . . . . 8th
- Vermont . . . . . 12th
- Maine . . . . . 18th
- Rhode Island . . . . . 23rd

**Comings and Goings**

Brown University Provost **James Pomerantz** assumed the post of acting president at Brown until January 1998, when Ohio State University President **E. Gordon Gee** is slated to fill the job left open when **Vartan Gregorian** became president of the Carnegie Corp. during the summer.

Springfield College President **Randolph W. Bromery**, a geophysicist and former chancellor of the Massachusetts Board of Regents for Higher Education, announced he will retire from the Springfield post "at a time and on a basis most appropriate for the college."

TIAA-CREF Vice Chair and President **Thomas W. Jones** left the pension fund to become vice chair of the Travelers Group.

**Joseph H. Hagan** announced that he will leave the presidency of Assumption College in July 1998.

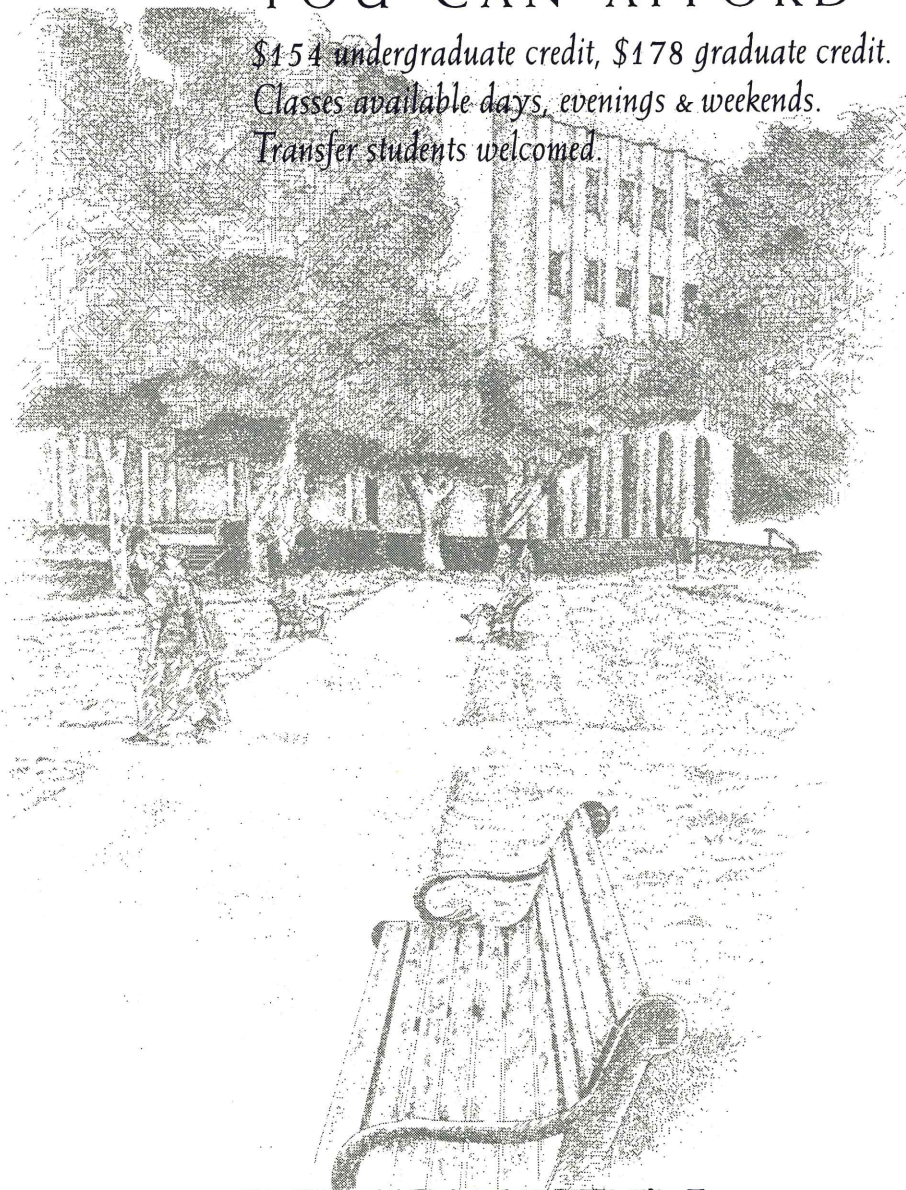
**Raymond G. Cote**, former president of the Bedford, N.H.-based Harvey Construction Co., was elected chair of the Notre Dame College board of trustees.

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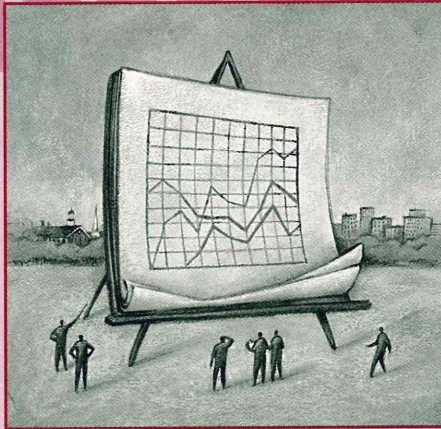
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- Number of legal immigrants admitted into the United States in 1995: **720,461**
- Number of those immigrants who intended to settle in New England: **34,907**
- Average annual number of legal immigrants admitted into the United States, per 1,000 U.S. population, from 1986 through 1995: **4**
- Average from 1905 through 1914: **11**
- Approximate number of foreign students enrolled at the University of Hartford in spring 1997: **500**
- Number of those students who were Malaysian: **81**
- Nonwhites as a percentage of U.S. population: **27%**
- Nonwhites as a percentage of America's nonprofit board members: **15%**
- Nonwhites as a percentage of U.S. college faculty: **15%**
- Women as a percentage of U.S. college faculty: **39%**
- New England-based firms among *Working Mother* magazine's 100 best U.S. companies for working mothers in terms of pay, advancement, child care, flexibility and family-friendly benefits, 1997: **12**
- New England-based firms among *Inc.* magazine's 500 fastest-growing private U.S. companies, 1997: **38**
- Unemployment rate among U.S. 25- to 64-year-olds with bachelor's degrees, 1996: **2.4%**
- Unemployment rate among their counterparts with high school diplomas only, 1996: **4.7%**
- Percentage of Boston welfare recipients who live within a quarter mile of a bus route or transit station: **98%**
- Percentage of Boston-area companies likely to provide entry-level jobs that are located within a quarter mile of transit: **32%**
- Number of years since a U.S. shipyard built a passenger ocean liner: **46**
- Number of passengers who used Logan International Airport in 1996: **25,135,000**
- Number who used New England's eight other major airports combined: **11,506,000**
- Rank of Housatonic Community-Technical College's art collection among all U.S. two-year colleges in number of works: **1**
- Technology employees per 100,000 residents in nationally first-ranked Wisconsin: **9,980**
- Technology employees per 100,000 residents in second-ranked Massachusetts: **5,710**
- In third-ranked Connecticut: **5,485**
- Approximate number of Maine children under age 18 who have no health insurance: **36,000**
- Percentage of medical school applicants nationwide who are accepted: **37%**
- Percentage who were accepted seven years ago: **60%**
- Increase in applications to Harvard Business School during the past five years: **26%**
- Increase in applications to the University of Pennsylvania's Wharton School of Business during the same period: **70%**

Sources: 1,2,3,4 Southern Growth Policies Board; 5,6 University of Hartford; 7,8 National Center for Nonprofit Boards; 9,10 National Education Association; 11 NEBHE analysis of *Working Mother* magazine data; 12 NEBHE analysis of *Inc.* magazine data; 13,14 *Postsecondary Education Opportunity*; 15,16 U.S. Department of Transportation Volpe National Transportation Systems Center; 17 Massachusetts Port Authority; 18,19 New England Council; 20 Housatonic Community-Technical College; 21,22,23 U.S. Census Bureau; 24 Maine Center for Economic Policy; 25,26 Brandeis University; 27,28 *Business Week*

# INDICATORS



## THE ECONOMIC CONDITION OF NEW ENGLAND HIGHER EDUCATION

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New England's approximately 260 colleges and universities represent the most extraordinary concentration of higher education resources on the face of the earth. Collectively, they offer programs in virtually every area of inquiry. They draw students from around the globe and send forth scientists, statesmen, artists and entrepreneurs. Their research creates jobs and whole industries as it advances knowledge. Their very presence brings a unique quality of life to dozens of New England communities.

New England higher education strongly influences the economic condition of the six-state region, the nation and the world. But what is the economic condition of New England higher education?

In an age when it seems that nearly everything is neatly assessed with rankings, indices or report card-style grades, a clear picture of New England higher education's economic vitality has been lacking. Here, CONNECTION takes a first step in offering some clarity with a look at six indicators of higher education's economic health: enrollment, state support of higher education, private support of higher education, student financial aid, research and development (R&D) and library holdings.

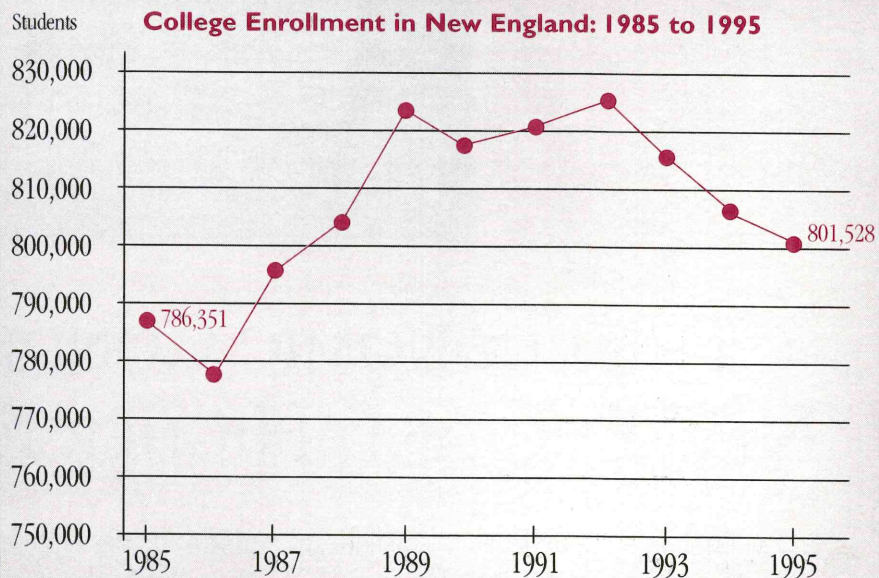
*Text by John O. Harney.  
Tables and charts prepared by Charlotte Stratton and Sue Klemer of the NEHE staff.*

# ENROLLMENT

➔ In 1997, U.S. colleges and universities enrolled more than 14 million students — 43 percent of them part-time — and the U.S. Department of Education projected that total enrollment would top 16 million by the year 2007.

➔ Enrollment at New England's 260 colleges and universities peaked at more than 827,000 in 1992, then declined to under 802,000 by 1995. In addition, New England's share of total U.S. college enrollment has decreased from 6.4 percent in the mid 1980s to 5.7 percent today.

## Total College Enrollment in New England



## ... in New England as a Share of U.S.



Source: NEBBHE analysis of U.S. Department of Education data.

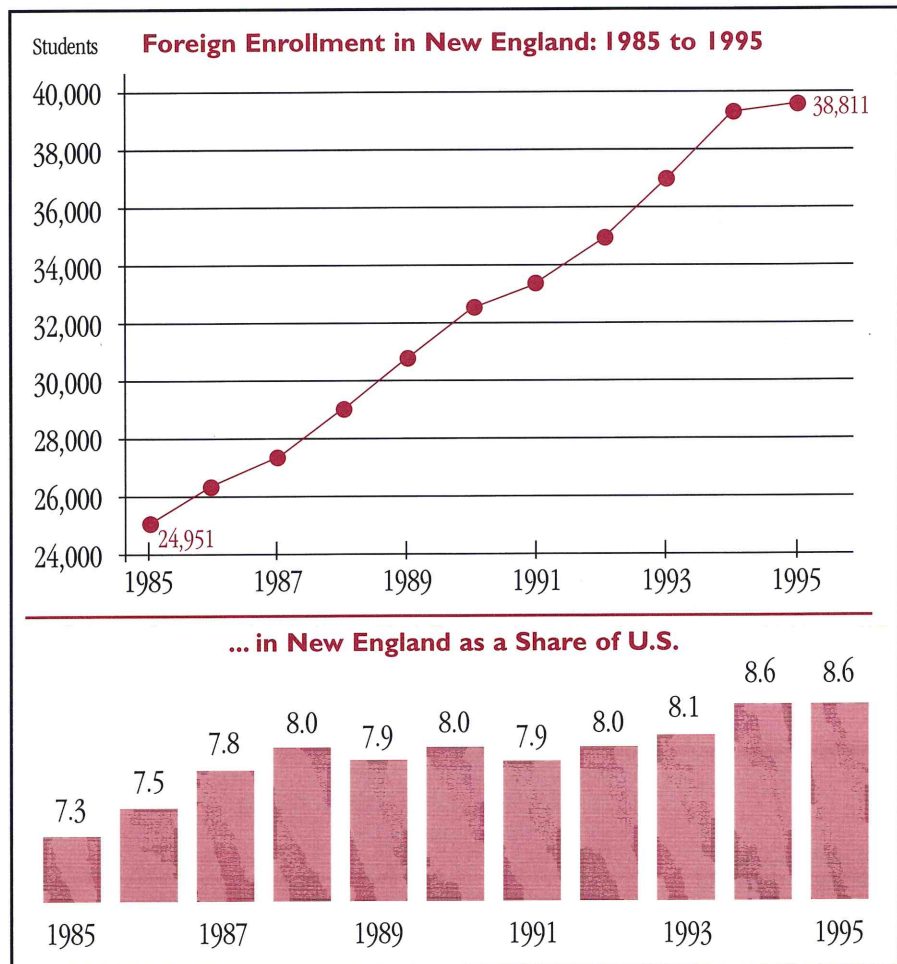
➤ Before World War II, higher education was available to a privileged few. The G.I. Bill gave veterans the chance to go to a college or university of their choice with tuition fully paid. Nationally, from the end of World War II in 1945 through 1956, 7.8 million veterans enrolled in education programs under the bill, including 2.2 million in four-year colleges and 3.5 million in two-year colleges and technical programs.

➤ Even as higher education opportunities have spread geographically, the notion of “College in New England” has retained a sort of magic. Today, New England campuses attract nearly 39,000 foreign students — almost 9 percent of all foreign students in the United States. In addition, fully 20 percent of the students enrolled on the region’s campuses travel to New England from other parts of the United States to attend college. Notably, however, foreign enrollment growth has flattened out nationally and in New England.

➤ New England has only recently emerged from a severe, 15-year decline in the number of traditional college-age people. But the demographic dilemma had a silver lining. Out of necessity, many New England colleges reached out to women, who now represent 56 percent of total enrollment, as well as older students, working people and minorities.

➤ African-Americans, Hispanics, Native Americans and certain sub-groups of Asian-Americans remain disturbingly underrepresented on many New England campuses, especially in science and engineering fields. But initiatives such as NEBHE’s Equity and Pluralism Action Program are making strides in increasing the success of minorities in New England higher education. African-American enrollment at New England colleges grew by 25 percent between 1990 and 1995, while Hispanic enrollment grew by 45 percent and Native American enrollment by 55 percent.

**Total Foreign Enrollment**



Source: NEBHE analysis of Institute of International Education data.

**New England  
Institutions  
with the  
Largest  
Enrollments,  
Fall 1996**

<b>Institution</b>	<b>State</b>	<b>Affiliation</b>	<b>Total</b>
Boston University	Mass.	Independent	30,035
Northeastern University	Mass.	Independent	26,999
Harvard University	Mass.	Independent	24,409
University of Massachusetts Amherst	Mass.	Public	24,296
University of Connecticut	Conn.	Public	21,805
Community College of Rhode Island	R.I.	Public	15,236
Boston College	Mass.	Independent	14,830
University of New Hampshire	N.H.	Public	13,865
University of Rhode Island	R.I.	Public	13,412
University of Massachusetts Lowell	Mass.	Public	12,748
University of Massachusetts Boston	Mass.	Public	11,736
Central Connecticut State University	Conn.	Public	11,646
Southern Connecticut State University	Conn.	Public	11,412
Yale University	Conn.	Independent	11,197
University of Vermont	Vt.	Public	10,146
University of Southern Maine	Maine	Public	9,966
Massachusetts Institute of Technology	Mass.	Independent	9,947
University of Maine	Maine	Public	9,928
Salem State College	Mass.	Public	9,558
Rhode Island College	R.I.	Public	8,994
Bridgewater State College	Mass.	Public	8,711
Tufts University	Mass.	Independent	8,500
Johnson & Wales University	R.I.	Independent	7,851
Brown University	R.I.	Independent	7,626
Tunxis Community-Technical College	Conn.	Public	7,268

**New England  
Public  
Institutions  
with the  
Largest  
Enrollments,  
Fall 1996**

<b>Institution</b>	<b>State</b>	<b>Total</b>
University of Massachusetts Amherst	Mass.	24,296
University of Connecticut	Conn.	21,805
Community College of Rhode Island	R.I.	15,236
University of New Hampshire	N.H.	13,865
University of Rhode Island	R.I.	13,412
University of Massachusetts Lowell	Mass.	12,748
University of Massachusetts Boston	Mass.	11,736
Central Connecticut State University	Conn.	11,646
Southern Connecticut State University	Conn.	11,412
University of Vermont	Vt.	10,146
University of Southern Maine	Maine	9,966
University of Maine	Maine	9,928
Salem State College	Mass.	9,558
Rhode Island College	R.I.	8,994
Bridgewater State College	Mass.	8,711
Tunxis Community-Technical College	Conn.	7,268
Bunker Hill Community College	Mass.	6,395
Springfield Technical Community College	Mass.	6,211
Middlesex Community College	Mass.	5,960
Holyoke Community College	Mass.	5,876
Northern Essex Community College	Mass.	5,597
Massasoit Community College	Mass.	5,562
Manchester Community-Technical College	Conn.	5,523
University of Maine at Augusta	Maine	5,496
University of Massachusetts Dartmouth	Mass.	5,436

*Note on all tables on pp.14,15:  
Enrollment represents the total of  
full-time and part-time under-  
graduate and non-degree enroll-  
ment.*

*Source for all tables on pp.14,15:  
NEBHE's FACTS 1998 survey of  
New England colleges, universi-  
ties and institutes.*



**New England  
Independent  
Institutions  
with the  
Largest  
Enrollments,  
Fall 1996**

<b>Institution</b>	<b>State</b>	<b>Total</b>
Boston University	Mass.	30,035
Northeastern University	Mass.	26,999
Harvard University	Mass.	24,409
Boston College	Mass.	14,830
Yale University	Conn.	11,197
Massachusetts Institute of Technology	Mass.	9,947
Tufts University	Mass.	8,500
Johnson & Wales University	R.I.	7,851
Brown University	R.I.	7,626
University of Hartford	Conn.	7,068
Suffolk University	Mass.	6,401
Bentley College	Mass.	6,169
Lesley College	Mass.	6,166
Saint Joseph's College	Maine	5,729
Providence College	R.I.	5,655
New Hampshire College	N.H.	5,622
Sacred Heart University	Conn.	5,526
Newbury College	Mass.	5,359
Dartmouth College	N.H.	5,214
Fairfield University	Conn.	5,111
Rhode Island School of Design	R.I.	5,003
University of New Haven	Conn.	4,982
Western New England College	Mass.	4,682
Brandeis University	Mass.	4,219
Emerson College	Mass.	3,930

