

CONNECTION

NEW ENGLAND'S JOURNAL

OF HIGHER EDUCATION AND ECONOMIC DEVELOPMENT

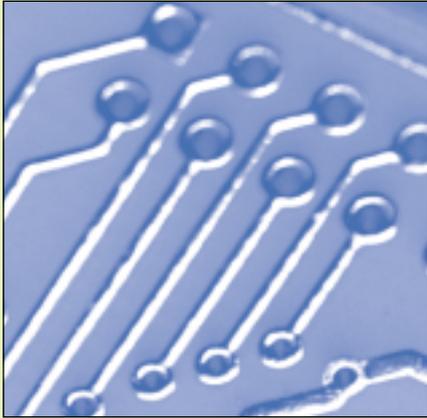
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LABOR SQUEEZE

> **New
England's
prospects
hinge on
the supply
of scientific,
engineering
and information
technology
workers** <

Also in this issue: High-Stakes Teacher Testing and Race //:
Gender Equity //: Privacy on Campus //: Much More



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

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EDITOR'S MEMO

It's one of the curses of the New Economy. New England companies complain that they can't find workers, especially in technology fields, while high school dropouts and older workers from New Haven to Madawaska are shut out of good jobs for lack of skills.

Workforce training would seem to offer one solution. But even as a study by the American Society for Training and Development confirms that investing in training improves a company's financial performance, plenty of employers find the investment too risky.

Journalist Ralph Whitehead captured their skepticism at a New England Board of Higher Education workforce conference last spring where all the buzz was about the soaring cost of Boston's Central Artery project. "Say what you want about the Big Dig," quipped Whitehead, "but it's not going to move to North Carolina as an investment in training people might."

Training also gets short shrift in policy circles. As a matter of policy, several New England states do not reimburse community colleges for worker training. And in refusing to fully fund President Clinton's budget request for job training, Congress this year will effectively deny training and job search assistance to 100,000 dislocated workers and 50,000 youths.

Higher education's role in preparing the New Economy workforce, meanwhile, is anything but clear. At the NEBHE conference, University of Southern Maine economist Charlie Colgan explained that his Maine workforce assessment project is finding that a lot of people with low levels of education, say eighth grade, are quite content with their current skill levels and have no intention of continuing their education.

And though the Massachusetts Board of Higher Education and the University of Massachusetts, among others, have launched programs to better prepare students for information technology jobs, New Economy employers offer a moving target. Indeed, New Hampshire state Rep. Bill Belvin displayed a chart revealing that just 30 percent of the people who earn six figures at one Route 128 high-tech firm hold degrees in any science or engineering field, while more than 60 percent have degrees in "non-IT" humanities or social sciences fields, and 10 percent have no college degree at all.

Former Connecticut Higher Education Commissioner Andrew De Rocco warned further that technology is changing so rapidly that employees who take time away from the workplace to earn a new degree may be hopelessly behind their colleagues when they return.

"There isn't a workforce problem," Colgan concluded. "There are many workforce problems."

George McCully, the foundation trustee whose *Generosity Index* compares a state's wealth with its charitable giving, notes that discussions of the labor shortage too often ignore quality of life and, more specifically, philanthropy's role in ensuring it.

McCully's index shows that Connecticut ranks 45th; Rhode Island, 46th; New Hampshire, 49th; and Massachusetts 50th among the states in generosity. (Maine and Vermont rank 29th and 30th, respectively.)

Says McCully, "The regions with whom we compete for high-tech human resources—the San Francisco Bay Area and Seattle, for example—are not only investing much more than we do in quality of life through philanthropy, but quality of life is a big issue for them, high on their list of priorities, consciously on the screen of public concerns.

"There is a whole different spirit in those regions favoring creating the good society and the good life," adds McCully. "And you see that in philanthropic investments by the high-tech sector, which relies particularly heavily on quality of life to attract and retain talented people. We need to do the same."

John O. Harney is executive editor of CONNECTION.

Educating Congress ...

New England's 35 members of Congress hold nearly 70 college degrees among them.

Seventeen of the 35 have law degrees, according to a CONNECTION analysis of lawmaker profiles on the World Wide Web. Just one, Rep. John Olver of Massachusetts, has a Ph.D.

Following is a breakdown of the institutions from which New England's U.S. senators and representatives earned their degrees.

Degrees Granted to New England Members of Congress

- Harvard University 10
- Boston College 5
- Yale University 4
- Suffolk University 4
- Boston University 3
- Massachusetts Institute of Technology 3
- Other New England Private Institutions 11
- All New England Public Institutions 8
- All Institutions outside New England 19

... And the President

Yalies, meanwhile, have something of a lock on the White House. Presidents Ford, Bush and Clinton all graduated from Yale as did the 2000 Republican presidential nominee George W. Bush Jr., and the Democratic vice presidential nominee, Sen. Joseph Lieberman of Connecticut. Republican veep nominee Dick Cheney went to Yale for two years then transferred to the University of Wyoming.