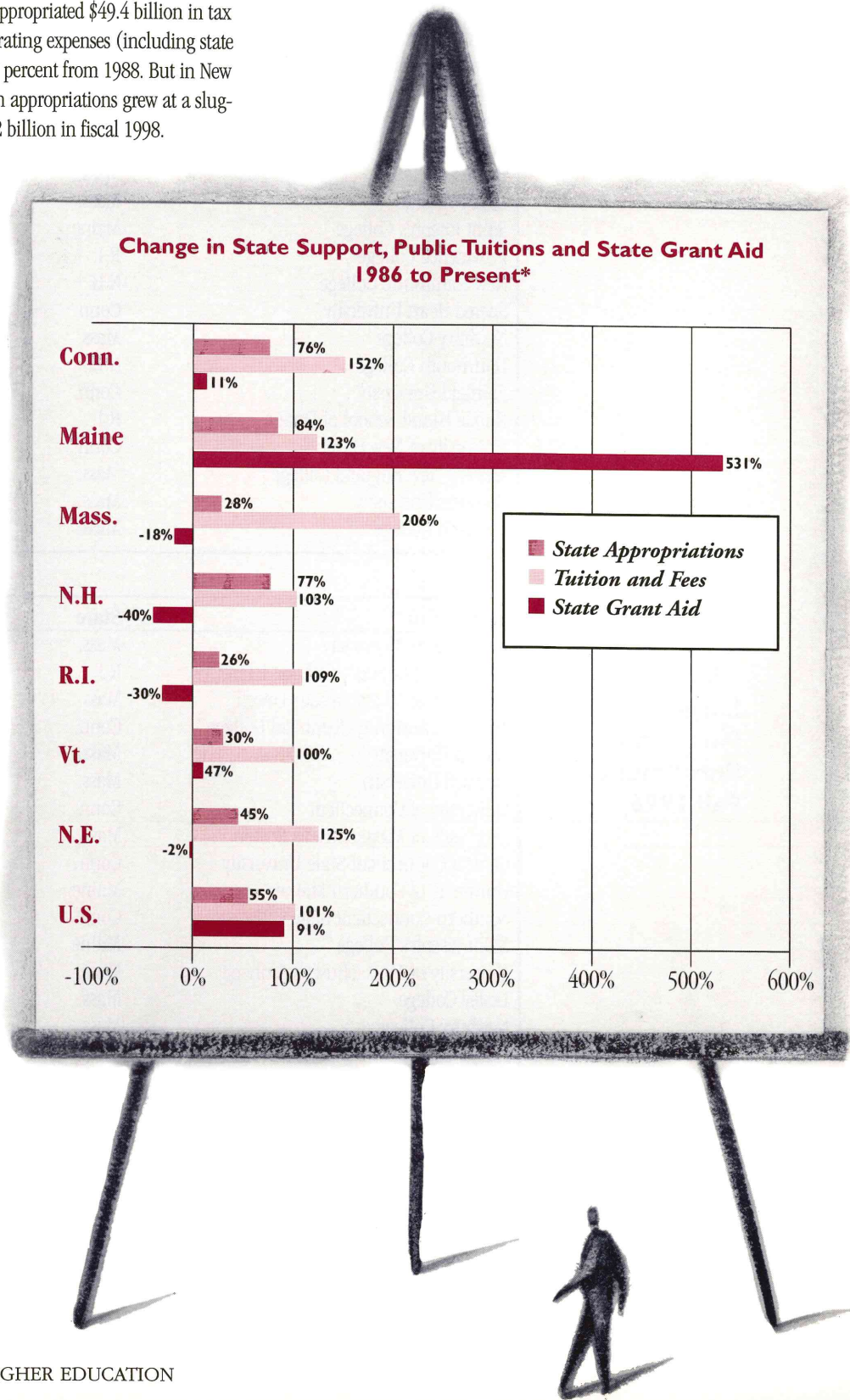
**New England  
Institutions  
with the  
Largest  
Part-Time  
Enrollments,  
Fall 1996**

<b>Institution</b>	<b>State</b>	<b>Part-Time Total</b>
Northeastern University	Mass.	10,444
Community College of Rhode Island	R.I.	10,370
University of Massachusetts Lowell	Mass.	6,539
Tunxis Community-Technical College	Conn.	6,367
Boston University	Mass.	6,262
Harvard University	Mass.	6,243
University of Connecticut	Conn.	5,913
University of Massachusetts Boston	Mass.	5,631
Central Connecticut State University	Conn.	5,535
University of Southern Maine	Maine	5,531
Southern Connecticut State University	Conn.	5,249
Saint Joseph's College	Maine	4,981
University of Massachusetts Amherst	Mass.	4,624
Lesley College	Mass.	4,484
Newbury College	Mass.	4,352
Rhode Island College	R.I.	4,309
University of Maine at Augusta	Maine	4,279
Bunker Hill Community College	Mass.	4,244
Salem State College	Mass.	4,148
Norwalk Community-Technical College	Conn.	4,106
New Hampshire Technical Institute/ Community College at Concord	N.H.	4,070
Manchester Community-Technical College	Conn.	3,974
New Hampshire College	N.H.	3,969
Community College of Vermont	Vt.	3,950
Quinsigamond Community College	Mass.	3,866

# STATE SUPPORT OF HIGHER EDUCATION

► Living in the shadows of such prestigious private institutions as Harvard and Yale, New England's public colleges and universities have a history of undernourishment. Now, new data suggests that their state funding has grown at less than one-third the rate of public institutions nationally over the past decade. The 50 states appropriated \$49.4 billion in tax funds for higher education operating expenses (including state grant aid) in fiscal 1998, up 55 percent from 1988. But in New England, total higher education appropriations grew at a sluggish 16 percent to just under \$2 billion in fiscal 1998.

## Growth in State Appropriations for Higher Education vs. Growth in Tuition and Fees at Public Four-Year Institutions and State Grant Aid



\*State appropriations are for fiscal 1998; tuition and mandatory fees are for academic year 1995-1996; state grant aid is for fiscal 1996.

Source: NEBHE analysis of appropriations data from Illinois State University's Center for Higher Education, tuition data from NEBHE's annual Facts surveys and state grant data from New York State Higher Education Services Corp.

► Maine, Rhode Island, Massachusetts, Connecticut, New Hampshire and Vermont rank 40th, 43rd, 46th, 47th, 48th and 50th respectively among all states in higher education appropriations as a share of state tax revenue.

► The New England states also rank near the bottom in state appropriations for higher education per \$1,000 of personal income. New England's statehouses earmarked \$5.52 of every \$1,000 in personal income to higher education, compared with \$8.41 nationally.

► One result of low state appropriations is ever-rising public college tuition. New England's public four-year colleges tend to charge state residents far more in tuition and mandatory fees than the U.S. average of \$2,970. Vermont's public tuitions are the nation's highest. And the University of New Hampshire last year raised tuition for state residents by more than 14 percent to \$4,600. UNH President Joan Leitzel recently observed that during the past eight years, UNH's enrollment increased by more than 10 percent, its degree

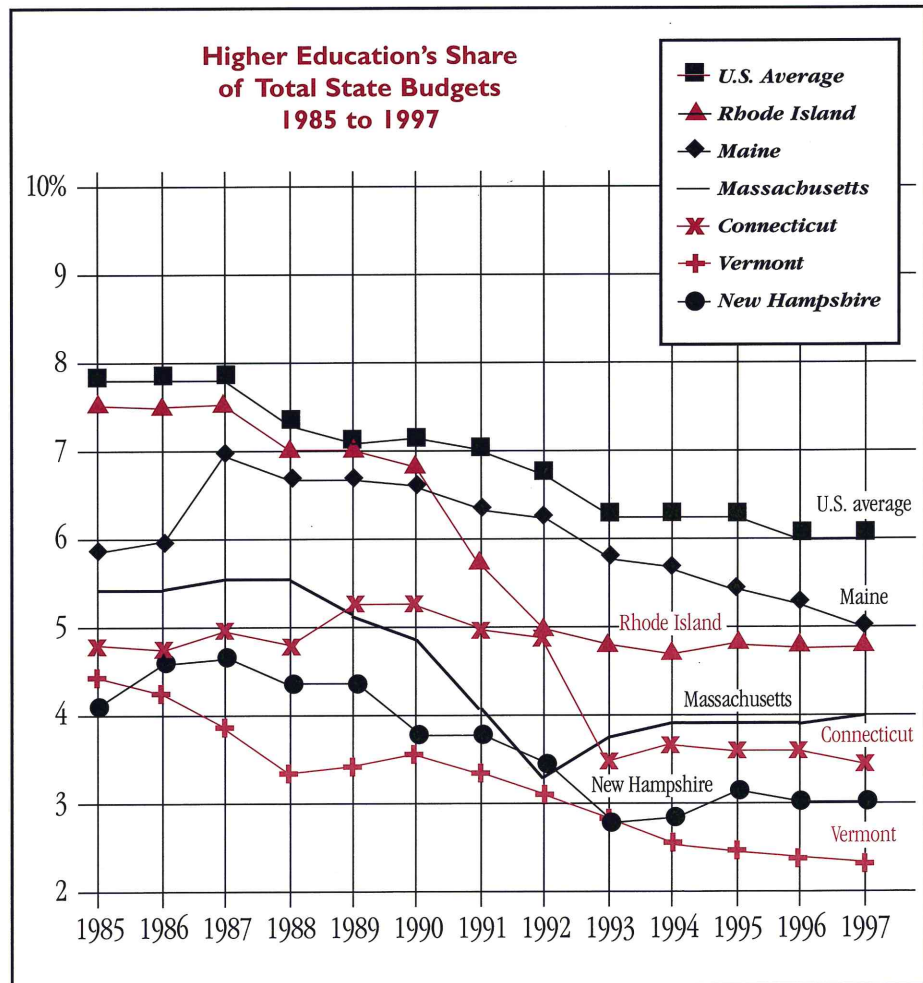
production increased by almost 25 percent, but its state funding per student, when adjusted for inflation, decreased by 25 percent. "As a consequence, tuition increases, most recently for in-state students, have been excessive," noted Leitzel.

► In Maine, the share of Kennebec Valley Technical College's budget covered by state appropriations has dropped from 57 percent in 1989 to 37 percent today. Tuition at Maine two-year public colleges now equals 12 percent of the state's modest per-capita income. Average tuition at Maine's four-year public colleges equals 17 percent of per-capita income, while total charges for residential students equal 40 percent of per-capita income.

► In Massachusetts, meanwhile, in-state tuition has been lowered by 5 percent at the University of Massachusetts and state colleges and by 10 percent at community colleges in each of the past two years; more reductions are scheduled for academic year 1998-99. Out-of-state tuition has risen, as have mandatory fees, which are set by the individual campuses.

### Higher Education's Shrinking Piece of New England's State Budgets

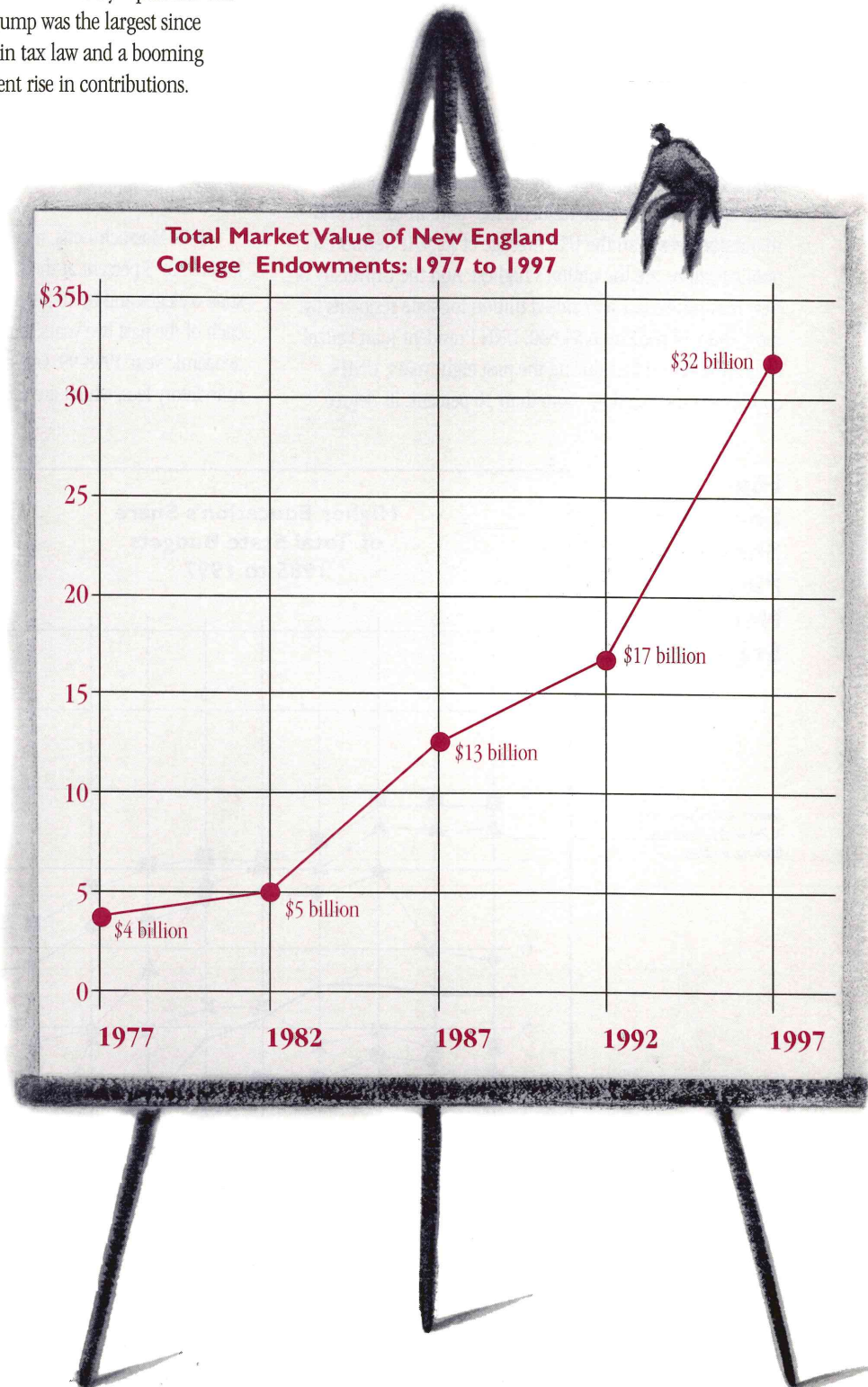
Source: NEBHE analysis of Research Associates of Washington data.



# PRIVATE SUPPORT OF HIGHER EDUCATION

Private contributions to U.S. colleges and universities grew by nearly 12 percent to more than \$14 billion during the 1995-96 academic year, according to the latest national figures from the New York City-based Council for Aid to Education. The increase was 8.8 percent after adjusting for inflation. At the same time, enrollment rose by 1 percent. The council noted that the one-year jump was the largest since 1987, when anticipated changes in tax law and a booming stock market propelled a 15 percent rise in contributions.

## Growth in Total New England College and University Endowments



Source: NEBHE analysis.

➔ Alumni provided \$4 billion or 28 percent of total voluntary support for higher education, while other individuals provided \$3.4 billion or 24 percent, according to the council. Corporations gave \$2.8 billion or 20 percent, as did foundations, with other organizations making up the balance.

➔ The council also reported that public research universities saw gift income grow almost twice as fast as their private counterparts, though the private institutions still far outpace the publics in total gifts per institution.

➔ Of the top 20 U.S. institutions in alumni support per student, 10 are in New England.

➔ Yale University recently completed the largest capital campaign in the history of higher education, raising \$1.7 billion over five years. The distinction won't last long. Harvard is in the midst of a \$2.1 billion campaign — and there is a temptation to launch ever-bigger campaigns. But the impact of Yale's accomplishment will be lasting, with \$636 million earmarked for Yale's endowment, already the nation's third largest, and \$424 million for the university's venerable, but vulnerable, facilities. (Yale officials also told the Associated Press they were considering using some of the proceeds to fund full scholarships for *all* graduate students in the humanities and social sciences.)

➔ All along the pecking order, New England's private institutions toss about ever-more ambitious campaign goals. When Middlebury College announced a \$200 million campaign in October, it had already raised \$80 million toward the goal. Gordon College, with an enrollment of about 1,200 students, recently kicked off a \$38 million campaign. Gordon's last campaign raised \$18 million in 1989.

➔ The University of Rhode Island is among the New England public universities that have bolstered their private fundraising. In September 1997, URI completed its first-ever capital campaign, a five-year effort, with a total of nearly \$67 million, surpassing its \$50 million goal by 33 percent. Of the total, about \$22 million was earmarked for faculty development, including URI's first six endowed chairs and professorships in pharmacy, nursing, engineering, business and women's studies. Twelve million was directed to scholarships and graduate fellowships. Meanwhile, a University of Massachusetts campaign has raised \$47 million in its first year.

➔ Increasingly hefty fundraising campaigns produce increasingly formidable endowments. Endowments are generated primarily by investing donations. The funds are set apart from annual operating budgets and allowed to increase over time. Colleges use the proceeds from endowment investments as a perpetual source of revenue, but are generally restricted from spending the endowment itself. By applying a portion of endowment income toward annual operating costs, colleges

### New England Institutions with the Largest Endowments

Institution	Market Value June 30, 1997
Harvard University	\$11,161,761,157
Yale University	\$4,900,000,000
Massachusetts Institute of Technology	\$3,023,589,000
Dartmouth College	\$1,278,000,000
Brown University	\$965,000,000
Smith College	\$698,584,401
Wellesley College	\$691,087,832
Williams College	\$666,987,046
Boston College	\$630,000,000
Middlebury College	\$543,507,000
Boston University	\$494,158,000
Amherst College	\$474,057,918
Wesleyan University	\$439,708,000
Tufts University	\$367,419,215
Bowdoin College	\$337,942,000
Northeastern University	\$331,136,446
Mount Holyoke College	\$297,869,000
Trinity College	\$282,000,000
Brandeis University	\$264,042,000
College of the Holy Cross	\$245,000,000
Woods Hole Oceanographic Institution	\$209,326,270
Worcester Polytechnic Institute	\$204,540,467
Colby College	\$203,000,000
Radcliffe College	\$172,319,810
Rhode Island School of Design	\$146,240,841

Note: Endowment values are self-reported as part of NEBHE's Facts 1998 survey of New England colleges, universities and institutes.

may reduce reliance on other funding sources such as tuition and fees, government grants, appropriations, annual giving and auxiliary enterprises. Indeed, Harvard officials contend that the cost of educating Harvard undergraduates far exceeds the \$30,000 sticker price and that only a huge endowment and private fundraising operation allow the university to cover the difference.

➔ The total market value of endowments held by New England colleges and universities exceeded \$26 billion in 1996, up from about \$4 billion two decades ago, according to a recent analysis by the New England Board of Higher Education (NEBHE). And New England's private colleges and universities control an extraordinary 21 percent of all U.S. higher education endowment funds (though the region's generally endowment-poor public institutions account for less than 1 percent).

➔ Just five of New England's approximately 260 colleges and universities — Harvard, Yale, the Massachusetts Institute of Technology, Dartmouth and Brown — control nearly 70 percent of all the region's endowment funds, though they account for less than 8 percent of New England's full-time equivalent (FTE) college enrollment. At the same time, about half of all New England college and university students attend institutions with endowment levels below \$1,000 per student, according to NEBHE estimates.

➔ The outlook for private support of New England higher education is mixed. On the one hand, an enormous inter-generational transfer of wealth may fuel an explosion in private philanthropy. On the other hand, New Englanders give less of their relatively high incomes to charity than people in other parts of the United States, foundations recently have paid more attention to K-12 and environmental groups than to colleges and universities, and corporations tie their philanthropic contributions ever-more tightly to their business interests.