Harvard Disses Allston

Residents of the Allston-Brighton section of Boston have been pushing area colleges and universities to provide more housing for their students and thereby relieve pressure on local rents. And though Harvard houses 98 percent

of its undergrads on campus, just one-third of grad students live in university housing. So why would activists in the same neighborhood ask Boston Mayor Thomas Menino to nix Harvard University's proposal to build housing for 400 or so graduate students in Allston?

For one, Harvard proposes a more than 220-foot tower—too high, according to neighbors. But perhaps just as important, the main entrance to the building would face not Western Avenue, the important Allston thoroughfare on which the tower would be built, but Cambridge, across the Charles River. As a neighborhood activist told the weekly *Boston Tab*, "It all goes back to how in the past, Harvard treated the [Allston] neighborhood as a back door to the community."

Walks Like a Voucher?

The Brattleboro Union High School Board this summer rejected a Marlboro College plan to open a high-tech high school in southern Vermont, but at least two other local high school boards signaled interest in the plan.

Marlboro officials said the proposed academy would give 60-80 students from local high schools access to the college's state-of-the-art Graduate Center with its high-speed Internet access, large-screen projection systems, digital video and sound equipment, laptop computers and the expertise of Marlboro's master's program in teaching with Internet technologies—for a price. Annual tuition was expected to be \$9,000.

Local high school teachers and some citizens smelled a voucher system designed to bolster the college's underused Graduate Center. For every student who enrolled in the academy, \$3,500 in tax dollars would have gone out of the local public high school's budget and into the academy's. (Families would pay the remaining \$5,500 or receive loans and grants under Marlboro's need-blind admissions plan.)

Skeptics and supporters turned the op-ed pages of the local *Brattleboro Reformer* into a forum for arguments about public support of private education and such nuances as the semantics of "partnership." "The definition of partnership combines people of equal status in a mutually serving endeavor," wrote Fern Tavalin of Putney. "It is *de facto* a voucher system, only available to approximately 5 percent of the families we serve," wrote Gilbert K. Ruff of the Brattleboro Union High School Teacher-Curriculum Committee.

Some charged that the academy would create a "brain drain" by siphoning off the community's best students. Others noted that Brattleboro's existing public high school has inadequate technological infrastructure and poor Internet connections.

Critics chided Marlboro for ignoring teacher opposition as it went ahead and secured startup funds from an anonymous foundation and surveyed parents and students.

Continued on page 9.

Snippets

"Despite falling unemployment in every Maine region, average real wages declined in occupations representing 30 percent of tourism workers such as hotel desk clerks and amusement attendants. The perceived labor shortage probably stems in part from employers' unwillingness to offer higher wages."
 —Bowdoin College economics professor David Vail and Maine Center for Economic Policy intern Wade Kavanaugh, a Bowdoin student, writing in the *Maine Sunday Telegram* about Maine tourism jobs.

"Verizon might promise job stability, but that means little if the jobs are relocated 500 miles away and you're a 43-year-old repairman with a family and mortgage in Billerica."
 —Editorial in the *Aug. 14, 2000, Mass High Tech newspaper* calling on Verizon Communications to settle with striking workers.

The survey found that 78 percent of area parents wanted more choices in high schools, and 61 percent did not see a problem using tax dollars to support students at the academy. Meanwhile, 43 percent thought the academy would strengthen the local high school, while just 18 percent worried that it would weaken the local high school.

Closing Times

Trinity College of Vermont announced it would close its doors for good by the end of this year after failing to reach its goal of enrolling 120 new freshman and transfer students. Five other New England colleges agreed to accept Trinity students and their credits.

Through the 1980s and early 1990s, New England witnessed just a handful of college campus openings and closings. But as the region's total college enrollment dropped steadily from more than 827,000 in 1992 to about 795,000 and distance learning and other new types of institutions emerged, some of the region's small, tuition-driven colleges have been forced to close.

Bradford College in Haverhill, Mass., enrolled about 600 students before closing its doors in May 2000. Aquinas College campuses in Newton, Mass., and Milton, Mass., enrolled about 500 students between them before merging, then closing in the summer of 2000. Castle College of Windham, N.H., enrolled about 230 students when it closed in the summer of 1999. Also in 1999, the Art Institute of Boston, enrolling less than 500 students, merged with the larger Lesley College (now Lesley University) in Cambridge, and Maine's Casco Bay College, with its 300 or so students, merged with Andover College, with its approximately 600.

Placed on Waivers

Champlain College announced in June that it would scrap its three varsity sports teams and replace them

with an intramural sports, fitness and recreation program for the whole student body. The three teams—men's basketball and men's and women's soccer—will continue to compete until academic year 2002-03, and the college will honor all sports scholarships.

Champlain officials noted that the varsity teams involve just 50 of the college's 1,380 full-time and 1,105 part-time students, and attendance at sporting events has dwindled. Emphasizing that the decision is not due to fiscal problems, officials noted that Champlain will build a multimillion facility in downtown Burlington to house the new offerings.