### New England Public Colleges and Universities with the Largest Endowments

<b>Institution</b>	<b>Market Value June 30, 1997</b>
University of Vermont	\$111,000,000
University of Maine	\$89,754,246
University of Connecticut	\$73,700,000
University of New Hampshire	\$39,353,000
University of Rhode Island	\$27,152,268
University of Massachusetts Amherst	\$11,194,674
University of Mass. Medical Center	\$7,567,000
University of Massachusetts Boston	\$6,528,075
University of Southern Maine	\$6,195,159
Maine Maritime Academy	\$5,084,332
Rhode Island College	\$4,900,000
University of Massachusetts Dartmouth	\$4,610,000
Massachusetts Maritime Academy	\$4,412,524
Keene State College	\$4,169,794
Fitchburg State College	\$3,896,304
University of Maine at Farmington	\$3,502,135
University of Massachusetts Lowell	\$2,425,842
Framingham State College	\$2,400,000
Vermont Technical College	\$2,200,330
North Shore Community College	\$2,200,000
Western Connecticut State University	\$2,096,421
Bristol Community College	\$2,070,628
Plymouth State College	\$2,000,000
Bridgewater State College	\$1,937,332
Massachusetts Bay Community College	\$1,927,443

*Note: Endowments are self-reported as part of NEBHE's FACTS 1998 survey of New England colleges, universities and institutes.*

# STUDENT FINANCIAL AID

➔ Nationally, the federal government provided more than \$35 billion in student aid during the 1995-96 academic year, while states supplied an additional \$3 billion and colleges and universities pitched in \$10 billion of their own "institutional" aid funds. Private U.S. colleges have roughly tripled their spending on institutional student aid over the past 15 years in light of eroding federal support.

➔ Federal Pell Grants target students from low-income families, as well as middle-income families with several children in college at the same time. According to a study by the

## Total Pell Grants at New England Colleges and Universities

### Federal Pell Grants at New England Colleges: Academic Year 1995-1996

	1996 Allocations	1-Year % Change	1996 Recipients	1-Year % Change	1996 Average Award
Connecticut	\$34,023,000	-3.3%	25,502	1.1%	\$1,334
Maine	20,441,000	0.1	14,282	1.7	1,431
Massachusetts	108,201,000	-2.0	75,346	1.9	1,436
New Hampshire	17,341,000	-1.3	12,852	7.0	1,349
Rhode Island	23,478,000	0.2	17,141	1.1	1,370
Vermont	11,899,000	2.6	8,772	2.2	1,356
<b>New England</b>	<b>\$215,383,000</b>	<b>-1.5%</b>	<b>153,895</b>	<b>2.1%</b>	<b>\$1,400</b>
<b>United States</b>	<b>5,477,018,000</b>	<b>-1.6</b>	<b>3,782,745</b>	<b>1.4</b>	<b>1,448</b>
New England as a % of United States	3.9%		4.1%		

Source: NEBHE analysis of U.S. Department of Education data.

General Accounting Office, a \$1,000 increase in Pell Grant aid translates into a 14 percent decrease in college dropout rates. But the Pell Grant's buying power has deteriorated. The inflation-adjusted value of the maximum Pell has decreased by 13 percent since the early 1980s. Nationally, the maximum grant now covers just 10 percent of average costs at private universities, down from 20 percent a decade ago.

► For too many students, a college education means debt. The federal student aid portfolio has shifted from 80 percent grants in the mid-1970s to about 80 percent loans today. With the shift from grants to loans, student debt has mushroomed, forcing highly leveraged graduates to put off big purchases and to make job choices based on pay instead of personal interests or societal needs. Nellie Mae, the Braintree, Mass.-based provider of student loans, recently reported that the average student loan debt level increased from \$8,200 in 1991 to \$18,800 in 1997 — and much higher for students who borrowed as graduate or professional school students. Forty percent of graduates recently surveyed by Nellie Mae reported that loan debt had caused them to delay buying a house, compared with 25 percent in 1991.

► The disappearance of grants has been especially hard on low-income families. In 1979, a student from the top one-fifth of family income was about four times more likely than a student from the bottom fifth to earn a bachelor's degree by age 24, according to an analysis by Iowa higher education consultant Thomas G. Mortenson. By 1994, the student from the top fifth was 10 times more likely. Plus, recent innovations in student aid including federal tuition tax credits and so-called "merit" aid are geared to benefit middle-class students rather than lower-income students.

► A recent report on higher education in New Hampshire reveals that 51 percent of Granite State families cannot afford to attend a four-year public college without financial assistance; 93 percent cannot afford the average tuition at a private four-year college without financial assistance. Moreover, 21 percent of all filers for financial aid in New Hampshire had an expected family contribution of zero.

### Federal Campus-Based Student Financial Aid Program Allocations: Academic Years 1995-1996 and 1997-1998

	College Work-Study			Perkins Loans			Supplemental Education Opportunity Grant Program		
	1996 Allocations	1998 Allocations	2-Year % Change	1996 Allocations	1998 Allocations	2-Year % Change	1996 Allocations	1998 Allocations	2-Year % Change
Connecticut	\$6,883,163	\$9,433,287	37.0%	\$1,764,944	\$1,662,187	-5.8%	\$6,705,123	\$7,166,183	6.9%
Maine	6,710,878	7,511,860	11.9	1,460,068	1,467,473	0.5	6,570,497	6,555,744	-0.2
Massachusetts	34,900,829	42,456,909	21.7	7,725,506	7,616,212	-1.4	27,564,567	27,601,865	3.8
New Hampshire	5,100,809	6,149,068	20.6	1,348,735	1,068,757	-20.8	4,550,623	4,602,815	1.1
Rhode Island	5,070,028	6,570,044	29.6	1,151,234	1,179,667	2.5	5,520,892	5,618,884	1.8
Vermont	4,682,479	5,407,681	15.5	917,462	1,073,093	17.0	5,181,408	5,244,301	1.2
New England	\$63,348,186	\$77,528,849	22.4%	\$14,367,949	\$14,067,389	-2.1%	\$56,093,110	\$56,789,792	1.2%
United States	614,920,624	814,638,850	32.5	157,686,707	157,575,823	-0.1	582,980,643	583,200,208	0.04
New England as a % of United States	10.3%	9.4%	9.5%	9.1%	8.9%		9.6%	9.7%	

Note: Perkins Loans were previously known as National Direct Student Loans.

Source: NEBHE analysis of U.S. Department of Education data.



➔ New England's state legislatures, meanwhile, allocated just \$7.63 per capita in student scholarships and grants last fiscal year, compared with \$11.70 nationally. Furthermore, most states put restrictions on where students may apply their state grant aid. Observers have noted that full "portability" of grants would add logic to national education policy by enabling students from states such as California, where a tidal wave of new students will overwhelm existing colleges and universities, to use their grants toward a college education in New England, where flat demographic trends mean at least a few empty seats at all but the most selective institutions.

➔ Both the Clinton administration and Congress have tried to kill the State Student Incentive Grant (SSIG) program, which provides states with need-based aid funds that must be matched with state dollars. The idea behind the SSIG is to encourage states to invest in student aid. With the program slated for elimination in fiscal 1998, two New England Senators came to the rescue. Rhode Island Democrat Jack Reed and Maine Republican Susan Collins managed to win the program a modest \$25 million lease on life.

**State Grant Aid Awarded: Fiscal 1986 to 1996 (Dollars in thousands)**

	1986	1991	1993	1995	1996	1-Year % Change	3-Year % Change	5-Year % Change	10-Year % Change
Connecticut	\$18,198	\$36,167	\$36,105	\$20,905	\$20,415	-2.3%	-43.5%	-43.6%	12.2%
Maine	1,309	5,100	5,200	7,096	8,262	16.4	58.9	62.0	531.2
Massachusetts	66,974	71,967	59,115	61,945	54,646	-11.8	-7.6	-24.1	-18.4
New Hampshire	1,292	1,479	1,610	1,493	773	-48.2	-52.0	-47.7	-40.2
Rhode Island	8,149	10,615	9,923	6,340	5,741	-9.4	-42.1	-45.9	-29.5
Vermont	8,182	11,177	11,281	11,983	12,022	0.3	6.6	7.6	46.9
New England	\$104,104	\$136,505	\$123,234	\$109,762	\$101,859	-7.2%	-17.3%	-25.4%	-2.2%
United States	1,523,709	2,151,032	2,571,755	2,868,938	3,018,269	5.2	17.4	40.3	98.1

**Total State Grant Aid as a Percent of Appropriations of State Tax Funds for Operating Expenses of Higher Education: Fiscal 1997**

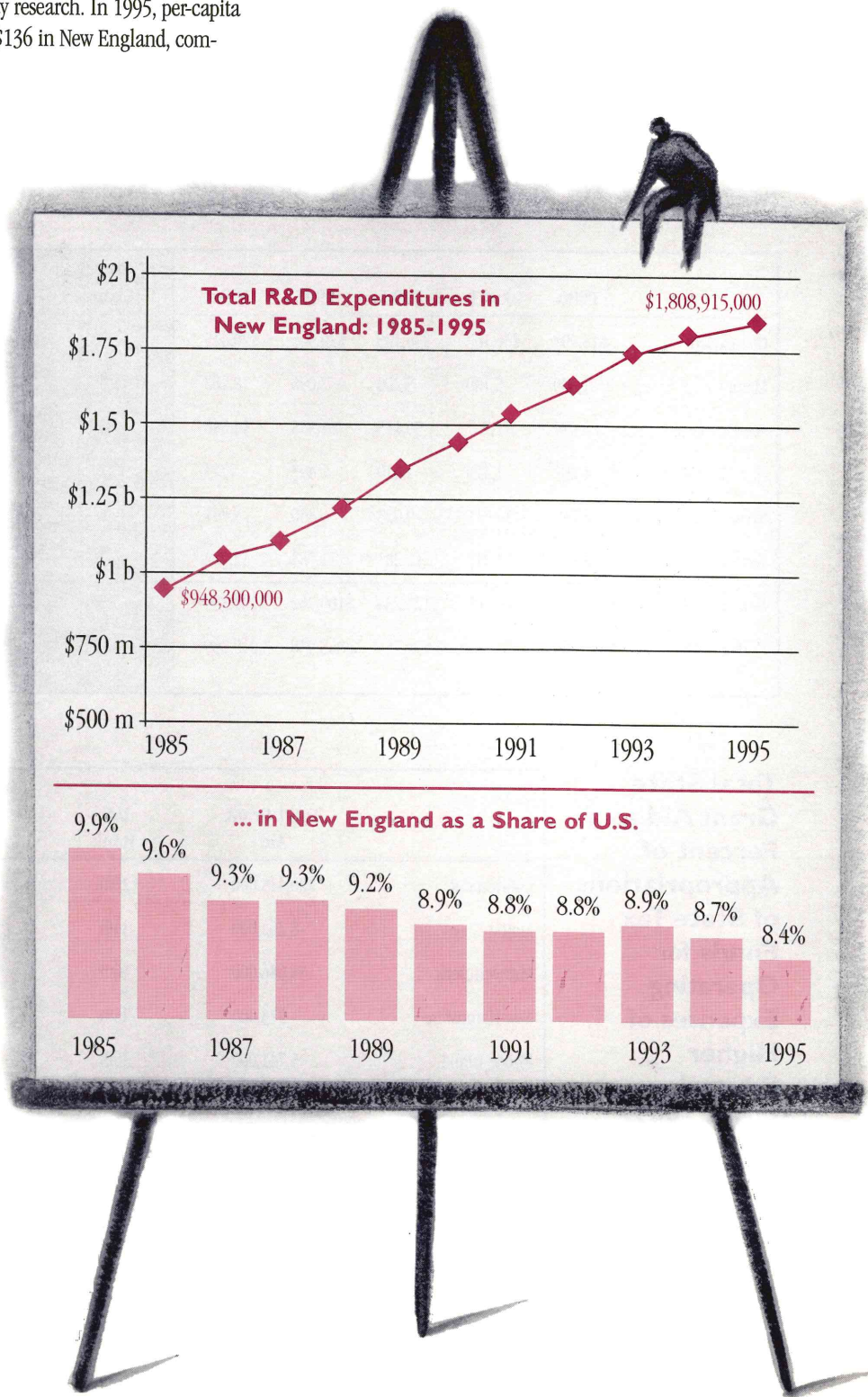
	Total Grant Aid	U.S. Rank	Student Grant Aid as a % of Total Higher Education Appropriations for 1997
Connecticut	\$20,415,000	25th	3.5%
Maine	8,262,000	34th	4.4
Massachusetts	54,646,000	16th	6.0
New Hampshire	773,000	45th	0.9
Rhode Island	5,741,000	36th	4.1
Vermont	12,022,000	31st	21.1
New England	\$101,859,000		5.2%
United States	3,018,269,000		6.1

Source: NEBHE analysis of data from New York State Higher Education Services Corp.

# RESEARCH AND DEVELOPMENT

► New England's famed academic research enterprise performed a record \$1.8 billion in research and development (R&D) in 1995, the last year for which data are available. And on a per-capita basis, the region still far outperforms other parts of the country in university research. In 1995, per-capita research expenditures stood at \$136 in New England, compared with \$82 nationally.

## Total Research and Development Expenditures at New England Doctorate-Granting Institutions



Source: NEBHE analysis of National Science Foundation data.

► New England's share of all R&D expenditures by U.S. universities slid from 10.1 percent in 1983 to 8.4 percent in 1995, depriving the region's knowledge economy of billions of dollars over the period, according to a New England Board of Higher Education analysis of new National Science Foundation (NSF) data.

► An additional \$350 million would have flowed into the region in 1995 alone had New England captured the share of U.S. university R&D it claimed a decade earlier.

► New England's leadership in R&D has been slowly eroding. Though R&D expenditures at New England universities have more than doubled since 1983, the region's share of all U.S. university R&D has declined by 17 percent. Notably, New England's share of U.S. R&D expenditures is declining in certain key areas where the region has had particular strength. For example, New England's share of university R&D in environmental sciences declined from 13.7 percent in 1990 to 12.3 percent in 1995, while the region's share of R&D in physical sciences slid from 11.6 percent to 10.1 percent.

► Since the mid-1980s, NEBHE has warned that a gradual geographic redistribution of American research power to the South and West was damaging New England's preeminent scientific enterprise and diverting federal and industry

dollars away from the region's economy. The most recent data show that New England ranked dead last among the nine major census regions in university R&D growth during the first half of the 1990s. Nationally, university R&D expenditures grew by 35 percent between 1990 and 1995 — and by a heady 46 percent in the Mountain states — as they rose by just 27 percent in New England. NEBHE President John C. Hoy has warned: "New England's lack of representation on key science committees in Congress and generally diminished political clout leaves the door open for an accelerating redistribution of research investment to the South and West."

► Federal agencies such as the National Institutes of Health, the National Science Foundation and the departments of Defense, Energy and Agriculture are responsible for the majority of university R&D expenditures nationally, with the balance of funds provided through state and local governments, industry and the universities themselves.

► New England historically has been overly dependent on the federal government for support of R&D. Indeed, despite tight federal budgets for science and the region's loss of political power, New England universities still rely on Washington for 68 cents of every \$1 spent on research, compared with 61 cents nationally. According to earlier NSF data, some New

**R&D Expenditures at New England Doctorate-Granting Institutions by Field: 1995 (Dollars in thousands)**

	Total	Engineering	Physical Sciences	Environmental Sciences	Computer Science	Life Sciences	Psychology	Social Sciences	Other Sciences
Connecticut	\$377,225	\$39,956	\$24,914	\$10,485	\$7,474	\$265,406	\$13,683	\$13,544	\$1,763
Maine	31,901	4,545	662	6,864	48	17,029	321	2,427	5
Massachusetts	1,147,150	226,328	179,376	97,344	49,133	456,434	17,745	80,860	39,930
New Hampshire	93,073	8,109	4,321	22,170	1,881	48,430	1,680	3,008	3,474
Rhode Island	105,501	13,877	9,244	28,715	9,814	32,576	5,045	5,312	918
Vermont	54,065	2,243	850	130	152	47,065	730	205	2,690
New England	\$1,808,915	\$295,058	\$219,367	\$165,762	\$68,502	\$806,940	\$39,204	\$105,356	\$48,780
United States	21,606,478	3,486,584	2,170,492	1,349,880	930,821	11,952,421	351,890	988,821	375,569
New England as % of United States	8.4%	8.5%	10.1%	12.3%	7.4%	7.3%	11.1%	10.7%	13%

England institutions are extraordinarily dependent on Washington. In 1994, the feds accounted for 80 percent of R&D at Boston University, 74 percent at MIT and Yale, and 91 percent at the Woods Hole Oceanographic Institution.

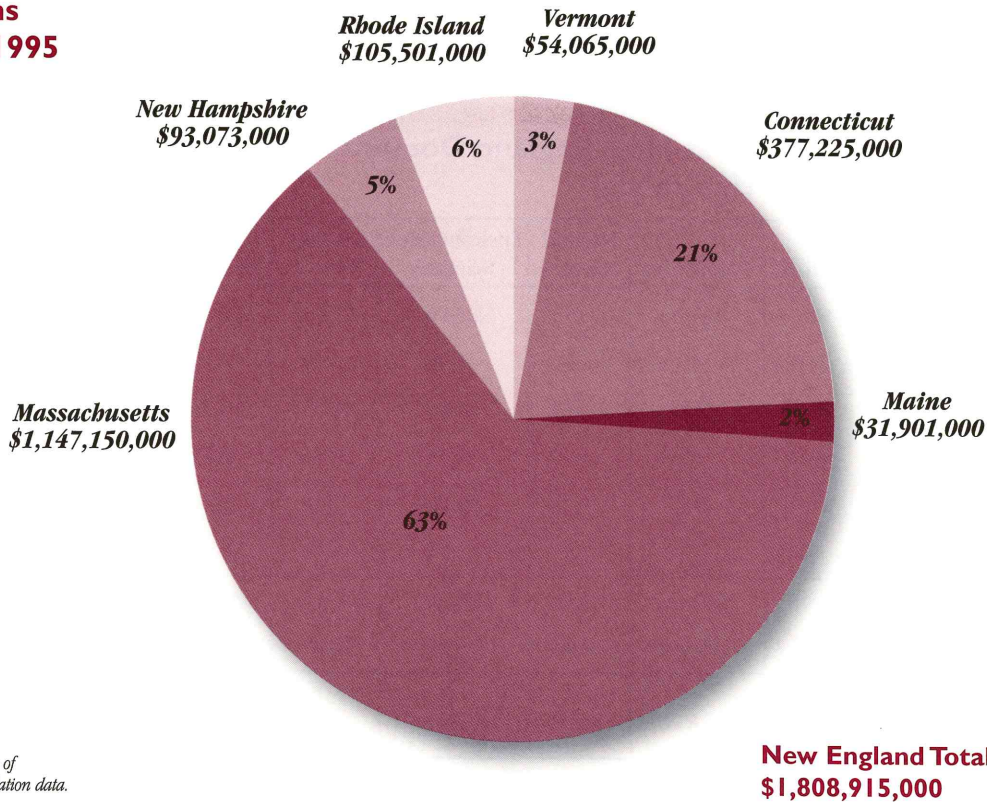
➤ The focus of federal investment is shifting away from the six-state region. During the past 10 years, federal support of university R&D has grown by 118 percent nationally, but by just 76 percent in New England.

➤ The leadership of the U.S. House Committee on Science has launched a yearlong "Science Policy Study" to address long-range national science policy issues. Meanwhile, U.S. Rep. Joseph P. Kennedy of Massachusetts has stepped up work with local business leaders on R&D issues.

➤ State and local investment in R&D, has been notoriously low in New England. Nationally, state and local governments provided nearly 8 percent of R&D funds at their universities, but New England state capitals and municipalities supplied under 3 percent. In Maine, where university R&D is conducted exclusively by the public University of Maine System, the state and local share is a slightly higher 6.3 percent.

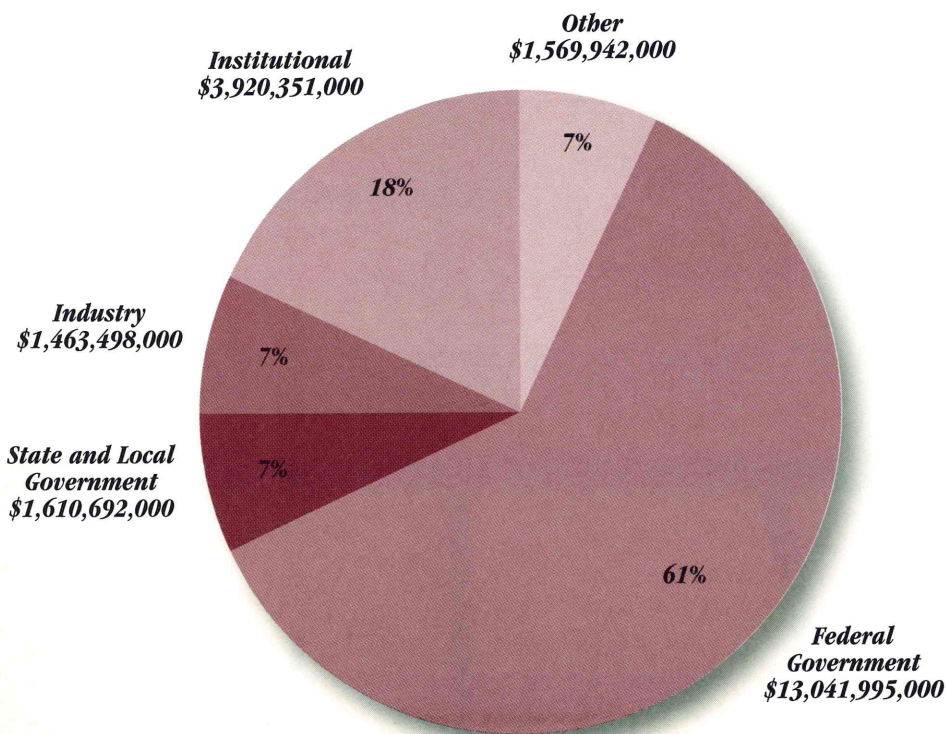
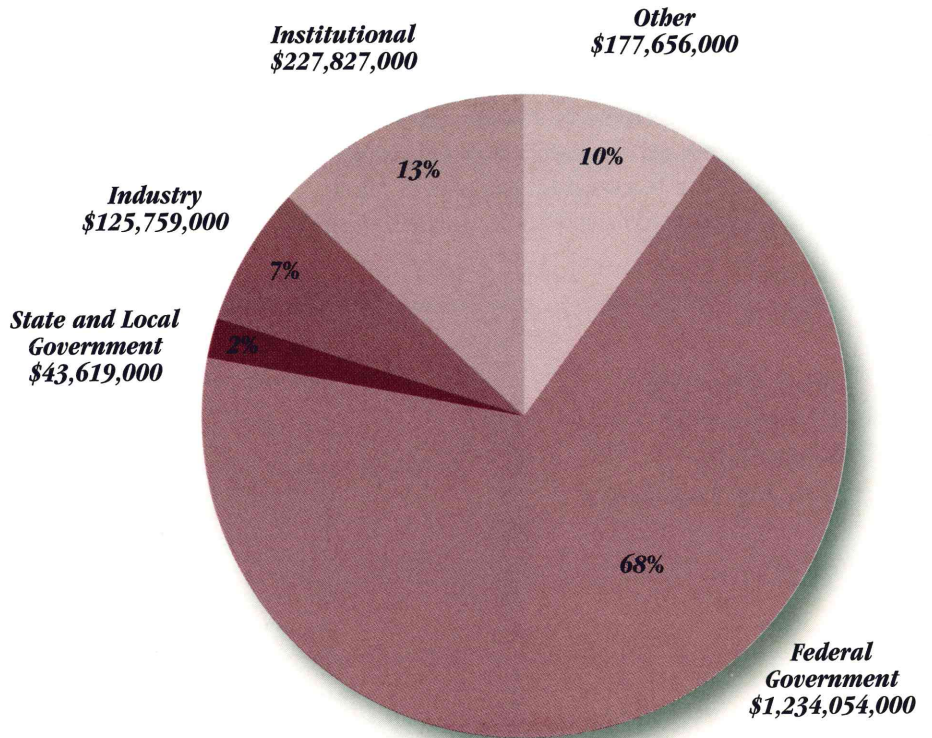
➤ State and local investment in R&D has grown rapidly in Connecticut and Maine during the 1990s, while it has fallen in the other four New England states. In Connecticut, state and local support tripled from \$5.3 million in 1990 to \$18.7 million in 1995. At the other end of the spectrum, Rhode Island state and local investment dropped significantly from \$5.1 million in 1990 to \$3.2 million in 1995.

**Total R&D Expenditures at New England Doctorate-Granting Institutions by State: 1995**



Source: NEBHE analysis of National Science Foundation data.

**R&D Expenditures at New England Doctorate-Granting Institutions by Source of Funds: 1995**



**R&D Expenditures at U.S. Doctorate-Granting Institutions by Source of Funds: 1995**

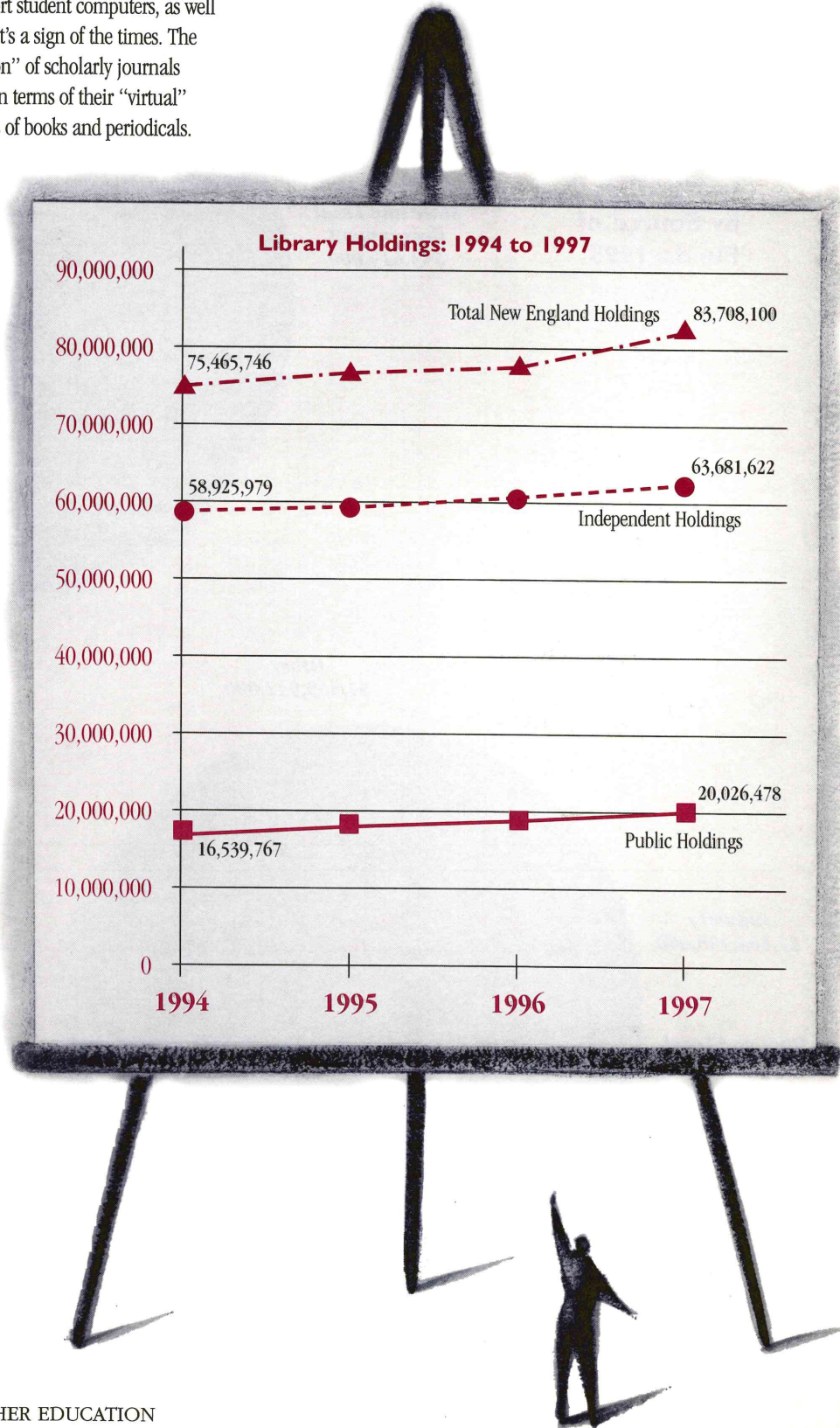
Source: NEBHE analysis of National Science Foundation data.

# LIBRARY HOLDINGS

► Harvard Law School's main library facility, Langdell Hall, reopened in October 1997 after a 15-month renovation. Besides traditional improvements such as "soft seats" and "new carrels," the \$36 million upgrade allowed the world's largest academic law library to install 1,158 data ports and 98 miles of electrical and data wiring to support student computers, as well as 99 public computer terminals. It's a sign of the times. The rise of the Internet and "digitization" of scholarly journals means libraries will be measured in terms of their "virtual" strengths instead of sheer numbers of books and periodicals.

## New England College and University Library Holdings

Source: NEBHE's annual *FACTS* survey of New England colleges, universities and institutes.



► From Saint Anselm College in Manchester, N.H., to Quinnipiac College in Hamden, Conn., New England campuses are wiring their libraries for the latest in information technologies.

► Harvard and other urban universities are moving vast collections of rarely used books to climate controlled warehouses in lower-rent suburbs, available upon request by scholars back on campus.

► The region's academic libraries boast vast archives of historical documents. A new center at the University of Southern Maine libraries features important African-American, Franco-American and Jewish collections. Brown University recently received thousands of pieces of correspondence and files from St. Martin's Press related to authors such as Isaac Asimov, James Baldwin and Jerzy Kozinski. And the Harvard College Library received a collection of papers related to Mozart, including manuscripts and early biographical materials.

### New England Institutions with the Largest Library Holdings: 1997

*Note: Library holdings represent the total of books and periodicals as reported by the institutions for NEBHE's Facts 1998 survey of New England colleges, universities and institutes.*

*Source: NEBHE's Facts 1998 survey of New England colleges, universities and institutes.*

<b>Institution</b>	<b>State</b>	<b>Affiliation</b>	<b>Library Holdings</b>
Harvard University	Mass.	Independent	13,369,855
Yale University	Conn.	Independent	10,857,377
Brown University	R.I.	Independent	2,823,264
University of Massachusetts Amherst	Mass.	Public	2,791,300
Tufts University	Mass.	Independent	2,486,543
Massachusetts Institute of Technology	Mass.	Independent	2,466,462
University of Vermont	Vt.	Public	2,343,942
University of Connecticut	Conn.	Public	2,087,648
Boston University	Mass.	Independent	2,080,948
Dartmouth College	N.H.	Independent	2,022,000
University of Rhode Island	R.I.	Public	1,969,716
Boston College	Mass.	Independent	1,609,230
Wesleyan University	Conn.	Independent	1,403,200
Smith College	Mass.	Independent	1,179,166
University of New Hampshire	N.H.	Public	1,107,000
Brandeis University	Mass.	Independent	1,026,060
Trinity College	Conn.	Independent	912,545
University of Maine	Maine	Public	865,400
Bowdoin College	Maine	Independent	859,562
Northeastern University	Mass.	Independent	838,018
Amherst College	Mass.	Independent	827,837
Middlebury College	Vt.	Independent	776,916
Williams College	Mass.	Independent	767,605
Wellesley College	Mass.	Independent	725,237
Mount Holyoke College	Mass.	Independent	652,672

## Infrastructure: Looking for a Higher Authority

*The following is adapted from "A Step Toward Regionalism: An Infrastructure Authority for New England," a white paper authored by James P. RePass, president and chief executive officer of the Northeast Corridor Initiative/National Corridors Initiative. The Providence-based association of business, government, environmental and academic leaders advocates expanded rail transportation in New England and nationally. Notably, Congress in the fall passed historic Amtrak reform legislation, granting the national passenger rail system a new lease on life.*

New England is failing to do all it can to coordinate important transportation infrastructure decisions that have impacts beyond individual state borders. This is not a criticism of current office holders or administrators. It is simply a statement of fact.

Because good transportation is a key component of economic development, and because New England's transportation costs are higher than the national average, it is imperative that the region address this issue.

The Northeast Corridor Initiative proposes the creation of a New England Infrastructure Commission and hereby offers its help in creating and structuring such an entity. It would be our intent that the outgrowth of such a commission would be a New England Infrastructure Authority, similar in design and function to the Port Authority of New Jersey and New York, which has played such a critical role in the economic development of that region.

We are well aware of the historic independence of the six New England states and that any regional proposal that challenges their sovereignty may be perceived as a threat. Nevertheless, we are convinced that New England must proceed to cooperate in transportation, for Ben Franklin's famous nostrum about hanging together or hanging separately surely applies here. Indeed, regional cooperation in transportation planning must extend even to New York state if we are to realize the mutual economic benefits of improved freight and passenger transport.

Following are some reasons we should proceed soon with creation of a New England Infrastructure Commission/Authority:

**Conrail Acquisition.** CSX and Norfolk Southern are preparing to defend their proposed acquisition of Conrail before the Surface Transportation Board, successor to the Interstate Commerce Commission. While individual states may be planning to communicate to the board, there has been little regional effort by any New England-wide group. This will lead to cherry-picking

by the railroads who will be tempted to play the interests of one New England state off those of another. Worse, the lack of a proactive New England-driven plan will cost the region the opportunity to insist upon certain conditions such as mutual trackage rights on the current Conrail mainline in New England states, which would lower the cost of shipping in New England by millions of dollars each year.

**Regional Rail Links.** Boston is a natural gateway for European business travelers and tourists headed for New England. How much would business investment and tourism increase if a true regional rail system could take visitors swiftly throughout southern and northern New England and upstate New York? Remember, these visitors are from parts of the world where rail travel is taken for granted because of significant investment in rail-based infrastructure since World War II.

One project on the boards now would serve as a linchpin in creating such a regional rail system, yet some dismiss it as a "Boston project" because physically it would connect Boston's North and South railroad stations. In reality, this North-South Rail Link would benefit as many or more people — and serve a far larger geographic region — than even the massive Central Artery/Tunnel project, also in Boston.

The link would permit both the Massachusetts Bay Transportation Authority (MBTA) and Amtrak to create a truly regionwide system with rail service, for example, between Cape Cod and Maine, Boston and Montreal, Providence and Nashua, N.H., and so on. Such service is impractical now because rail systems from points south end at South Station, and rail systems from the north — just beginning a long-awaited revival — don't connect directly.

The North-South Rail Link solves that problem and offers the promise of better service not just for local MBTA commuters, but for business and family travelers and for new foreign tourists who could boost New England tax revenues and create thousands of jobs in the region's important tourist industry.

The potential benefit of recreating a system that will deliver excellent rail service to western Massachusetts and New York state and all New England states should not be lost on residents of the region, for it will increase their travel options, improve the region's economy and reduce highway congestion. Moreover, once Amtrak's Northeast Corridor High Speed Rail trains begin running in late 1999, the regional rail system will allow use of feeder airports such as T.F. Green in Warwick, R.I., as well as airports in Manchester, N.H., and Worcester, Mass., thereby reducing pressure for development of a "second" airport somewhere in eastern Massachusetts. That alone will save taxpayers \$5 billion — the cost of a new major airport.

Still, there is no organized effort to rally the New England congressional delegation to support the rail link, even though impor-



tant organizations such as the New England Council support it. It is imperative that the North-South Rail Link be seen as the regional project that it is, linking together the entire Eastern Seaboard in one unbroken net from Newport News, Va., to Portland, Maine, through New Hampshire and Vermont to Montreal, and through western Massachusetts to New York state.

Even now, Vermont Gov. Howard Dean and several citizens groups are attempting to restore freight service on part of the Vermont and Concord-White River Junction rail lines. Independent of that effort, a major ski developer is acquiring a small empire of New Hampshire, Vermont and Maine resorts that would benefit from restoration of passenger service on that line, as well as on the Boston-Portland passenger line to be opened soon. Independent of that, the state of Vermont — already active in promoting tourism via its financial support of Amtrak's *Vermontier* — would also like to restore passenger service between Boston and Montreal, which could use the same Concord-White River Junction line. Independent of that, doublestack freight intermodal service out of the port of Boston would benefit from restoration of that Vermont line because the port of Montreal is winterbound, and because additional freight customers could more easily access Boston.

With Massachusetts prepared to bond some \$200 million-plus to make the port of Boston more accessible to doublestack container cars, it would seem only natural to explore creation of an interstate corridor initiative that could structure and fund the Boston-Montreal infrastructure. While the Coalition of Northeastern Governors has played an important role in promoting the Northeast Corridor project, it has representation from Washington to Maine, and cannot become a New England-oriented regional infrastructure authority without triggering potential inter-regional conflicts of interest.

**Logan and Green Airports.** Massachusetts officials have embarked on a \$1 billion-plus "Logan 2000" initiative to modernize services at the region's largest airport. Yet, there is no structured means for Logan officials to communicate with their counterparts at Green Airport in Rhode Island, Manchester Airport in New Hampshire or Bradley International Airport near Hartford.

No regular forum exists for communication with Amtrak, yet three-hour rail travel between Boston and New York City is only two years away, and significant Boston-New York air traffic will be diverted to high-speed rail. It should be noted that while Amtrak currently claims just 10 percent of ticketed traffic between Boston and New York City, it accounts for 40 percent of ticketed traffic between New York City and Washington, D.C., where three-hour service is already available. Whatever the outcome of three-hour rail service between Boston and New York, it is mindboggling to think that a major project such as Logan 2000 should go forward without the benefit of formalized, regional infrastructure plan-

ning. It is only a lucky accident that Logan 2000's management is creative and concerned enough to discuss these issues.

Green Airport outside Providence is one of the few U.S. airports located directly along a high-speed rail line. Green has a new terminal building and has seen a 90 percent increase in boardings in the first nine months of 1997. If a North-South Rail Link were completed in Boston, much Logan traffic from suburban Boston and elsewhere could be diverted to Green or Manchester airports — delaying an expensive "second" airport for a generation.

**Urban Ring.** Like the North-South Rail Link, the Urban Ring or Circumferential Transit System proposed for outside Boston can mistakenly be viewed as a local project. But if properly executed, it would benefit the entire region by:

- linking the radial arms of the MBTA's Commuter Rail and subway systems, which, in turn, would relieve congestion on interstate auto traffic as well as the subway system by effectively increasing their capacities;
- providing inner-city neighborhoods with access to suburban jobs; and
- spurring the growth of high-density Edge City-like office, retail and hotel complexes complete with intermodal parking facilities at the interface of the Urban Ring system and interstate highway systems, thereby relieving pressure on the new Central Artery/Tunnel and prolonging its useful life by at least several decades.

**Central Artery/Tunnel.** The "Big Dig" will open up a whole new urban landscape in Boston. It is imperative that it do so in conjunction with advancements in access to Logan Airport, Commuter Rail, regional rail and the MBTA subway and bus systems so we do not see undue pressure to turn the new lands freed up by the Central Artery's depression into surface arteries once again. Indeed, pressure is already building in that direction, because traditional highway planning is not being rigorously gridded against alternatives involving the MBTA, the proposed North-South Rail Link or the proposed Urban Ring, in no small measure because the latter two projects are seen as expensive distractions from the artery project. They are, in reality, prerequisites for the artery project's success. Without them, the artery will be congested within a few years of its opening, as has been the case in California where road-widening projects have expanded expressways to 12 lanes and more, and yet in each case, within a few years, those same highways have returned to stall-and-crawl traffic because few viable mass transit alternatives exist.

**Paying for It.** If for no other reason, the need for new approaches to infrastructure finance justifies the creation of a New England Infrastructure Commission/Authority. The federal well is not as free-flowing as it once was, especially for a New England that has lost much of its political clout in Washington. New England needs to explore alternative financing mechanisms for infrastructure now.