Boston University ended its \$3 million varsity football program after the 1997 season partly because students in the Hub found better ways to spend their Saturday afternoons.

Experience Counts

OfficeTeam asked 150 executives at large U.S. companies which qualities they consider most important when hiring a recent college graduate. Findings:

- Experience in a profession such as internships or temporary work **47%**
- Type of degree earned . . . **18%**
- Grade point average/academic performance . . . **17%**
- University attended **7%**
- Involvement in campus/community organizations . . **7%**
- Personality, attitude and motivation **2%**

Master Institutions

Which U.S. universities grant the most master's degrees and doctorates? Following is a list of the top 20, according to the latest survey by the national Council of Graduate Schools:

1.	University of Michigan	4,056
2.	University of Texas at Austin	3,437
3.	George Washington University	3,299
4.	Ohio State University	3,258
5.	Boston University	3,234
6.	University of Southern California	3,165
7.	University of Phoenix	3,145
8.	University of Illinois at Urbana	3,106
9.	University of South Carolina	2,979
10.	Harvard University	2,847
11.	University of Wisconsin-Madison	2,741
12.	University of Pennsylvania	2,660
13.	University of Washington	2,646
14.	University of Chicago	2,552
15.	Wayne State University	2,524
16.	Pennsylvania State University	2,509
17.	Lesley University	2,434
18.	University of California, Los Angeles	2,429
19.	Stanford University	2,420
20.	University of Pittsburgh	2,400

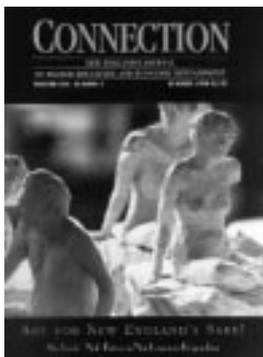
Comings and Goings

John E. Bassett, former dean of the College of Arts and Sciences at Case Western Reserve University in Ohio, became president of Clark University, replacing **Richard P. Traina** who retired. ... **John H. Joseph**, former executive officer of Roosevelt University's Schaumburg, Ill., campus, became president of the University of Maine at Machias, succeeding **Paul E. Nordstrom** who retired at the end of 1999 and **James H. Breece** who served as interim president during a national search. ... Father **Mark T. Cregan**, former chief administrative officer at Sacred Heart Parish in the Bronx, New York, became president of Stonehill College. ... **Thomas D. Sepe**, former president of Mercer County Community College in New Jersey, became president of the Community College of Rhode Island. ... **John J. Sbrega**, the former vice president of academic and student affairs at Anne Arundel Community College in

Maryland, who earlier served as founding chief academic officer at CCRI's Providence campus, became president of Bristol Community College, replacing **Eileen Farley** who retired in June after nearly 22 years at the helm. ... **Wayne Burton**, former dean of the Salem State College School of Business, became president of North Shore Community College. ... **Carol J. Matteson**, former executive vice president and provost of Rowan University of New Jersey, became president of Mount Ida College. ... Former Harvard University General Counsel **Daniel Steiner** became president of New England Conservatory after a year as acting president. ... Harvard University President **Neil L. Rudenstine** announced he would step down after 10 years on the job. ... Bates College President **Donald W. Harward** announced he will retire in June 2002 after 12 years in charge. ... Maine College of Art President **Roger Gilmore** announced he will retire in June 2001, also after 12 years. ...

Joseph B. Warshaw, former deputy dean for clinical affairs and chair of pediatrics at Yale University School of Medicine, became dean of the University of Vermont College of Medicine. ... **David Huwiler**, vice president of academic affairs at Champlain College, began serving as president of the private American University of Kyrgyzstan. ... **Francois Lebrun**, the former head of the Palais de Congres convention center in Montreal, was named by the government of Quebec to the new position of delegate to New England. ... **Grace Fey**, executive vice president of the Boston-based Frontier Capital Management Co., was elected chair of the University of Massachusetts system trustees, replacing **Bob Karam**. ... Monsignor **William A. Genuario**, pastor of St. Catherine of Siena Parish in Greenwich, Conn., was elected chair of the Sacred Heart University board of trustees, replacing **Edward M. Egan** who was recently installed as archbishop of New York. ... **John M. Almeida**, a Fall River, Mass., accountant, became the first alumnus to chair the Bristol Community College board. ... **Martin L. Budd**, a partner in the law firm of Day, Berry & Howard and member of the Anti-Defamation League's national executive committee, was elected chair of the multifaith Hartford Seminary's board. ... Former National Science Foundation Director **John Brooks Slaughter** was named president of the National Action Council for Minorities in Engineering. ... **Kurt Landgraf**, former CEO of DuPont Pharmaceuticals Co., became president of Educational Testing Service, the New Jersey-based developer of standardized tests, replacing **Nancy Cole** who retired. ... **Richard Ekman**, former secretary of the Andrew W. Mellon Foundation and former assistant to the provost at the University of Massachusetts Boston, was named president of the national Council of Independent Colleges.