## College Grads and the Job Market

*The following is adapted from "Now What? Life after College for Recent Graduates," a report published in August 1997 by The Education Resources Institute of Boston and the Institute for Higher Education Policy of Washington, D.C.*

The Collegiate Employment Research Institute (CERI) at Michigan State University annually surveys businesses and government agencies that hire new college graduates to ascertain trends in hiring, compensation and placement. CERI reports that on-campus recruitment activities are some of the most popular and successful methods for employers. In the late 1980s and early 1990s, many large businesses curtailed their on-campus activities, as a slower economy brought about more downsizing and limited the number of entry-level positions available for new college graduates. Recent trends, however, indicate a resurgence of recruiting activities, especially at job and recruiting fairs that are held at central locations and sponsored by collegiate consortia and businesses.

Internships and cooperative education programs are also successful methods that benefit both companies and students. These programs give students the chance to determine their interest in a given field while gaining valuable work experience, most often while they are still in school.

Fully 70 percent of companies surveyed in November 1996 use internship and coop programs as a source for prospective full-time employees, according to the National Association of Colleges and Employers (NACE). Participants become familiar with the company and gain skills that would have to be taught to another recruit. Of those companies who provide summer internships, 98 percent use their programs to convert interns into permanent employees. About 40 percent of students who participate in coop programs go on to become full-time employees with that company.

Technology — particularly the Internet — has impacted the job search process. Increasing numbers of employers are advertising job openings on their Web sites. In 1996, 36 percent of companies surveyed by CERI had established Web sites for the purpose of promoting job openings, up from 18 percent in 1995. Companies frequently distribute the addresses for these sites through career service offices. Graduating students use the sites to find out about open positions and access more information about the companies. The Web sites are advantageous to companies because they are relatively easy to update.

Resume databases on the Internet have also become popular tools. These sites are administered by a variety of parties, includ-

ing specific companies, recruiting organizations, higher education associations and individual colleges and universities. In 1996, 11 percent of companies had created databases to receive resumes, up from 7 percent in 1995. However, while these types of resources may help widen the pool for employers, companies report that relatively few new employees are hired in this manner.

Several organizations also publish on-line job guides, career planners and "how to" manuals about life after college. Resources dedicated to employment issues contain suggestions about resumes and interviews, as well as starting salary information in specific fields. More generally oriented sites cover everything from finding an apartment and living alone, to repaying student loans and financial planning.

**Job Choice Decision.** Many factors influence students' choice of occupation and job. Respondents to the U.S. Department of Education's longitudinal study of college graduates known as *Baccalaureate and Beyond* were asked what factors would influence their future job choice. While 45 percent stated that good *income potential* was an important factor in their choice of jobs, only 35 percent felt that a good *starting income* was significant in their choice.

Other factors such as the quality and type of work to be performed were compelling for students. Forty-five percent said the intellectual nature of the work was important; 42 percent said their job choice would depend on whether the work was interesting. In addition, considerations such as job security and interaction with other people were both significant for one-third of respondents. Issues such as prestige and travel were relatively unimportant for most students.

**New Hires.** *Recruiting Trends*, an annual publication produced by CERI based on its survey of businesses, provides a profile of the characteristics of newly hired recent college graduates. The 1995-96 hiring profile showed the following:

- 52 percent of those newly hired had career-related pre-professional experiences;
- 41 percent were women;
- 16 percent were minorities;
- 10 percent of the new graduates were liberal arts majors;
- 2 percent were individuals with disabilities.

**Job Prospects.** Regardless of academic majors, training or job search strategies, the most important factor determining whether or not college graduates will find work is the status of the job market. In a given year, confidence in the economy, projected growth in specific occupational fields, and individual performance and personnel issues influence companies' hiring decisions regarding new college graduates.

For example, according to *Recruiting Trends 1995-96*, discussions about balancing the federal budget may affect a company's hiring plans. And as the overall economy has improved,

coming out of the recessionary period of the early 1990s, businesses and corporations surveyed by CERI have reported gradual increases in their intentions to hire new graduates.

NACE also collects information from employers about their plans to hire new graduates. In the fall of 1996, employers reported that they would hire 17 percent more graduates from the Class of 1997 than from the previous year's class. Overall, 60 percent of employers surveyed said they planned to hire more graduates than they did a year before.

Technology needs are driving employers in their search for college graduates, particularly among computer and business equipment manufacturers and companies upgrading their technological capacities. Engineers, programmers, analysts and information systems and networking personnel are among the most sought-after new employees.

By industry group, the service sector is expected to provide the greatest number of employment opportunities for members of the Class of 1997, but employers in the manufacturing sector report they will hire 22 percent more graduates than last year, the biggest increase for all sectors. The government and nonprofit sectors expect to hire fewer college graduates.

**Workforce Participation.** Among students who had been out of school one to two years, almost 90 percent of recent college graduates were employed. Four percent were unemployed, but were not receiving benefits, and an additional 9 percent were out of the workforce.

Fifty-three percent of graduates who had not worked since completing their education cited going to school full-time as their main reason for not working. Eleven percent had family responsibilities that prevented them from working, 5 percent did not want to work, 5 percent had been traveling, 3 percent were waiting for a new job and 2 percent were physically unable to work.

**Financial Compensation.** One of the most frequently used indicators of employment prospects for college graduates is the starting salary offers they receive. NACE conducts a periodic survey to determine the average starting salaries offered to graduates in certain academic fields and majors.

In general, starting salaries for bachelor's degree recipients are expected to increase by an average of 3.9 percent from last year — well above the current 2.5 percent rate of inflation.

In 1997, the highest estimated starting salaries for new college graduates are for engineering majors: chemical engineering, \$42,817; computer engineering, \$39,722; electrical engineering, \$39,513; and mechanical engineering, \$38,113. High starting salaries are also offered to students who majored in: industrial engineering, \$38,026; computer science, \$36,597; management information systems, \$34,778; and civil engineering, \$33,119.

Starting salaries for other majors are also impressive: economics/finance, \$31,294; accounting \$30,321; business administra-

tion, \$29,433; and marketing, \$27,874. Among other liberal arts and humanities/social science degrees, average starting salary offers are lower. The average offer for graduates who majored in foreign languages was \$25,608; history, \$24,688; English, \$23,553; political science, \$23,364; visual and performing arts, \$23,344; and psychology, \$23,315.

Service sector and manufacturing employers plan to offer the greatest one-year increases in starting salaries, according to NACE. Government and nonprofit employers expect to offer increases as well, but at a lower rate.

**Employer Satisfaction.** Once hired, recent graduates must be able to perform up to the standards established by their employers. In 1997, CERI surveyed employers about the skill level and performance of newly hired college graduates in entry-level technical and nontechnical positions. While employers of new graduates in technical positions in fields such as engineering, computer science and accounting were more likely to report that these employees were well-prepared in mathematical and information system skills, they rated the graduates' abstract thinking, goal setting and interpersonal skills somewhat lower. These employers were particularly concerned about technical graduates' writing and presentation skills.

Furthermore, employers thought that these graduates were not prepared to take leadership roles or able to navigate their way in their new environment.

In fields such as general business, social sciences and communications, employers said that graduates had strong mathematical and informational skills, but were often less adept than employers expected at setting goals, abstract thinking, handling conflict and criticism and specific writing tasks such as drafting proposals. Employers also cited the graduates' limited capacity to maneuver through the professional environment.

**Future Job Market.** The federal Bureau of Labor Statistics (BLS) projects that overall employment will increase nearly 14 percent between 1994 and 2005, from 127 million to 144.7 million — an average of 1.6 million new jobs per year. This is significantly slower than the 24 percent employment growth that occurred from 1983 to 1994, when an average of 2.2 million jobs were created per year. Nevertheless, jobs requiring at least an associate degree are projected to grow faster than all other job categories. And jobs requiring bachelor's and master's degrees will grow the fastest among the 11 categories identified by BLS.

Certain occupations are expected to experience high earnings, fast growth and a large number of job openings. The fastest-growing occupations for bachelor's degree recipients between 1994 and 2005 are projected to be systems analysts, computer engineers, computer scientists, physical therapists, residential counselors, occupational therapists and special education teachers.

# SURF'S UP!

## A CONNECTION Mini-Directory of World Wide Web Sites

(Related to higher education and economic development)

### *Special Focus on New England's Public Policy Centers and Institutes*

A. Alfred Taubman Center for Public Policy and American Institutions (Brown University), [www.Brown.Edu/Departments/Taubman\\_Center](http://www.Brown.Edu/Departments/Taubman_Center)

A. Alfred Taubman Center for State and Local Government (Harvard University), [ksgwww.harvard.edu/~ksgpress/cattaub.htm](http://ksgwww.harvard.edu/~ksgpress/cattaub.htm)

American Institute for Economic Research, [www.aier.org](http://www.aier.org)

Annenberg Institute for School Reform (Brown University), [home.aizr.brown.edu/](http://home.aizr.brown.edu/)

Beacon Hill Institute for Public Policy Research (Suffolk University), [www.beaconhill.org](http://www.beaconhill.org)

Bureau of Labor Education (University of Maine), [inferno.asap.um.maine.edu/labored/](http://inferno.asap.um.maine.edu/labored/)

Center for Adoption Research & Policy (University of Massachusetts Medical Center), [www.ummed.edu/main/adoptcse.htm](http://www.ummed.edu/main/adoptcse.htm)

Center for Agriculture, Food and Environment (Tufts University), [www.tufts.edu/tepc/activities\\_report/old/afe.html](http://www.tufts.edu/tepc/activities_report/old/afe.html)

Center for Business and Economic Research (University of Southern Maine), [www.usm.maine.edu/~cber/](http://www.usm.maine.edu/~cber/)

Center for Business Ethics (Bentley College) [www.bentley.edu/resource/cbe](http://www.bentley.edu/resource/cbe)

Center for Community Inclusion (University of Maine), [cardinal.umeais.maine.edu/~cci/ccid.html](http://cardinal.umeais.maine.edu/~cci/ccid.html)

Center for Computational Research in Economics and Management Science (MIT), [web.mit.edu/sloan/www/research/ccrems.html](http://web.mit.edu/sloan/www/research/ccrems.html)

Center for Corporate Community Relations (Boston College), [www.bc.edu/cccr](http://www.bc.edu/cccr)

Center for Defense Journalism (Boston University), [web.bu.edu/CDF](http://web.bu.edu/CDF)

Center for Economic Development (University of Massachusetts at Amherst), [www.umass.edu/larp/CED/index.html](http://www.umass.edu/larp/CED/index.html)

Center for Educational Excellence (Eastern Connecticut State University), [www.ecsu.ctstateu.edu/depts/edu/cee.html](http://www.ecsu.ctstateu.edu/depts/edu/cee.html)

Center for Energy and Environmental Studies (Boston University), [www.bu.edu/CEES/](http://www.bu.edu/CEES/)

Center for Energy & Environmental Policy Research (MIT), [web.mit.edu/ceepr/www](http://web.mit.edu/ceepr/www)

Center for Environmental Studies (Williams College), [www.williams.edu:803/CEES](http://www.williams.edu:803/CEES)

Center for Evaluative Clinical Sciences (Dartmouth College), [www.dartmouth.edu/dms/cecs/](http://www.dartmouth.edu/dms/cecs/)

Center for Gerontology and Health Care Research (Brown University), [www.brown.edu/Departments/Gerontology](http://www.brown.edu/Departments/Gerontology)

Center for Health and the Global environment (Harvard University), [www.med.harvard.edu/chge/](http://www.med.harvard.edu/chge/)

Center for Health Communication (Harvard University), [www.hsph.harvard.edu/Register/hlthcomm.html](http://www.hsph.harvard.edu/Register/hlthcomm.html)

Center for Human Resources (Brandeis University), [www.brandeis.edu/heller/chumanr.html](http://www.brandeis.edu/heller/chumanr.html)

Center for Information Systems Research (MIT), [web.mit.edu/cisr/www](http://web.mit.edu/cisr/www)

Center for International and Area Studies (Yale University), [www.cis.yale.edu/yacias/](http://www.cis.yale.edu/yacias/)

Center for Marine Science and Technology (University of Massachusetts Dartmouth), [www.ece.umassd.edu/cmast/index.htm](http://www.ece.umassd.edu/cmast/index.htm)

Center for Northern Studies (Middlebury College), [www.middlebury.edu/~cns](http://www.middlebury.edu/~cns)

Center for Organizational Learning (MIT), [learning.mit.edu/olc/faq.html](http://learning.mit.edu/olc/faq.html)

Center for Research on Vermont (University of Vermont), [www.uvm.edu/~crvt](http://www.uvm.edu/~crvt)

Center for Research on Women (Wellesley College), [www.wellesley.edu/WCW/crwsb.html](http://www.wellesley.edu/WCW/crwsb.html)

Center for Risk Analysis (Harvard University), [www.hsph.harvard.edu/organizations/hcra/hcra.html](http://www.hsph.harvard.edu/organizations/hcra/hcra.html)

Center for Rural Massachusetts (University of Massachusetts Amherst), [www-unix.oit.umass.edu/~ruralma/CRM.who.html](http://www-unix.oit.umass.edu/~ruralma/CRM.who.html)

Center for Rural Studies (University of Vermont), [crs.uvm.edu/](http://crs.uvm.edu/)

Center for Science and International Affairs (Harvard University), [www.ksg.harvard.edu/bcsia](http://www.ksg.harvard.edu/bcsia)

Center for Social Change (Brandeis University), [www.brandeis.edu/heller/cschange.html](http://www.brandeis.edu/heller/cschange.html)

Center for Social Development and Education (University of Massachusetts Boston), [www.umb.edu/](http://www.umb.edu/)  
(Click on COMMUNITY CONNECTIONS.)

Center for the Study of Crime, Victims' Rights, Remedies and Resources (University of New Haven), [www.newhaven.edu/UNH/ShowcaseSites/CenterStudyCrimeVictims.html](http://www.newhaven.edu/UNH/ShowcaseSites/CenterStudyCrimeVictims.html)

Center for the Study of Race and Ethnicity (Brown University), [www.brown.edu/Departments/Race\\_Ethnicity/](http://www.brown.edu/Departments/Race_Ethnicity/)

Center for the Study of Testing, Evaluation and Educational Policy (Boston College), [wwwwcsteep.bc.edu/](http://wwwwcsteep.bc.edu/)

Center for the Study of Values in Public Life  
(Harvard University),  
[divweb.harvard.edu/csvpl/](http://divweb.harvard.edu/csvpl/)

Center for Technology, Policy, and  
Industrial Development (MIT),  
[web.mit.edu/ctpid/www/home.html](http://web.mit.edu/ctpid/www/home.html)

Center for Transportation Studies (MIT),  
[web.mit.edu/cts/www/overview.html](http://web.mit.edu/cts/www/overview.html)

Center on Work and Family (Boston  
University), [web.bu.edu/CWF](http://web.bu.edu/CWF)

Child Study Center (Yale University),  
[info.med.yale.edu/](http://info.med.yale.edu/)  
(Click on ACADEMIC DEPARTMENTS then  
CHILD STUDY CENTER.)

Civil Liberties and Public Policy Program  
(Hampshire College),  
[hamp.hampshire.edu/~clpp/](http://hamp.hampshire.edu/~clpp/)

Coalition of Essential Schools (Brown  
University), [www.ces.brown.edu/](http://www.ces.brown.edu/)

Coastal Resources Center (University of Rhode  
Island), [brooktrout.gso.uri.edu](http://brooktrout.gso.uri.edu)

Commonwealth Institute, [www.comw.org](http://www.comw.org)

Complex Systems Research Center (University  
of New Hampshire), [pyramid.unh.edu/](http://pyramid.unh.edu/)

Concord Consortium, [www.concord.org](http://www.concord.org)

Connecticut Council on Economic Education  
(University of Connecticut at Avery Point),  
[smg2000.org](http://smg2000.org)

Dartmouth Ethics Institute (Dartmouth  
College), [www.dartmouth.edu/artsci/ethics-inst/](http://www.dartmouth.edu/artsci/ethics-inst/)

Earthwatch/The Center for Field Research,  
[www.earthwatch.org](http://www.earthwatch.org)

Economic Growth Center (Yale University),  
[www.library.yale.edu/sosci/egcdescr.html](http://www.library.yale.edu/sosci/egcdescr.html)

Edmund S. Muskie School of Public Service  
(University of Southern Maine),  
[www.muskie.usm.maine.edu/](http://www.muskie.usm.maine.edu/)

Educational Development Center,  
[www.edc.org](http://www.edc.org)

Emerson-Tufts Health Communication  
Program (Emerson College, Tufts University),  
[www.emerson.edu/acadepts/cs/healthcom/  
home.html](http://www.emerson.edu/acadepts/cs/healthcom/home.html)

Environmental Institute  
(University of Massachusetts Amherst),  
[riga.fnr.umass.edu/tei/](http://riga.fnr.umass.edu/tei/)

Ernest Trefz Center for Venture Management  
(University of Bridgeport),  
[www.bridgeport.edu](http://www.bridgeport.edu)

Ethan Allen Institute,  
[Plainfield.bypass.com/~ethallen](http://Plainfield.bypass.com/~ethallen)

Eunice Kennedy Shriver Center for Mental  
Retardation, [www.shriver.org](http://www.shriver.org)

Family and Children's Policy Center  
(Brandeis University),  
[www.brandeis.edu/heller/fcpc.html](http://www.brandeis.edu/heller/fcpc.html)

Francois-Xavier Bagnoud Center for Health  
and Human Rights (Harvard University),  
[www.hsph.harvard.edu/Register/xfb.html](http://www.hsph.harvard.edu/Register/xfb.html)

Geonomic Institute (Middlebury College),  
[www.middlebury.edu/~geonomic/](http://www.middlebury.edu/~geonomic/)

Gerontology Center (Boston University),  
[med-sph.bu.edu/geront/index.html](http://med-sph.bu.edu/geront/index.html)

Global Development and Environment  
Institute (Tufts University),  
[www.tufts.edu/gdae](http://www.tufts.edu/gdae)

Gordon Public Policy Center  
(Brandeis University), [stanley.feldberg.  
brandeis.edu/~rosenbla/gordon.html](http://stanley.feldberg.brandeis.edu/~rosenbla/gordon.html)

Harvard Center for Population and  
Development Studies (Harvard University),  
[www.hsph.harvard.edu/Register/pop-ctr.html](http://www.hsph.harvard.edu/Register/pop-ctr.html)

Harvard Institute for International  
Development (Harvard University),  
[www.hiid.harvard.edu/](http://www.hiid.harvard.edu/)

Hauser Center for Nonprofit Institutions  
(Harvard University),  
[www.ksg.harvard.edu/hauser/](http://www.ksg.harvard.edu/hauser/)

Human Services Research Institute,  
[WWW.HSRI.ORG](http://WWW.HSRI.ORG)

Industrial Relations Section (MIT),  
[web.mit.edu/sloan/www/research/irs.html](http://web.mit.edu/sloan/www/research/irs.html)

Institute for Economic Development  
(Boston University), [ECON.BU.EDU/IED](http://ECON.BU.EDU/IED)

Institute for First Amendment Studies,  
[www.ifas.org](http://www.ifas.org)

Institute for Global Ethics,  
[www.globalethics.org](http://www.globalethics.org)

Institute for Health Policy  
(Brandeis University),  
[www.brandeis.edu/heller/ihp/ihp.html](http://www.brandeis.edu/heller/ihp/ihp.html)

Institute for Policy and Social Science  
Research (University of New Hampshire),  
[www.unh.edu/ipssr/index.html](http://www.unh.edu/ipssr/index.html)

Institute for Science and Interdisciplinary  
Studies (Hampshire College),  
[hamp.hampshire.edu/~isisGU](http://hamp.hampshire.edu/~isisGU)

Institute for Secondary Education  
(Brown University),  
[www.brown.edu/Departments/Institute\\_  
of\\_Secondary\\_Education/Institute.html](http://www.brown.edu/Departments/Institute_of_Secondary_Education/Institute.html)

Institute for the Study of Conflict,  
Ideology, and Policy (Boston University),  
[web.bu.edu/ISCIP](http://web.bu.edu/ISCIP)