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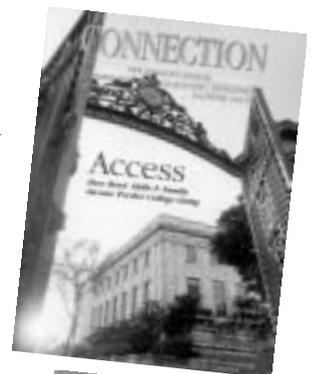
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LABOR SQUEEZE

> **New England's prospects hinge on the supply of scientific, engineering and information technology workers <**

PAUL E. HARRINGTON AND NEETA P. FOGG

New England has experienced extraordinary change in its labor markets since the end of the regional economic recession of 1989-1992. Massive job losses in the early 1990s left the region with high unemployment rates, declining real family incomes and net outmigration of population. Over the next several years, New England entered a period of slow recovery gradually adding jobs lost during the economic decline and reducing overall unemployment rates. Like the expansion of the 1980s, the recovery of the 1990s was led in New England by an array of high-technology industries whose common characteristic was heavy reliance on scientific, engineering and information technology (SEIT) workers.

Industries like biotechnology, medical devices, engineering and architectural services, telecommunications, software services and Internet services—all intensive employers of SEIT workers—have led the region's economic recovery. Moreover, traditional industries like financial services and large parts of the manufacturing sector have become increasingly dependent on sophisticated production technologies, particularly those related to information processing technologies. Consequently, the staffing of these organizations also has shifted toward SEIT employment in recent years.

The high demand for technologically sophisticated workers is not unique to New England. In fact, the demand for SEIT workers nationally is growing at unprecedented rates. National employment forecasts suggest that while overall U.S. employment will increase by about 14 percent in the next decade, jobs in scientific and engineering occupations will grow at

a rate equal to 1.2 to 1.8 times that. Employment in the computer/information technology related fields is expected to more than double through 2008.

The challenges posed by such strong SEIT growth are compounded in New England by two factors. First, an above average share of all New England employment is in high-technology fields that depend heavily on highly skilled labor. Second, unlike most other regions in the nation, the size of the New England labor force has remained essentially unchanged over the past decade.

Much of New England's economic prosperity has been the result of technological innovation and discovery creating new products and new production methods. To the extent that SEIT workers hold the keys to this process, they are the single most important component of labor supply in New England. New England's long-term growth prospects, then, depend upon the region's ability to expand the supply of qualified workers in the

SEIT field. In the absence of improved sources of labor for these occupations, the prospects for growth are diminished.

Slow labor force growth has had a significant impact on New England's ability to generate new jobs over the past decade. Between 1989 and 1999, the nation added 21.4 million wage and salary jobs, while New England added only 284,000. Thus, more than 98 percent of the jobs generated in the U.S. economy during the '90s were located outside the six-state region. Had New England been able to maintain its share of national job growth (as it largely did during the 1980s), the region would have added an additional 1 million jobs over the past 10 years.

Labor shortage?

The existence of a true labor shortage in SEIT fields is hotly debated by employers and various professional groups. Employers who have a hard time hiring workers in specific occupational areas are quick to claim that this difficulty is the product of insufficient labor supply in these fields. They lobby for expanding supply to these fields in a variety of ways, most recently suggesting that some states be entirely exempt from current national immigration restrictions. The *New York Times* talked of Iowa seeking to become "the Ellis Island of the West."

Professional organizations representing engineers and IT workers counter that current sources of labor supply are sufficient to meet current and future skill needs. Indeed, opponents of relaxed immigration and other supply-expanding strategies argue that the high-tech industry's claims of labor shortages are little more than scare tactics designed to expand SEIT labor supply from both domestic and foreign sources and keep down wages.

Determining whether an occupational labor shortage exists is no simple task. The economic concept of a

shortage is complex and sometimes fuzzy with a variety of definitions and measure of shortage employed by business leaders, human resource specialists and economists. In fact, the economics literature contains a range of models designed to explain the economic forces behind the perceived shortage problem. Perhaps the most confounding problem in identifying labor shortages is the lack of data on job vacancies that could be used to assess the degree of tightness in a given occupational area. While the U.S. Bureau of Labor Statistics (BLS) publishes an array of data each month on "unutilized" labor supply through its measures of unemployment, it provides no regular analogous measure of unfilled labor demand. Consequently, the debate about the magnitude or even the existence of SEIT labor shortages in New England is characterized more by anecdotes than data, and more heat than light. Most evidence of shortages is inferred from apparent imbalances between labor force growth and job growth or based upon the complaints of employers.

The New England Council's Commission on High Tech Skills Shortages has responded to this challenge by commissioning a systematic survey of unfilled labor demand in SEIT fields, first in Massachusetts, and subsequently in other New England states. A rigorous and systematic measure of a labor shortage can be obtained from a job vacancy survey that measures both current unfilled job openings and labor turnover transactions in a variety of key occupational and industrial labor market segments

In the spring, Northeastern University's Center for Labor Market Studies, in partnership with the public-private Massachusetts Technology Collaborative, undertook the first of several job vacancy surveys planned for the New England states over the next year. This survey aimed to measure unfilled labor demand among Massachusetts firms that are intensive employers of scientific, engineering and information

FIGURE 1: JOB VACANCY RATES IN MASSACHUSETTS FIRMS WITH TECHNOLOGY-INTENSIVE EMPLOYMENT BY MAJOR INDUSTRY (MAY 2000)

	Total	Computer & Telecommunications Hardware & Medical Devices Manufacturing	Biotechnology	Software & Telecommunications Services	Health-care, Financial & Other Services
Number of Firms	304	88	68	127	31
Number of Payroll Employees	44,916	25,446	4,706	23,501	16,669
Payroll Positions Vacant	4,083	1,804	502	1,954	932
Vacancy Rate	8.3%	6.6%	9.6%	7.7%	5.3%

Note: The sum of industry sectors may exceed the total because firms were allowed to classify themselves under multiple sectors.

technology workers. A total of 310 Massachusetts firms with a combined payroll of 45,000 employees supplied data on their staffing patterns, unfilled job openings, new hire activity and separation transactions as well as information on hiring of foreign workers under the government's H1-B visa program. (The firms may be broken down into four technology-intensive industries: biotechnology; computer & telecommunications hardware & medical devices manufacturing; software & telecommunications services; and health-care, financial & other services.) This survey is the largest systematic attempt to measure job vacancies in Massachusetts since the early 1980s.

Job vacancies

Based on employer responses to the survey, the center and the collaborative have produced an array of new measures of labor demand in the state's technology-intensive industries. Chief among these measures is the "job vacancy rate." The job vacancy rate was originally developed by the BLS in the late 1960s as a labor-demand analogue to the supply-side unemployment rate. As the unemployment rate serves as a basic measure of unutilized labor supply, so the job vacancy rate serves as a measure of unfilled labor demand. Job vacancies are defined as positions within a firm that are unfilled, immediately available for occupancy, and for which the firm is actively recruiting workers in the external labor market. Just as an industry unemployment rate of, say, 6 percent would be viewed as relatively high, a job vacancy rate of 6 percent within a given industry also would be viewed as a high level of unfilled labor demand.

The employers who were surveyed reported fully one in 12 positions vacant—or a job vacancy rate of 8.3 percent. (See Figure 1.) This rate is quite high when viewed as the labor demand equivalent of the unemployment rate. Most observers would agree that

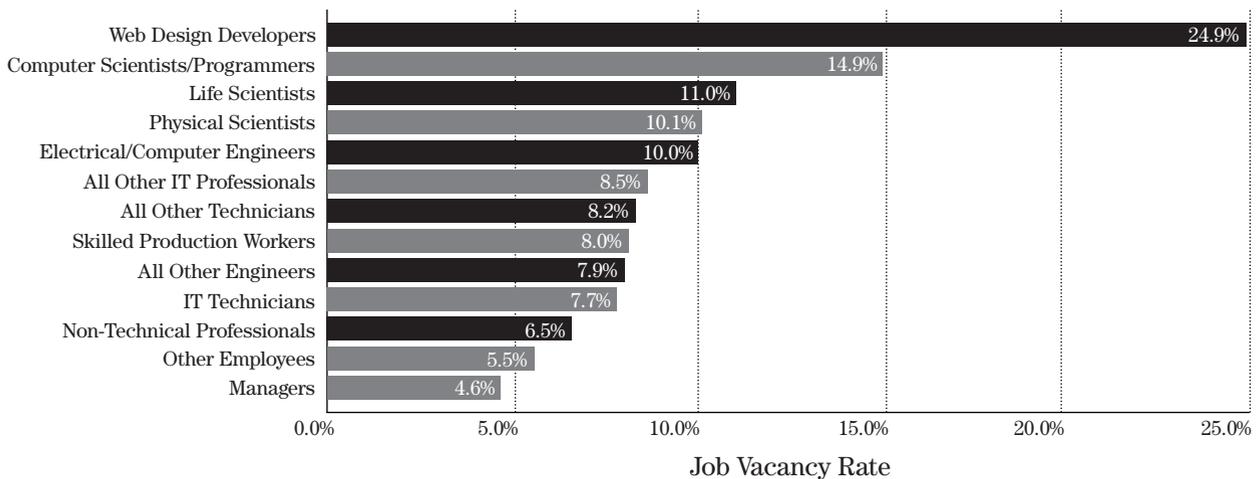
an unemployment rate of 8.3 percent would indicate a severe problem in the state's labor market. Similarly, the survey's finding of a job vacancy rate of 8.3 percent is properly interpreted as a powerful signal of labor shortage among the state's technology-intensive employers.