Institute of Politics (Harvard University),  
[ksgwww.harvard.edu/~ksgpress/catiop.htm](http://ksgwww.harvard.edu/~ksgpress/catiop.htm)

Institute of Public and Urban Affairs  
(University of Connecticut),  
[www.ucc.uconn.edu/~wwwmpa](http://www.ucc.uconn.edu/~wwwmpa)

Institute of Public Service  
(University of Connecticut),  
[www.ucc.uconn.edu/~wwwce/ips.html](http://www.ucc.uconn.edu/~wwwce/ips.html)

Institution for Social and Policy Studies  
(Yale University), [www.yale.edu/isps](http://www.yale.edu/isps)

Jemison Institute for Advancing Technology in  
Developing Countries (Dartmouth College),  
[www.dartmouth.edu/~jemison/](http://www.dartmouth.edu/~jemison/)

Joan Shorenstein Center on the Press, Politics  
and Public Policy (Harvard University),  
[ksgwww.harvard.edu/~presspol/home.htm](http://ksgwww.harvard.edu/~presspol/home.htm)

Joint Center for Housing Studies  
(Harvard University),  
[ksgwww.harvard.edu/~ksgpress/catjchs.htm](http://ksgwww.harvard.edu/~ksgpress/catjchs.htm)

Josiah Bartlett Center for Public Policy,  
[www.jbartlett.org](http://www.jbartlett.org)

Kresge Center for Environmental Health  
(Harvard University),  
[www.hsph.harvard.edu/Register/kresge.html](http://www.hsph.harvard.edu/Register/kresge.html)

Lincoln Filene Center for Citizenship & Public Affairs (Tufts University), [www.tufts.edu/as/lfc](http://www.tufts.edu/as/lfc)

Lincoln Institute of Land Policy,  
[www.lincolninst.edu](http://www.lincolninst.edu)

Loka Institute, [www.amherst.edu/~loka](http://www.amherst.edu/~loka)

Maine Center for Economic Policy,  
[www.f1support.com/mcep.html](http://www.f1support.com/mcep.html)

Maine/New Hampshire Sea Grant College Program (University of Maine and University of New Hampshire),  
[unhinfo.unh.edu/seagrant/index.html](http://unhinfo.unh.edu/seagrant/index.html)

Malcolm Wiener Center for Social Policy (Harvard University),  
[www.ksg.harvard.edu/socpol/about.htm](http://www.ksg.harvard.edu/socpol/about.htm)

Margaret Chase Smith Center for Public Policy (University of Maine),  
[www.ume.maine.edu/Departments/smith.html](http://www.ume.maine.edu/Departments/smith.html)

Marine Policy Center, [www.who.edu/mpcweb/](http://www.who.edu/mpcweb/)

Massachusetts Institute for a New Commonwealth, [www.massinc.org](http://www.massinc.org)

Massachusetts Institute for Social and Economic Research (University of Massachusetts) [www.umass.edu/miser/](http://www.umass.edu/miser/)

Mauricio Gaston Institute for Latino Community Development and Public Policy (University of Massachusetts Boston),  
[hydra.cc.umb.edu/](http://hydra.cc.umb.edu/)  
(Click on COMMUNITY CONNECTIONS.)

Middle East Institute (Harvard University),  
[ksgwww.harvard.edu/~isepme/index.html](http://ksgwww.harvard.edu/~isepme/index.html)

MIT Center for Real Estate,  
[web.mit.edu/cre/www/](http://web.mit.edu/cre/www/)

Murray Research Center (Radcliffe College),  
[www.radcliffe.edu/murray/](http://www.radcliffe.edu/murray/)

N. Neal Pike Institute on Law and Disability (Boston University), [www.bu.edu/PIKE](http://www.bu.edu/PIKE)

Nathan and Toby Starr Center for Mental Retardation (Brandeis University),  
[www.brandeis.edu/heller/starr\\_center.html](http://www.brandeis.edu/heller/starr_center.html)

National Bureau of Economic Research,  
[nber.harvard.edu](http://nber.harvard.edu)

National Policy and Resource Center on Women and Aging (Brandeis University),  
[www.brandeis.edu/heller/national/national.html](http://www.brandeis.edu/heller/national/national.html)

New England Center for International and Regional Studies (University of Bridgeport),  
[www.bridgeport.edu/Indexhtml/Centers/necirs.html](http://www.bridgeport.edu/Indexhtml/Centers/necirs.html)

New England Center for International Law and Policy (New England School of Law),  
[www.nesl.edu](http://www.nesl.edu)

New England Research Institute, [www.neri.org](http://www.neri.org)

New Hampshire Center for Public Policy Studies (University of New Hampshire),  
[www.unh.edu/nhcpps/index.html](http://www.unh.edu/nhcpps/index.html)

Northeastern Regional Aquaculture Center (University of Massachusetts Dartmouth),  
[www.umassd.edu/specialprograms/NRAC](http://www.umassd.edu/specialprograms/NRAC)

Pioneer Institute for Public Policy Research,  
[www.pioneerinstitute.org](http://www.pioneerinstitute.org)

Policy Center on Aging (Brandeis University),  
[www.brandeis.edu/heller/policy\\_center\\_on\\_aging.html](http://www.brandeis.edu/heller/policy_center_on_aging.html)

Political Research Associates,  
[www.publiceye.org/pira](http://www.publiceye.org/pira)

Principals' Center (Harvard University)  
[www.harvardprincipals.org/](http://www.harvardprincipals.org/)

Program on Information Resources Policy (Harvard University), [www.pirp.harvard.edu](http://www.pirp.harvard.edu)

Program on Negotiation at Harvard Law School (Harvard University),  
[www.harvard.edu/vine/providers/program\\_on\\_negotiation](http://www.harvard.edu/vine/providers/program_on_negotiation)

Radcliffe Public Policy Institute (Radcliffe College), [epn.org/rppi.html](http://epn.org/rppi.html)

Richard A. Snelling Center for Government (University of Vermont), [crs.uvm.edu/snelling](http://crs.uvm.edu/snelling)

Roper Center for Public Opinion Research (University of Connecticut),  
[www.lib.uconn.edu/RoperCenter/](http://www.lib.uconn.edu/RoperCenter/)

School for Field Studies, [www.fieldstudies.org/](http://www.fieldstudies.org/)

Simmons Institute for Leadership and Change (Simmons College), [www.Simmons.edu](http://www.Simmons.edu)

Social and Demographic Research Institute (University of Massachusetts Amherst),  
[www.umass.edu/sadri/sadri.html](http://www.umass.edu/sadri/sadri.html)

Social Welfare Research Institute (Boston College), [www.bc.edu/bc\\_org/avp/gsas/swri/](http://www.bc.edu/bc_org/avp/gsas/swri/)

Tellus Institute for Resource and Environmental Strategies, [www.tellus.com](http://www.tellus.com)

Toxics Use Reduction Institute (University of Massachusetts Lowell), [www.turi.org](http://www.turi.org)

Transportation Institute (University of Connecticut), [www.eng2.uconn.edu](http://www.eng2.uconn.edu)

Tropical Resources Institute (Yale University),  
[www.yale.edu/tri/](http://www.yale.edu/tri/)

Tufts Center for Animals and Public Policy (Tufts University), [www.vec.tufts.edu/vetadmissions/mspubpolicy.html](http://www.vec.tufts.edu/vetadmissions/mspubpolicy.html)

Union of Concerned Scientists,  
[solstice.crest.org/social/eerg/ucs.html](http://solstice.crest.org/social/eerg/ucs.html)

Urban Harbors Institute (University of Massachusetts Boston), [www.umb.edu](http://www.umb.edu)

Urban Law and Public Policy Institute (Northeastern University),  
[www.slw.neu.edu/public/home/clinics/uli/ulppi/ulppi.htm](http://www.slw.neu.edu/public/home/clinics/uli/ulppi/ulppi.htm)

Watson Institute for International Studies (Brown University),  
[www.brown.edu/Departments/Watson\\_Institute/](http://www.brown.edu/Departments/Watson_Institute/)

Weatherhead Center for International Affairs (Harvard University),  
[data.fas.harvard.edu/cfia/](http://data.fas.harvard.edu/cfia/)

W.E.B. DuBois Institute for Afro-American Studies (Harvard University),  
[web-dubois.fas.harvard.edu/](http://web-dubois.fas.harvard.edu/)

William Joiner Center for the Study of War and Social Consequences (University of Massachusetts Boston), [www.umb.edu/](http://www.umb.edu/)  
(Click on COMMUNITY CONNECTIONS.)

William Monroe Trotter Institute (University of Massachusetts Boston), [www.trotterinst.org/](http://www.trotterinst.org/)

Williams Project on the Economics of Higher Education (Williams College), [www.williams.edu:803/Mellon/](http://www.williams.edu:803/Mellon/)

World Peace Foundation, [www.hiid.harvard.edu/programs/wpeace/home.htm](http://www.hiid.harvard.edu/programs/wpeace/home.htm)

## **NEW ENGLAND ORGANIZATIONS**

Association of Independent Colleges and Universities in Massachusetts, [www.massuniversities.org](http://www.massuniversities.org) or [www.masscolleges.org](http://www.masscolleges.org)

Greater Boston Chamber of Commerce, [www.gbcc.org](http://www.gbcc.org)

Maine Science & Technology Foundation, [www.msstf.org](http://www.msstf.org)

Massachusetts Biotechnology Council, [www.massbio.org](http://www.massbio.org)

Massachusetts Port Authority, [www.massport.com](http://www.massport.com)

Massachusetts Technology Collaborative, [www.mtpc.org](http://www.mtpc.org)

Massachusetts Technology Development Corp., [www.mtdc.org](http://www.mtdc.org)

New England Association of Schools and Colleges, [www.neasc.org](http://www.neasc.org)

New England Board of Higher Education, [www.nebhe.org](http://www.nebhe.org)

New England Governors' Conference, [www.tiac.net/users/negc](http://www.tiac.net/users/negc)

New England Resource Center for Higher Education, [www.nerche.org](http://www.nerche.org)

New Hampshire College & University Council, [www.nhcuc.org](http://www.nhcuc.org)

Rhode Island Public Expenditure Council, [www.ripec.org](http://www.ripec.org)

## **OTHER REGIONAL ORGANIZATIONS**

Midwestern Higher Education Commission, [www.umn.edu/mhec/](http://www.umn.edu/mhec/)

Southern Growth Policies Board, [www.southern.org](http://www.southern.org)

Southern Regional Education Board, [www.sreb.org](http://www.sreb.org)

Western Governors' Association, [www.westgov.org](http://www.westgov.org)

Western Interstate Commission for Higher Education, [www.wiche.edu](http://www.wiche.edu)

## **NATIONAL EDUCATION RESOURCES**

ACT, [www.act.org](http://www.act.org)

American Association for Higher Education, [www.aahe.org](http://www.aahe.org)

American Council on Education, [www.acenet.edu](http://www.acenet.edu)

Association of American Colleges and Universities, [www.aacu.edu.org](http://www.aacu.edu.org)

Association of Governing Boards of Universities and Colleges, [www.agb.org](http://www.agb.org)

CAUSE (the association for managing and using information resources in higher education), [www.cause.org/](http://www.cause.org/)

Center for Higher Education, [www.coe.ilstu.edu/grapevine/summary.htm](http://www.coe.ilstu.edu/grapevine/summary.htm)

Citizens' Scholarship Foundation of America, [www.Dollars4Scholars.org](http://www.Dollars4Scholars.org)

College Board (The), [www.collegeboard.org](http://www.collegeboard.org)

Consortium for Policy Research in Education, [www.upenn.edu/gse/cpre/](http://www.upenn.edu/gse/cpre/)

Council for Aid to Education, [www.cae.org](http://www.cae.org)

Council of Graduate Schools, [www.cgsnet.org](http://www.cgsnet.org)

Council of Independent Colleges, [www.cic.edu](http://www.cic.edu)

Education Commission of the States, [www.ecs.org](http://www.ecs.org)

Educational Testing Service, [www.ets.org](http://www.ets.org)

Educom, [www.educom.org](http://www.educom.org)

ERIC Clearinghouse on Higher Education, [www.gwu.edu/~eriche](http://www.gwu.edu/~eriche)

Foundation for Excellent Schools, [www.fesnet.org](http://www.fesnet.org)

Institute of International Education, [www.iie.org](http://www.iie.org)

National Action Council for Minorities in Engineering, [www.nacme.org](http://www.nacme.org)

National Association of State Universities and Land-Grant Colleges, [www.nasulgcnche.edu](http://www.nasulgcnche.edu)

National Center for Fair & Open Testing, [www.fairtest.org](http://www.fairtest.org)

National Education Association Office of Higher Education, [www.nea.org/he/](http://www.nea.org/he/)

National PTA, [www.pta.org](http://www.pta.org)

Nellie Mae, [www.nelliemae.org](http://www.nelliemae.org)

Sallie Mae, [www.salliemae.com](http://www.salliemae.com)

The Education Resources Institute, [www.teri.org](http://www.teri.org)

TIAA-CREF, [www.tiaa-cref.org](http://www.tiaa-cref.org)

U.S. Department of Education, [www.ed.gov/index.html](http://www.ed.gov/index.html)

## **OTHER NATIONAL ORGANIZATIONS**

American Association for the Advancement of Science, [www.aaas.org](http://www.aaas.org)

Council of State Governments, [www.csg.org](http://www.csg.org)

Independent Sector, [www.indepsec.org](http://www.indepsec.org)

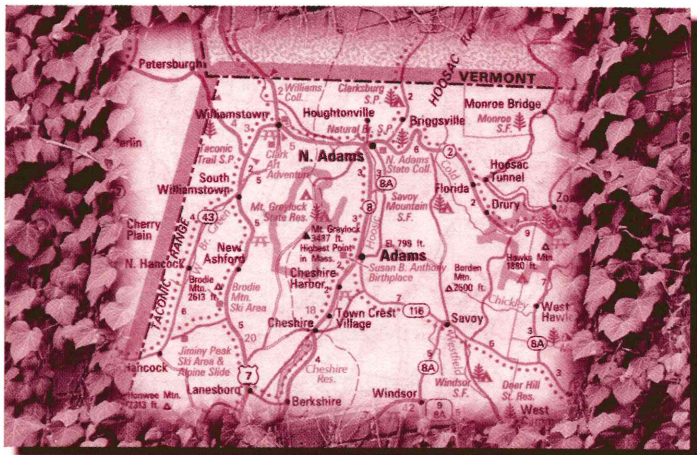
National Center for Nonprofit Boards, [www.ncnb.org](http://www.ncnb.org)

Science Coalition, [www.sciencecoalition.org](http://www.sciencecoalition.org)

U.S. House Committee on Science, [www.house.gov/science/welcome.htm](http://www.house.gov/science/welcome.htm)

U.S. House Committee on Science, Democratic Membership, [www.house.gov/science\\_democrats/welcome.htm](http://www.house.gov/science_democrats/welcome.htm)

U.S. NonProfit Gateway (Vice President Gore's office), [www.nonprofit.gov](http://www.nonprofit.gov)



## Sowing Public Ivy in the Berkshires

North Adams State College Becomes the Massachusetts College of Liberal Arts

THOMAS D. ACETO

**T**he Massachusetts College of Liberal Arts is bucking a trend. In an era when many people believe “bigger is better,” the college has adopted a unique mission for a public institution of higher education — that of a small liberal arts college. In the process, it has lowered enrollment while increasing quality.

Once on the chopping block, a state college reinvents itself.

For the past 30 years, public higher education has been on a growth kick. Four-year colleges have aspired to become state universities, state universities have yearned to become research universities and all of them have pursued higher enrollments, larger budgets and expanded physical plants. Even the more recently created community colleges have been caught up in this growth cycle, with many, such as the two-year University of Maine at Augusta, desiring to become four-year institutions.

Academic program development has followed the same growth curve. The larger the number of departments and majors, the better the reputation of the college. A business major is no longer enough. Majors in accounting, finance, marketing and management must also be offered. Offering a simple major in biology is no longer sufficient for a *real* college or university. Degrees in botany, zoology, microbiology, biochemistry and entomology must also be available to the student. Such specialization may be appropriate for graduate programs. But at the undergraduate level, it's part of the bigger is better syndrome.

With the proliferation of academic programs and dramatic growth in enrollment, most public institutions have been transformed from small, residential campuses with low student-faculty ratios to larger commuter campuses with introductory courses taught in huge lecture halls. Green space has given way to blacktopped parking lots. In short, the role of providing a traditional liberal arts education in New England has been the province of a relatively small number of private institutions.

But against this backdrop, a new kind of institution has emerged, an institution designed to provide a *public* alternative to the traditional *private* liberal arts college. The early models for public liberal arts colleges such as Evergreen State College, the University of Minnesota at Morris, St. Mary's College of Maryland and New College in Florida have caught on nationally and spawned similar institutions in nearly every state.

In Massachusetts — home of Amherst, Williams and many of America's top private liberal arts campuses — the first public liberal arts college was born this year with the conversion of North Adams State College into the



Massachusetts College of Liberal Arts.

The transformation from comprehensive state college to public liberal arts college was motivated by the 1991 Report of the Massachusetts Commission on the Future of the State and Community Colleges, a panel created by then-Gov. William F. Weld. The report recommended that each Massachusetts state college adopt a unique mission appropriate to the history, tradition, location and character of the institution. Given its modest enrollment of 2,000 students, long tradition of strong programs in the arts and sciences and its location in the idyllic Berkshire Mountains, North Adams State College seemed the perfect candidate to adopt a liberal arts mission.

There were other forces at play in the early 1990s as well. Severe budget reductions for public higher education in Massachusetts had caused some political leaders to suggest eliminating a state college or two, and North Adams was often named as a potential target.

Furthermore, in its quest to retain enrollment at the 2,000-student level despite a downturn in the region's population of traditional college-age students, admissions standards slipped. By fall 1991, the entering class at North Adams posted an average combined SAT score of 836 and an average grade point average of 2.5. College faculty strived to maintain standards in the classroom, ultimately placing 25 percent of the class on academic probation by the end of the fall semester. The social climate of the college had also deteriorated, thanks largely to the management of a controversial pub on campus.

When I arrived as president in 1991, all campus constituencies could agree that serious changes were in order. Notably, faculty quickly coalesced around the public liberal arts mission and a commitment to raise admissions standards.

In 1992, North Adams trustees endorsed a plan that would dramatically change the college's nature and character. Over a three-year period, enrollment would be intentionally decreased by 25 percent and admissions standards increased.

The college adopted a new First Year Experience Program, including a First Year Seminar designed to promote a community of learning. The college recruited faculty speci-

## HONORS ON A ROLL

**T**he Massachusetts Board of Higher Education voted to allocate \$1 million to Commonwealth College, the state's new honors college based at the University of Massachusetts in Amherst, and to support honors programs across the state.

Nearly half the grant will be used to renovate space and beef up computer equipment at the Amherst facility that will house Commonwealth College. The balance will fund development of distance learning honors courses to be taught across the state's public higher education system, beginning in fall 1998, as well as honors-related conferences, research activities and grants to students.

cally for the seminar, then matched them with groups of 15 students drawn from the same floor of the college's freshman residence center. These classes were then placed in a "cluster," permitting 45 students, three faculty members

and three upperclass teaching assistants to take part in special activities and field trips.

In addition, the college launched a quality of student life initiative to create an improved campus environment. The campus's main dining room was moved from a basement to the Campus Center, the former pub, providing student diners with views of the Berkshires. In addition, \$50,000 was allocated from the college operating budget to introduce new clubs and activities to extend learning beyond the classroom and emphasize student involvement in theater, music and dance performance, as well as community service.

The statewide Higher Education Coordinating Council approved the college's liberal arts mission in 1993, and the New England Association of Schools and Colleges awarded full reaccreditation to North Adams State College under its new mission. A year later, the Carnegie Commission reclassified the college as a "Baccalaureate-Liberal Arts College."