Over the post-Vietnam War period, U.S. labor markets have generally been characterized by excess labor supply—that is, there are substantially more unemployed workers than available unfilled jobs openings. When national surveys of job vacancies have been conducted in the past, job vacancy rates have ranged between 1 percent and 2 percent. More recently, the national job vacancy rate may have risen to 3 percent as the rate of labor force growth nationally has slowed, leading to tightening labor markets and national unemployment rate reductions not seen since the early 1970s.

A BLS pilot job vacancy survey in Milwaukee found a rough equivalence between the number of unemployed workers and the number of job openings. Yet the new survey of technology-intensive firms in Massachusetts has revealed a very high level of unfilled labor demand. Indeed, seven of every 10 surveyed companies had at least one unfilled position for which they were actively recruiting in April of 2000.

The survey found moderate variation in vacancy rates across the four industry sectors included in the study. The highest rate occurred in biotechnology where one in 10 positions were vacant. Nearly 8 percent of positions at firms in the software & telecommunications services sector were unfilled, as were 7 percent of positions in the sector that manufactured computer & telecommunications hardware and medical devices. Firms providing health-care, financial & other services reported 5 percent of their payroll positions vacant.

FIGURE 2: JOB VACANCY RATES IN MASSACHUSETTS FIRMS WITH TECHNOLOGY-INTENSIVE EMPLOYMENT BY MAJOR OCCUPATION (MAY 2000)



The job vacancy rates of technology-intensive employers in Massachusetts varied widely by occupational category. Computer and information technology occupations, including Web design developers, computer scientists/programmers, computer engineers, and scientific occupations, including physical and life scientists, had extraordinarily high job vacancy rates. One of every four positions for Web design developers among technology-intensive firms in Massachusetts was vacant. (See Figure 2.) The rapidly expanding commercial use of the Internet has likely fueled the demand for this nascent occupational area, propelling labor demand far ahead of supply. Firms are aggressively hiring employees to fill new positions in this occupation. Only 2 percent of employees in this occupation quit the firm in which they were employed during April, while 8 percent of employees were newly hired during the same month.

The job vacancy rate in the computer scientist/programmer occupations was nearly 15 percent. Employers in this labor market segment were unable to fill one in seven computer scientist/programmer positions. Notably, these jobs accounted for 11 percent of the overall staff of these high-tech firms and one in five of all unfilled jobs among responding employers. (See Figure 3.)

The data reveal that occupations with the highest vacancy rates were in the scientific, engineering, and information technology areas. One in 10 posi-

tions were vacant in scientist occupations including life scientists and physical scientists. So were one in 10 positions in computer and electrical engineering occupations.

Occupational distribution

Although the job vacancy rate in Web design development is very high, this occupation constitutes a very small proportion—just 3 percent—of all job vacancies at Massachusetts high-tech firms. This is because the total number of Web design positions, though growing fast, is still quite small, accounting for only about 2 percent of total employment among firms in the study. The high new hire rate, low quit rate and high vacancy rate all suggest a growing gap between the demand for new Web design skills and the supply of workers who possess those skills.

Most job vacancies are concentrated in computer scientist/programmer and engineering occupations. Four in 10 job vacancies are in engineering and computer scientist/programmer occupations. An additional 7 percent of all vacant jobs are in life and physical scientist positions. Together, these four occupations account for one out of two job vacancies in firms that are intensive employers of technology and scientist workers in Massachusetts.

When data on both the occupational job vacancy rate and distribution of job vacancies are analyzed together, they reveal that the greatest labor supply shortfall exists in the computer scientist/programmer and electrical/computer engineering occupations. These fields both have exceptionally high job vacancy rates and together account for one-third of all unfilled positions in the state's technology sector. Employers seeking to fill these positions will confront a substantial labor shortage and intense competition among a large number of firms actively seeking workers.

Separation activity

In addition to job vacancy rates, various personnel transactions within firms provide valuable insights into employee turnover rates and job creation. The survey asked companies to report the total number of employees they hired (including new hires and recalls) and the total number of employees who exited the firm (including quits, terminations, retirements and other separations) during the month of April 2000.

Analyzing job vacancy data in the context of hiring and separation activity is critical to determining if a real shortage of skilled workers exists. High job vacancy rates occur for one of two reasons: First, openings can occur as firms try to expand their payrolls and generate net new sales and output. A high vacancy rate in this context means that a true labor shortage likely exists—that is, an insufficient number of workers have the skills needed to fill the available openings. Alternatively, high vacancy rates can occur when

FIGURE 3: PERCENTAGE DISTRIBUTION OF JOB VACANCIES IN MASSACHUSETTS FIRMS WITH TECHNOLOGY-INTENSIVE EMPLOYMENT BY MAJOR OCCUPATION

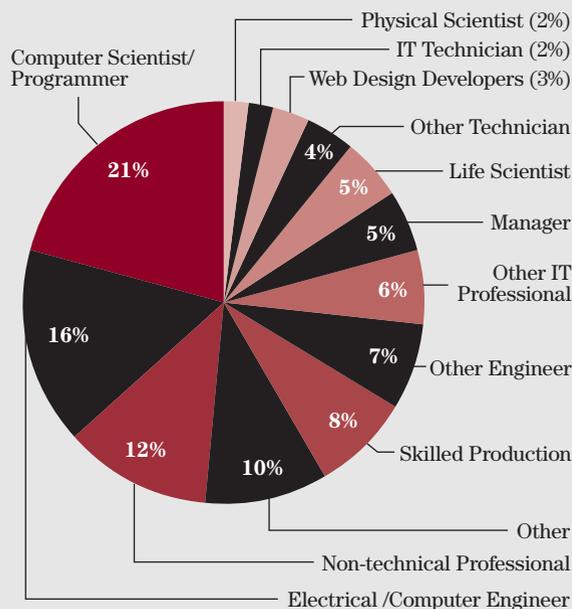


FIGURE 4: TOTAL HIRES AND EXITS DURING APRIL 2000 FROM MASSACHUSETTS FIRMS WITH TECHNOLOGY-INTENSIVE EMPLOYMENT BY MAJOR INDUSTRY

	Total	Computer & Telecommunications Hardware & Medical Devices Manufacturing	Biotechnology	Software & Telecommunications Services	Health-care, Financial & Other Services
New staff hires	2,485	1,101	273	1,432	694
Total exits	1,298	437	95	808	180
Net new staff hires (new staff hires minus exits)	1,187	664	178	624	514
New staff hires as % of payroll	5.5%	4.3%	5.8%	6.1%	4.2%
Exits as % of payroll	2.9%	1.7%	2.0%	3.4%	1.1%
Net new staff hires as % of payroll	2.6%	2.6%	3.8%	2.7%	3.1%

Note: The sum of industry sectors may exceed the total because firms were allowed to classify themselves under multiple sectors.

firms have high separation rates. Workers in these firms have a high propensity to quit, often because of dissatisfaction with wages or working conditions, resulting in a large number of unfilled jobs. A high vacancy rate in this context does not mean that a true skill shortage exists. Rather, it signals a problem of employment instability probably associated with some undesirable aspect of the work or with the way the employer has chosen to organize production. Firms with high quit rates are often found in industries that invest little in their workers' skills and pay low wages as in some elements of the retail trade sector.

Most firms with technology-intensive employment in Massachusetts had some hiring activity during the month of April. Two of every three firms reported hiring at least one new employee during April. Employee exits were less widely prevalent among these firms. Fewer than one-half of all technology-oriented firms had even a single employee quit or otherwise separate from the organization during April of 2000.

Technology-intensive employers in the state reported a total of 2,500 new hires during the month of April, accounting for 5.5 percent of their total payroll employment at that time. During the same month, 1,300 employees composing 2.9 percent of their total payroll were separated from these firms. Nearly 6 percent of the payroll of these firms on May 1, 2000 consisted of new hires and only 3 percent of all payroll employees exited these firms. Thus, nearly one-half of new employees were hired to fill newly created positions within these firms. (See Figure 4.) A quit rate equal to only

one-half the new hire rate clearly reveals that the state's technology-intensive employers are not fabricating a labor shortage through high employee turnover. To the contrary, a new hire rate that is nearly double the quit rate is a powerful indicator of the desire of these employers to expand employment, output and sales.

New hiring activity also was high across the four industry sectors, with newly hired workers accounting for more than 6 percent of payroll in the biotechnology and software/telecommunication services industries. New hiring activity also was quite high in the high-tech manufacturing and health-care and financial services sectors. Each of the four industry sectors had very low rates of separation of employees from employers. With the exception of the software & telecommunications services sector, which had a quit rate of 3.4 percent, the quit rates were very low across the industry sectors, accounting for between 1 and 2 percent of the total number of employees.

During April 2000, hiring and separation occurred at very high rates in the Web design development occupation. (See Figure 5.) More than one in eight employees in this occupation were hired during April. Abundant employment opportunities for workers in this occupational specialty (indicated by high vacancy rates) appear to have increased the job mobility of these workers. Over 5 percent of all payroll employees in this occupation separated from their employer during April. Aggressive hiring and recruiting and high levels of job mobility among workers characterize this occupational specialty. High levels of net new

FIGURE 5: TOTAL HIRES AND EXITS DURING APRIL 2000 FROM MASSACHUSETTS FIRMS WITH TECHNOLOGY-INTENSIVE EMPLOYMENT BY MAJOR OCCUPATION

Occupations	New Hires as Percent of Payroll	Exits as Percent of Payroll	Net New Hires (new hires minus exits) as Percent of Payroll
Life Scientists	6.2%	2.4%	3.8%
Physical Scientists	3.3%	1.6%	1.7%
Computer Scientists/Programmers	8.1%	3.7%	4.5%
Electrical/Computer Engineers	3.9%	1.8%	2.1%
All Other Engineers	5.8%	2.1%	3.7%
Web Design Developers	11.7%	5.2%	6.4%
All Other IT Professionals	4.3%	2.4%	2.0%
Non-Technical Professionals	5.2%	3.8%	1.4%
Managers	3.5%	2.6%	0.9%
IT Technicians	4.4%	4.0%	0.4%
All Other Technicians	5.4%	1.8%	3.6%
Skilled Production Workers	3.4%	1.4%	2.0%
Other Employees	8.0%	3.7%	4.3%

hiring also took place in engineering, computer scientist/programmer, life scientist and other technical occupational areas.