The administration and faculty set about strengthening the college's academic program. A comprehensive Academic Assessment

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Program was introduced in 1994, with each academic and support program formulating program objectives and goals to be evaluated at the end of each year. Several major programs were reorganized to better meet faculty-defined learning outcomes. For example, the psychology major was revised to include new foreign language and biology requirements as well as a new comprehensive exam. The computer science major was upgraded to reflect changes in basic computer programming.

In 1995, the college established an Honors Program, which now enrolls 75 highly motivated and talented students. The honors feature is commonplace at large universities and private liberal arts colleges, but new to state colleges.

The college also consolidated separate small departments of Music, Art and Theater into a highly energized Department of Fine and Performing Arts, offering students a truly integrated arts major. Meanwhile, the faculty is also studying the college's general education program.

The past five years have seen a real change in the college's character to that of a liberal arts

institution. In May 1997, 75 percent of graduates earned degrees in the arts and sciences, up from about 30 percent in 1990. In addition, 85 percent of entering first-year students selected these disciplines as their majors, compared with 40 percent of new students seven years earlier.

Equally important, the college has adopted the desiderata of a liberal arts college in terms of size, residency, student-faculty ratio and quality of campus life. This year, enrollment stands just under 1,600, down from 2,000 in 1991; more than 50 percent of full-time students reside on campus; and the student-faculty ratio has decreased to 15-to-1, down from 21-to-1 in 1991. The admissions standards that had slid so significantly by the early 1990s have rebounded, with average combined SAT scores for first-year students jumping to 1010 and high school grade point averages rising to 2.9.

There are no large lecture sections for introductory courses, faculty are very much involved in advising and mentoring activities and student out-of-class life has taken on a new sense of purpose. As a result, many more students are exploring admission to the college,

with inquiries increasing from approximately 5,000 in 1991 to more than 12,000 in 1997. The improvement in quality was also recognized in *U.S. News and World Report's* 1997 college rankings issue, which elevated the college from the fourth tier of "Northern Liberal Arts Colleges" to the second tier.

In recognition of the college's transformation, the Massachusetts Legislature and Acting Gov. A. Paul Cellucci approved legislation in 1997 to rename North Adams State College the Massachusetts College of Liberal Arts.

Massachusetts College has rightfully earned its new name. The name conveys the promise of what the college can offer to the residents of Massachusetts as a true public alternative in a liberal arts institution, and more accurately reflects what the college has become over the past several years. Given the strong tradition of liberal arts colleges in the Bay State, Massachusetts College is an idea whose time has come.

*Thomas D. Aceto is president of the Massachusetts College of Liberal Arts.*

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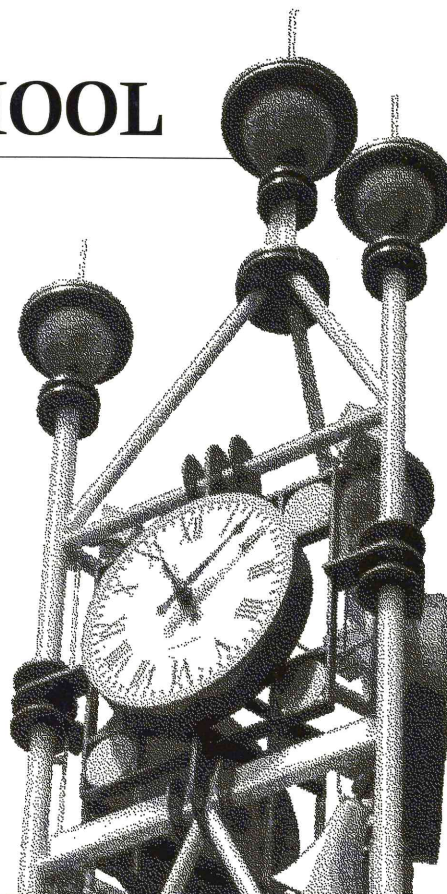
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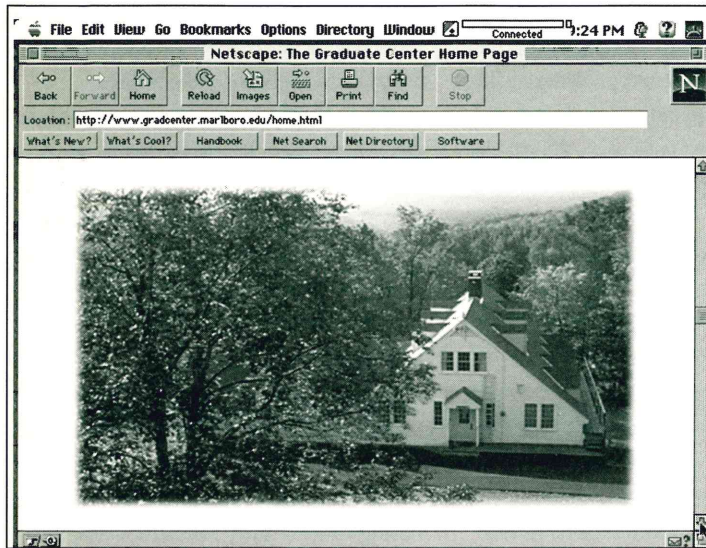
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## Masters of the Internet

PAUL J. LEBLANC

**F**inding qualified people to forge an organizational Internet strategy is a challenge for both businesses and schools. Only four years ago, there were 50 registered World Wide Web addresses; today, there are tens of thousands. Two years ago, there were 36,000 Internet-related jobs in the United States. Last year, that figure shot up to 100,000, and it's projected to double by next year, with Boston second only to San Francisco in concentration of Internet-related firms and jobs. In the K-12 world, meanwhile, about 65 percent of schools now have an Internet connection, with 95 percent projected to be connected by the year 2000.

**The cutting edge emerges in the hills of southern Vermont.**

Yes, businesses and schools across New England and around the world are on-line. But how to make the most productive and effective use of the Internet?

The answer may come from Brattleboro, Vt., where Marlboro College recently opened southern Vermont's most state-of-the-art technology training and education facility, and more importantly, launched two first-of-a-kind graduate programs: a master of science in Internet strategy management and a master of arts in teaching with Internet technologies.

Marlboro's new Graduate Center is a modern facility in downtown Brattleboro — about 12 miles from the campus's white-clapboard main campus in tiny Marlboro, Vt.

Clearly, all businesses need Internet strategies. For example, for years, the Marlboro student newspaper contracted with a local printer who could depend on this small but steady account year after year. And in Marlboro's rural location, there was little competition for the business. But the printer almost lost the account last year to a competitor he never anticipated: an Arkansas print shop advertising on the World Wide Web, handling all copy and layout over the Internet, promising a 48-hour turnaround time including overnight delivery — and doing all that at a lower price than the local vendor. This year, the local printer is implementing an ambitious technology system enabling it to serve customers on-line, thereby cutting trav-

el time, reducing the chance of mistakes and speeding up turnaround.

We have become increasingly accustomed to seeing corporate URLs, or Web addresses, displayed in television and print ads. And now small businesses are scrambling to compete in a global market where geographic boundaries are disappearing. Like the local printer, New England college campuses feel increasing pressure from institutions that can not only reach into our markets to recruit talent, but that also now offer instruction in our own backyard via information technologies.

New England has been largely spared the disruptive appearance of large distance-based degree providers. But we will increasingly compete with institutions that were never part of our competitive landscape — institutions such as Nova Southeastern University of Florida, which now offers graduate degrees in technology to a New England market, as well as international “mega-universities.” On a different scale, Marlboro’s new graduate programs — recruiting students from as far away as Boston, Hartford, Worcester and Montpelier — offer

competition to campuses with whom we never competed before.

Moreover, the World Wide Web gives small institutions like Marlboro a degree of marketing power never before available to them. Within two months of launching its Web site, Marlboro’s Graduate Center had 45,000 hits — and half the applications it received were submitted on-line.

A small college now enjoys a great equalizer in terms of marketing and outreach. Indeed, the evidence suggests that the greatest revenue-to-cost benefits of Internet-related investment accrue to small companies that can now extend their markets regionally, nationally and even internationally in a way that would have been prohibitively expensive through traditional marketing. (The first Web-based business to generate \$2 million in revenue was a Connecticut florist that began taking on-line orders for flower deliveries all over the United States.)

Elementary and secondary schools long-accustomed to a single phone line are scrambling to get dedicated connections to the Internet. And President Clinton has made the wiring of the nation’s schools an educational priority. Though only about 15 percent of classrooms currently enjoy a direct link to the Internet, billions of dollars are being spent to beef up technology infrastructure in U.S. schools. The integration of Internet technology in the curriculum — if it’s done well and is accompanied by training — supports powerful new approaches to teaching and learning, emphasizing collaboration.

### **New thinking**

The traditional classroom in which most of us were educated reflected the needs and structures of the industrial workplace with the teacher cast as foreman and individual students focused on giving back as accurately as possible what they heard from the teacher. This kind of interaction and the skills it taught were well-suited for work in mills, assembly lines and an economy based on manufacturing. The classroom of tomorrow enables students to work as collaborative learners, navigating an environment

where meaning is derived by assembling fragments of information from a wide network of information providers and media. This classroom reflects much better the Information Age economy in which we find ourselves.

For example, increasing numbers of students have used Web-based search tools, e-mail, real-time chat software and conferencing to work with others in remote locations on collaboratively researched and written reports. These students are developing skills that will serve them well in an information-based job market that puts a premium on creative use of on-line technologies. One large Boston-based consulting firm, for instance, uses those kinds of tools to allow area experts in seven Asian capitals to collaborate on joint reports without having to leave their respective cities, saving travel time, expenses and person-hours. Such firms need graduates who are comfortable with the tools and accustomed to the kind of thinking required to use the tools effectively.

Michael Kaufman, cofounder of NetDay, the national volunteer effort to connect schools, asserts that as businesses become dependent on the Internet, students must master the new technology in order to find decent jobs. They certainly need Internet skills to excel in the ways of thinking that today’s workplace demands.

The Internet and network technologies in general have moved us from the age of the personal computer to that of the interpersonal computer. This is permitting — and, in many cases, forcing — companies to view their operations in new ways. Groupware now supports team-based approaches to organization. Companies can put the right people on the right tasks even if it means assembling virtual business units comprised of employees in far-flung locations. And employees in the field now have access to more information in much less time.

Working in this context means understanding how to work in a team that might hardly, if ever, meet face-to-face. It also requires sharper research skills for searching the Net, and competence in assembling fragments of information into a meaningful whole. It requires an understanding of what tools are available and the capacity to use them effectively.

### **TEACHING WITH TECHNOLOGY**

Bristol Community College was awarded a \$300,000 grant by the Massachusetts Board of Higher Education to support the effective use of the World Wide Web and other electronic technology in course offerings. The grant funds the Center for Instructional Technology Expertise, a regional center to train educators in using the Internet, electronic communications and interactive CD-ROM technology. A new apprenticeship program will give students the opportunity to provide technical support for faculty members developing technology-based courses.

\* \* \* \*

The Bell Atlantic Foundation recently granted \$1.5 million in “Excellence in Education” awards to colleges and universities, public schools and community organizations that use technology and telecommunications in teaching. North Shore Community College, for example, received a two-year, \$100,000 grant from the Bell Atlantic Foundation to train college faculty and high school teachers to create engaging curricula using the Internet and multimedia technologies.

In a much-discussed study by the Peabody, Mass.-based Center for Applied Special Technology, students in wired 5th- and 6th-grade classrooms performed much better than their peers in non-connected classes. In one telling area — presentation of a “full picture” based on their research — students in the connected group far outperformed their nonwired peers, as measured by teacher evaluators not associated with the schools under study.

### Net-savvy teachers

Just as businesses are struggling to find Internet-savvy employees, a lack of well-trained teachers hobbles efforts to connect schools effectively. A 1995 federal study recommended that schools allot 30 percent of their technology budgets to training. But the real level of investment has been a mere 5 percent. It's understandable given the pressure to get computer hardware into classrooms and to upgrade the often antiquated machines in many classrooms. Yet the successful integration of the Internet into schools requires well-trained teachers to lead the effort. Otherwise, schools will repeat a phase of technology integration observed in business settings years ago, when companies invested millions of dollars in technology only to do what had been done before.

Not until businesses empowered workers to re-imagine their practices and processes did technology yield a real return. For example, Caterpillar Corp. didn't see meaningful return on its technology investments until the company radically redesigned its production processes. In similar fashion, until teachers are empowered to rethink curriculum assessment, research and pedagogy, the current investment in educational technology will merely create an unexploited infrastructure.

Schools, which once relied on a single technology evangelist or enthusiast to direct their modest computer labs, now need Net-savvy teachers. Ray McNulty, superintendent of the Southeast Windham Supervisory Union, a three-town school district in southern Vermont, has issued a challenge to his teachers: get on-line or get another job.

### Crossing disciplines

The need for Internet leaders in both businesses and schools led to Marlboro's creation of the Graduate Center and its two new master's programs. U.S. higher education offers a variety of programs to help students learn specific skills that are relevant to Internet strategy: graphic design, marketing, management information, interface design, strategic planning and, in the schools, curriculum development. But few programs cut across disciplinary boundaries to give students the broad-based understanding they need to develop and manage an Internet strategy.

The person leading such strategy efforts for a small or medium-sized organization:

- needs to understand marketing issues, including brand development and product positioning;
- may need to set up actual technology with requisite firewalls and transactional software, allowing the organization to take payment on-line and protecting both the customer and the company from computer hackers;
- should understand how competitors are using the Internet;
- should understand the true cost and maintenance issues associated with building an on-line presence and how to build an accurate budget and organizational plan;
- should know the legal and ethical dimensions of what he or she is doing; and
- will probably be faced with building consensus and getting organizational “buy-in” on whatever plan he or she puts forth.

While Marlboro identified programs that served some of these demands, we found none that could offer broad training across these areas. Of course, every college and university talks a good game when it comes to interdisciplinary programs. But because Marlboro created its new Internet programs from scratch and at a site away from the main campus, it was not handcuffed by departmental structures or existing resource allocation models.

Indeed, though the introduction of technology at Marlboro has invited ambivalence and even resentment in some cases, the new Graduate Center's existence at the boundaries of the institution make it less threatening. Our thinking on this was much influenced by the

work of Harvard Business School Professor Clayton Christensen, an expert on how innovation takes place. By innovating at arm's length, we were able to free the new operation from all the institutional practices, precedents and structures — and think entirely “out of the box.”

Notably, Marlboro's new programs will make extensive use of cutting-edge technology for on-line interactions, tap a faculty of working professionals who are pushing the boundaries of Internet technology and its applications, and offer scheduling that is convenient for working adults. But above all, the program is distinguished by the question underlying its curriculum: what happens when my organization gets connected to the Net?

The development of an Internet strategy is much more than simply creating a company or classroom Web site. It demands understanding multiple disciplinary areas. For this reason, Marlboro's new programs will cross disciplines in a way that is rare among master's programs.

Our programs did not emerge out of a single undergraduate department and thus escaped the narrow boundaries this dynamic usually imposes. As a result, the master's program in Internet strategy management, for example, will include courses in design (typical of a graphics department), on-line marketing (typical of a business department), network systems (such as a computer science department might offer) and legal and ethical issues (as one might find in a law program). Moreover, students in both graduate programs will work on capstone projects with real businesses or schools to develop and implement an Internet strategy.

Christian & Timbers, the recruiting firm, confirms that employees who understand sales, marketing, technology and management are still rare. As Jeffrey Christian recently commented in *The New York Times*, “No. 1, candidates have to be Internet-savvy.” The best candidates, says Christian, “may not have built an Internet product or launched a Web site, but they know the Internet. They're ‘Net-centric.’”

All of us should be.

---

**Paul J. LeBlanc** is president of Marlboro College and founder and director of the college's Graduate Center. The Graduate Center's Web site is [www.gradcenter.marlboro.edu](http://www.gradcenter.marlboro.edu).

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# BOOKS

## A DIRECTORY FOR THE ON-LINE STUDENT

SUSAN W. MARTIN

Distance learning is no longer a technology off in the distance. But despite the proliferation of the Internet and the power of the World Wide Web, a truly comprehensive guide to on-line education programs remains elusive.

*College Online: How to Take College Courses Without Leaving Home* by James P. Duffy (John Wiley & Sons Inc., 1997, \$14.95) offers a first step to help the on-line student find the right college course — even earn a degree — via computer.

Duffy introduces his guide with a smoothly readable section covering distance learning's history (an outgrowth of "adult ed"), how distance learning works (mainly through computer conferencing or e-mail) and some of the many ways students may earn credits (passing proficiency exams, completing portfolios of experiential learning, taking courses offered by companies and associations).

Duffy explains that degree plans or "learning contracts" vary greatly from school to school, but their purpose is basically the same: to establish guidelines along which distance learning activities may proceed. Generally, the learning contract is a written statement covering what the student intends to learn, how it will be learned, what resources are to be used and what kind of evaluation is anticipated.

Duffy provides a helpful sample of a learning contract — and an important warning: the contract may be binding on both parties with the student's failure to abide by the agreed-upon plan forcing withdrawal from the program and possible forfeiture of a portion or all tuition.

Duffy also explains the ins and outs of "credit banks." These entities provide record-keeping services for credits — a much needed service for on-line students. The credit banks track accumulating credits earned through collegiate and non-collegiate sources such as military training programs. Other services may include forwarding an official "transcript" of past work to schools that require one. These banks can also keep track of successfully completed proficiency examinations. The author gives the names and addresses of credit banks operating in New York, New Jersey and Connecticut.

Unfortunately, Duffy does not offer a discussion of pricing in distance learning, and fee information provided for each listed course is somewhat confusing.

The guide is organized in an "easy-to-use on-line college course locator" format followed by a list of undergraduate and graduate college courses available on-line.

*College Online* lists just 17 institutions that offer on-line undergraduate and graduate degree programs. Salve Regina University's master's in international relations is the only New England entry among the degree programs, serving as a reminder of New England's cautious entry into electronic education, if not the incomplete nature of the directory.

In fact, the field is growing so fast that any printed guide will be of short-lived value. Consider *College Online's* hopelessly incomplete listing of the Web pages of North American colleges and universities. The subject begs for an *on-line* directory.

*Susan W. Martin* is assistant editor of *CONNECTION*.

**KINGSTON, R.I.** — The University of Rhode Island received \$725,000 from A.H. Belo Corp. of Dallas, owner of the Providence Journal Co., to endow the new Michael P. Metcalf Institute for Reporting Marine and Environmental Issues, giving selected journalists the opportunity to work side-by-side with scientists from URI's Graduate School of Oceanography. The center, named for the former publisher of the *Providence Journal-Bulletin* newspaper, also has received support from the Providence Journal Charitable Foundation and the Washington Post's Philip L. Graham Fund.

**SALEM, MASS.** — Salem State College acquired the Cat Cove

Marine Laboratory and began transforming the former state lab on Salem Harbor into a cutting-edge aquaculture center. The renovated facility will include a marine biology laboratory for research and hands-on learning, a fish farm for cultivation of Atlantic Cod, Atlantic scallops and European oysters and an "aquaculture college" that will teach displaced Gloucester fisherman how to raise, rather than catch, fish. Salem State officials say that after initial state support of \$822,000, plus \$98,000 for annual operating expenses, the facility will eventually be supported by user fees.

**PROVIDENCE, R.I.** — Johnson & Wales University entered into an exchange agreement with the

Central Hotel School of Hezeliya, Israel. The arrangement allows students who have completed 2.5 years of study at the Israeli school to transfer into the international hotel and tourism program at Johnson & Wales, where they complete one academic year and a six-week internship at a university-owned hotel en route to a Johnson & Wales bachelor's degree. Johnson & Wales students will spend two or three terms studying at the Central Hotel School, followed by a three-month work experience at the Tadmor Hotel in Hezeliya.

**CASTINE, MAINE** — Maine Maritime Academy was awarded a \$48,000 contract by the U.S. Trade & Development Agency to coordinate an orientation visit to

the United States by a delegation of marine oil-spill response officials from the Republic of South Africa, Namibia and Mauritius. The agency funds such orientation visits — or "reverse trade missions" — as well as feasibility studies and technical assistance to help U.S. companies penetrate foreign markets.

**STORRS, CONN.** — The University of Connecticut and Inframat, a North Haven-based company, were awarded a four-and-a-half year, \$3.5 million contract by the U.S. Office of Naval Research to develop nanostructure coatings for navy ship repairs. Nanostructural materials have grains 10 to 1,000 times smaller than

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conventional materials, resulting in improved hardness and toughness. The navy wants the tougher coatings to allow ships to stay at sea longer, but the technology could also have applications in cars and other civilian products. Inframat has a worldwide exclusive license agreement with UConn to commercialize the university's nanostructured technology.

**RUTLAND, VT.** — College of St. Joseph won state approval for a post-bachelor's teacher certification program designed

to fast-track college graduates who did not major in education into the teaching profession. Students who earned bachelor's degrees in English or various social studies fields can enter the program and be eligible for licensure as high school teachers within a year of full-time study.

**CAMBRIDGE, MASS.** — Harvard University's Kennedy School of Government received a three-year, \$1 million gift from Socrates Kokkalis of Greece to launch a new research program aimed at developing political and economic

cooperation in the Balkans, and to support scholarships for residents of Greece, Hungary, Romania, Yugoslavia and the former Yugoslav Republic of Macedonia. Kokkalis, founder and chair of Intracom, a telecommunications and electronics firm in the Mediterranean, has funded various programs aimed at supporting democracy in the Balkans.

**DOVER, N.H.** — McIntosh College donated 45 aging computers from its student computer labs to the New Hampshire Alliance for

Assistive Technology, a Concord-based nonprofit whose goal is to provide disabled people, including school-aged children, with access to technology.

**FALL RIVER, MASS.** — Bristol Community College was awarded \$39,675 by the Massachusetts Department of Education and the state Board of Higher Education to encourage minority and disadvantaged students at Fall River's Durfee High School to pursue teaching careers. The pilot program will identify promising teacher candidates as early as possible, help those students choose the right courses to prepare for the profession and develop networking and mentoring relationships.

**DURHAM, N.H.** — The University of New Hampshire was awarded a five-year, \$1 million grant from the U.S. Department of Education to enhance programs for low-income, first-generation college students. The grant, subject to congressional approval, supports the UNH Center for Academic Resources, which offers personalized tutoring, support for students with learning disabilities, scholarship search assistance, graduate school advising and graduate exam preparation. The center also planned to create a position in math and computers to help ensure computer literacy.

**BRUNSWICK, MAINE** — Bowdoin College received \$1.5 million from Research Corporation, an Arizona foundation, to establish an

## Massachusetts College

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endowed chair in natural sciences in honor of the late Bowdoin President James Stacy Coles and to help develop Bowdoin's chemistry program. Coles, a chemist by training, headed Bowdoin from 1952 to 1968, when he left to become president of Research Corporation, then based in New York.

**KINGSTON, R.I.** — Two University of Rhode Island researchers were awarded \$245,000 by the U.S. Department of Agriculture to study how the forested landscape contributes to quality of life and the New England economy. The researchers — Stephen Swallow, an associate professor of environmental and natural resource economics, and Peter Paton, an assistant professor of natural resources science — also were awarded \$165,000 by the National Science Foundation, in partnership with the U.S. Environmental Protection Agency, to evaluate aspects of forested wetlands that are important to residents of Connecticut, Rhode Island and Massachusetts.

**NORTH GRAFTON, MASS.** — Tufts University School of Veterinary Medicine and Philadelphia-based Wildlife Preservation Trust International launched a program to train health care and biomedical professionals in the new field of conservation medicine. The new Center for Conservation Medicine will bring together veterinarians, conservation biologists and physicians to address issues of global biodiversity, emerging infectious diseases and ecosystem health,

while educating students in conservation medicine. The center, established in collaboration with Harvard Medical School's Center for Health and the Global Environment, received a three-year, startup grant worth \$825,000 from the V. Kann Rasmussen Foundation of Denmark.

**AMHERST, MASS.** — A project linking eight western Massachusetts colleges with public schools to improve math and science teaching was awarded a five-year, \$5 million grant by the National Science Foundation. Participants include the University of Massachusetts at Amherst, Hampshire, Amherst, Mount Holyoke and Smith colleges, Springfield Technical Community College and Holyoke and Greenfield community colleges, as well as various local public school systems. The project aims to create or redesign college courses to emphasize active learning, provide math and science majors with teaching experience during college and encourage them to enter teaching, while improving introductory math and science courses. The project also will increase the number of women and minorities preparing to be teachers and offer mentors to new science teachers.

**DURHAM, N.H.** — The University of New Hampshire was awarded a three-year, \$215,000 grant by the U.S. Department of Education's Fund for the Improvement of Postsecondary Education to support a program encouraging



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undergraduates to pursue research overseas in disciplines ranging from civil engineering to early childhood education. Under the UNH International Research Opportunities Program, undergraduates will join research teams comprised of a UNH faculty member and at least one international colleague.

**CHICOPEE, MASS.** — Elms College received a two-year, \$110,000 grant from the Commonwealth of Massachusetts to support the Step Forward program. Step Forward provides middle school and high school girls with mentors, Saturday science programs and other activities to help prepare them for college.

**NORTH ANDOVER, MASS.** — Merrimack College launched a five-year, \$25 million capital campaign, the largest in its history. The campaign is designed to support construction of a student center and regional cultural arts center, modernize information technology on campus, enlarge the college's endowment and support faculty development and scholarships.

**WELLESLEY, MASS.** — Babson College received \$250,000 from the Pew Charitable Trusts to enhance its recently revamped undergraduate program and share its strategy with the higher education community. The foundation awarded Babson a 1997 Pew Leadership Award for the Renewal of Undergraduate Education in recognition of the

business school's undergraduate curriculum, which is marked by cross-disciplinary learning in management and liberal arts, field-based learning and special programs for first-year students. Just two other institutions — Eastern New Mexico University and Mount St. Mary's College in Los Angeles — received the Pew awards.

**SMITHFIELD, R.I.** — Bryant College announced plans to offer New England's first undergraduate major in financial services, beginning in January 1998. The multidisciplinary program combines finance, accounting, insurance, legal studies and marketing for students working toward bachelor's degrees in business administration.

**DANIELSON, CONN.** — Quinebaug Valley Community College was awarded a \$46,000 grant by the National Science Foundation to integrate virtual reality and 3-D modeling in a computer-based, multipurpose laboratory. The project is designed to provide science students with state-of-the-art tools for analyzing scientific data.

**AMHERST, MASS.** — A University of Massachusetts at Amherst math professor was awarded a four-year, \$1.4 million grant by the National Science Foundation for research on effective ways to link computer systems. Math and statistics Professor George Avrunin and two UMass computer science professors will experiment with prototype software tools needed to ensure smooth communication among linked computers used in important applications such as air traffic control and monitoring of hospital patients.

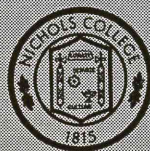
**CASTINE, MAINE** — Maine Maritime Academy and Southern Maine Technical College formalized a transfer articulation agreement allowing qualified technical college graduates to transfer with junior status into the academy's four-year bachelor's degree program in ocean studies. The four-year program is open to students who earn technical college associate degrees in applied marine biology and oceanography. Maine Maritime has similar articulation agreements with Washington County and Eastern Maine technical colleges for students interested in marina management.

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**BOSTON, MASS.** — Boston College's Center for Irish Management was chosen by the International Fund for Ireland to develop and lead a new business exchange program. Under the Ron Brown Development Program, employees of small and medium-sized businesses and community organizations in Northern Ireland and border counties in the Republic of Ireland attend seminars at BC's Carroll School of Management and work with a corporate mentor in Boston.

**AMHERST, MASS.** — The University of Massachusetts at Amherst was awarded a three-year, \$153,000 grant by the W.K. Kellogg Foundation to expand a program in which UMass students serve as mentors to immigrant youths from area schools. The UMass School of Education outreach program called Giving Students Educational Empowerment and Development (SEED) matches undergraduate mentors with immigrant students from schools in Amherst, Springfield, Holyoke, Northampton and Greenfield. The undergraduate mentors, in turn, are mentored by UMass graduate students. The program began in 1993 with a grant from the Massachusetts Office of Refugees and Immigrants.

**FAIRFIELD, CONN.** — Fairfield University was awarded a four-year, \$720,000 grant by the U.S. Department of Education to help students who are from low-income families, are of the first generation in their families to attend a four-year college or have a learning disability. Project

Excel will offer disadvantaged freshmen and sophomores special summer programs, group tutorials and mentoring by faculty and upperclassmen to help them graduate from Fairfield in four years.

**BAR HARBOR, MAINE** — College of the Atlantic received \$100,000 from the William Bingham Betterment Fund to expand the college's scholarship endowment fund for Maine residents. College of the Atlantic officials say 78 percent of Maine residents who enroll at the college require financial assistance.

**BRISTOL, R.I.** — Roger Williams University was awarded \$50,000 by the Coca-Cola Foundation to support the university's "Bridge to Success" mentoring program with Rogers High School in nearby Newport. The grant will fund a summer enrichment program and student scholarships as part of the university's efforts to increase minority retention at the secondary level.

**SPRINGFIELD, MASS.** — Springfield Technical Community College was awarded a \$320,000 grant from the Commonwealth of Massachusetts to develop "Region Nets," a World Wide Web-based system linking public agencies, educational institutions and private organizations in western Massachusetts and providing electronic access to public information related to the Pioneer Valley area.

**NEW HAVEN, CONN.** — A Yale University associate professor of



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electrical engineering was awarded a five-year, \$500,000 Presidential Early Career Award by the National Science Foundation to support his research in computer vision, robotics, face recognition, medical image analysis and virtual environments. The grant to Peter N. Belhumeur represents the highest honor bestowed by the U.S. government on outstanding scientists and engineers.

**DURHAM, N.H.** — The University of New Hampshire's Complex Systems Research Center received a \$396,000 equipment grant from the National Aeronautics and Space Administration to expand the center's remote sensing facility. The

enhancements will help UNH work with the Marine Biological Laboratory at Woods Hole and the Massachusetts Institute of Technology to create a global environmental assessment network focusing on climate change science and policy analysis. Researchers at the UNH center analyze photos and other information from orbiting satellites to assess the effects of human activity on the Earth's biogeochemical processes.

**CAMBRIDGE, MASS.** — Harvard University established the Institute on the Arts and Civic Dialogue to explore ways in which the arts can enhance public discussion of important social issues. The institute is a joint effort of the W.E.B. Du Bois Institute for Afro-American Research and the

American Repertory Theatre. Among other things, the institute will support artists whose work illuminates current social issues and connect the artists with scholars, civic leaders and journalists in a conversation about the arts and civic matters.

**BOSTON, MASS.** — Boston University Medical Center was awarded \$1.4 million by the U.S. Department of Health and Human Services to establish a Center of Excellence in Women's Health. The funds will be used to enhance clinical services for women and define a research agenda for women's health issues at the medical center as well as the university's School of Medicine and Boston Veterans Affairs Medical Center. The new Center

for Excellence will also help women in academic medicine to continue in their professions and will develop a multilanguage Web site for public education purposes.

**FAIRFIELD, CONN.** — Sacred Heart University received \$100,000 from Ann Passariello of North Branford, Conn., to establish a scholarship fund in honor of her son Michael J. Passariello who graduated from Sacred Heart in 1974. Mrs. Passariello's estate will contribute an additional \$400,000 to the fund upon her death. The university emphasized that the scholarships will be awarded annually to financially needy students with "average" abilities, rather than students with high test scores and impressive class ranks.

**BIDDEFORD, MAINE** — The University of New England opened a branch campus in Israel permitting RN-trained Israeli nurses to pursue UNE bachelor's degrees in nursing part-time while they continue to work as nurses. Forty-four Israeli nurses who began the program by taking classes in Tel Aviv and Haifa expect to complete their final semester at UNE's Westbrook College campus in Portland during summer 1998. Half the classes are taught in Hebrew and half in English.

**BURLINGTON, VT.** — Trinity College of Vermont received \$569,000 from the vanAmeringen Foundation of New York to expand its three-year-old master's program in community mental health, which involves sites throughout the country.

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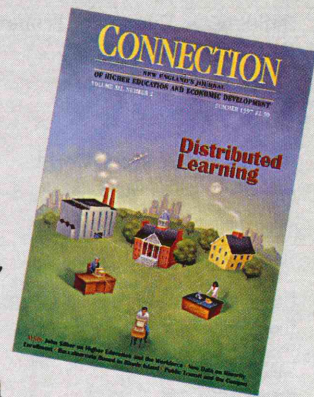
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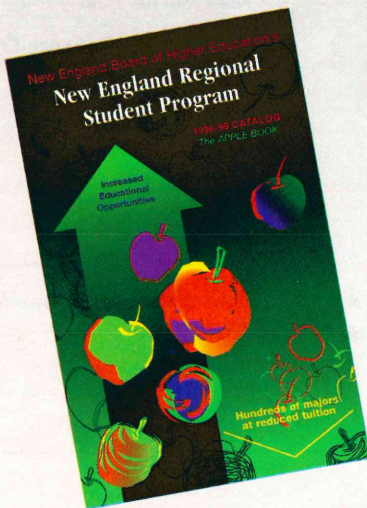
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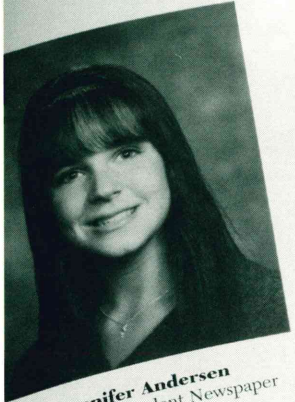
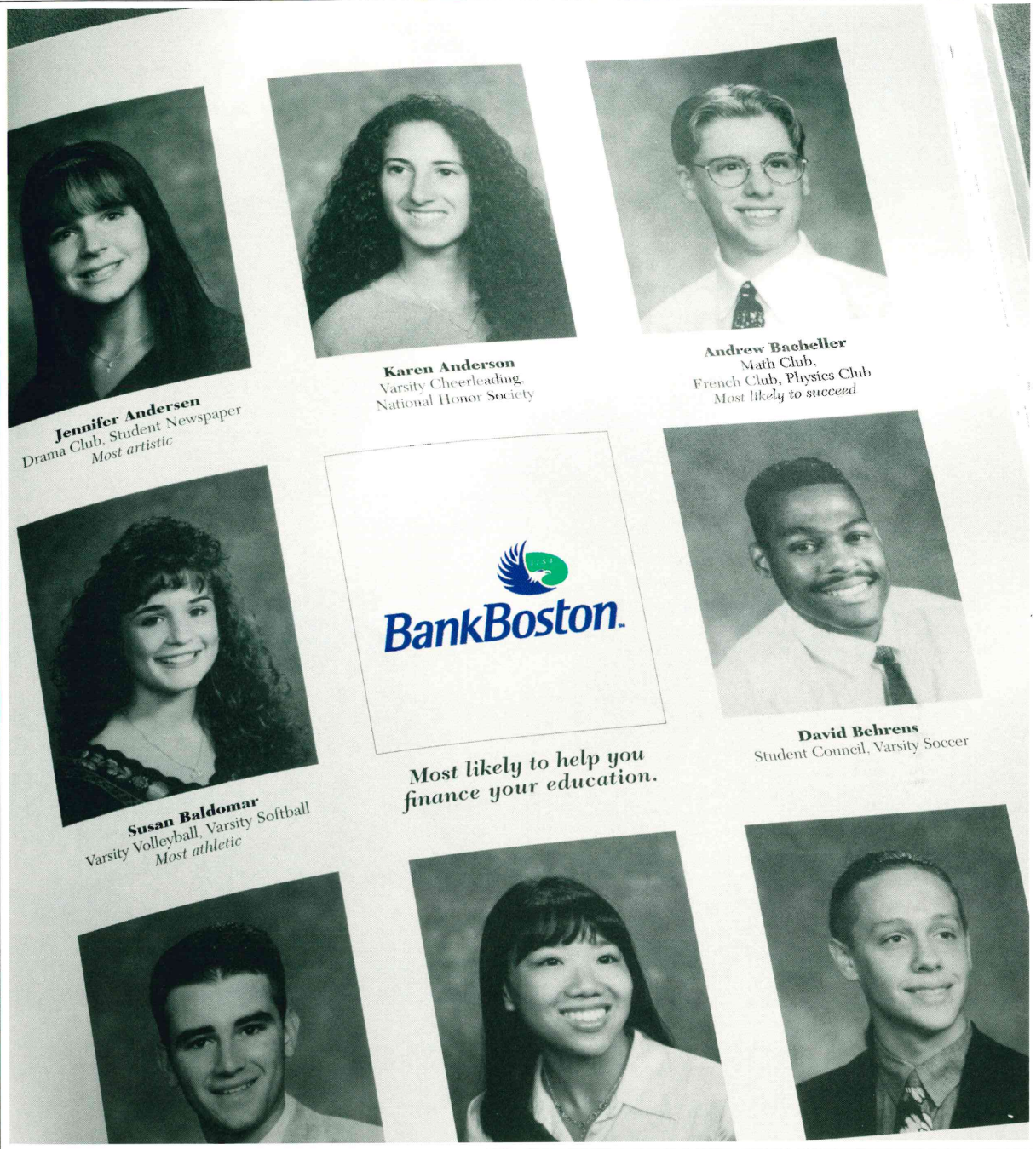
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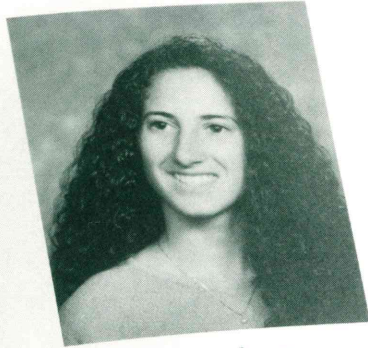


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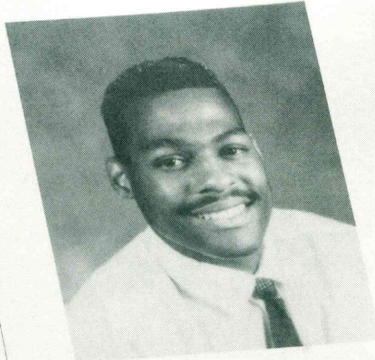
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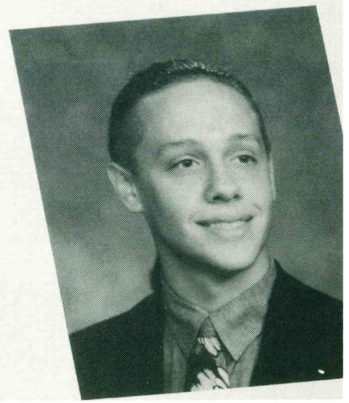
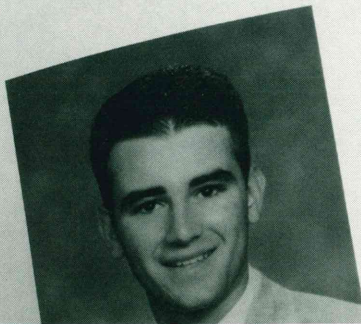
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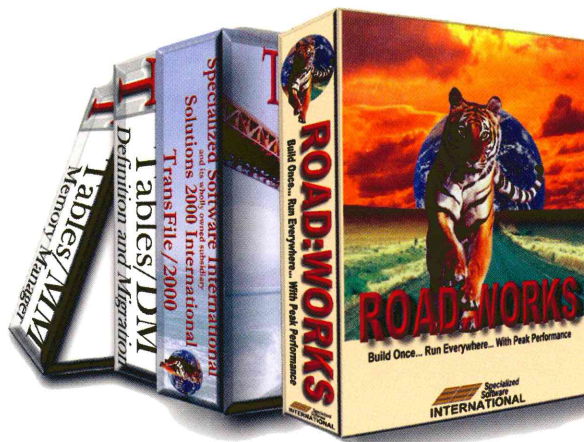
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