An exception to the pattern of high net new hire rates can be seen in the IT technician field. The new hire rate for IT technicians was only 4.4 percent while the separation rate was 4.0 percent revealing a net new hire rate of only 0.4 percent. This implies that about 90 percent of all the hiring among IT technicians was due to replacement needs. In other words, most of the unfilled jobs in this area are not the result of firms' efforts to expand output, sales and employment. The data suggest that a true labor shortage does not exist in this field. Instead, most unfilled IT technician jobs are associated with a high separation rate relative to the new hire rate. So strategies to expand labor supply to this field will do little to reduce the overall vacancy rate in this area.

This first systematic examination of labor shortage problems in SEIT occupations reveals that substantial labor shortage problems exist in key occupational areas within technology-intensive industries in

Massachusetts. These labor supply problems are not primarily the result of high labor turnover, but rather the product of inadequate levels of skilled labor supply relative to the demands of employers. Labor shortages appear to be particularly severe in the computer science/programming and electrical/computer engineer fields, but substantial shortages exist in a number of scientific fields as well. The newly emerging Web design developer field has extraordinarily high job vacancy rates. As employers seek to expand employment in this field they will be confronted by a severe labor shortage problem. Moreover, growth in sales, output and employment of technology-intensive industries in Massachusetts is constrained by companies' inability to hire sufficient number of workers who possess the educational background and skills required.

Paul E. Harrington is associate director of Northeastern University's Center for Labor Market Studies. Neeta P. Fogg is a senior economist at the center.



LABOR SHORTAGE TRUTH SQUAD

> A new commission aims to separate
workforce fact from fiction <

JOAN McRAE STOIA

There are just not enough qualified candidates to go around in science, engineering and information technology (SEIT). In fact, the talent shortfall is so severe, it is often cited as a leading impediment to New England's economic growth and continued prosperity. But what, if anything, should be done about it?

Some business people and policymakers say the answer is for New England's colleges and universities to expand offerings in computer science, engineering, management information science and emerging interdisciplinary combinations of these disciplines—and to graduate more students in these fields. Others want to change federal immigration policy to make it easier for foreign nationals with technical degrees to work in the United States. Still others argue that older workers are an untapped source of SEIT labor supply who could be retrained for lucrative second careers in high tech.

Struck by the complex nature of the problem and the simplistic nature of popular responses, economist Paul Harrington of Northeastern University's Center for Labor Market Studies last year approached the New England Council, the region's oldest business group, with a plan to study the worker shortage issue and, after separating fact from fiction, to craft strategic policy recommendations for the region.

New England Council Chair Ann Finucane, a Fleet Bank vice president, agreed to sponsor the effort along

with Northeastern President Richard Freeland. The two then invited 18 of the region's leading business, education and economic development experts to form a Commission on High Tech Skills Shortages. The commission is charged with guiding indepth research on labor shortage issues (including how shortages limit growth of individual firms, state-specific job vacancy surveys, college enrollment trends, and the potential of the H1B visa program) and arranging summits in each New England state to bring commission members and researchers face-to-face with the business executives, educators and government officials who deal with the effects of the shortage every day.

New England Council Executive Vice President Lawrence Zabar says the commission will search for strategies for addressing the SEIT worker shortage that are already working in one state and may be replicated elsewhere in the region. Zabar and Harrington also hope the research and the summits will yield "policy prescriptives" that can be fashioned into legislative proposals for New England's congressional delegation.

WHILE GOOD JOBS ARE PLENTIFUL, THEY REQUIRE SKILLS THAT ARE IN SHORT SUPPLY, NOT ONLY IN NEW HAMPSHIRE, BUT EVERYWHERE ELSE IN NEW ENGLAND AND THE UNITED STATES.

New Hampshire summit

Each summit will invite key stakeholders to “testify” before three local members of the commission. The first such meeting was held last May at Sanders, the Nashua, N.H.-based defense firm, which is now part of Lockheed Martin.

Twenty-five people intimately involved with workforce development in New Hampshire provided expert testimony and engaged in discussion with three New Hampshire members of the commission: New Hampshire Business and Industry Association President John Crosier; Sanders President Walter Havenstein; and University of New Hampshire President Joan Leitzel. Participants included University of New Hampshire economist Ross Gittel; Liberty Mutual Director of Information Systems Maxine Jerauld; Sanders Vice President of Human Resources Brad Loggans; NSS Corp. President Douglas Pearson; and former New Hampshire Education Commissioner Elizabeth Twomey. Representatives from the New Hampshire High Tech Council, PC Connection, Fidelity Investments, The Taylor Group, and Anthem Blue Cross/Blue Shield provided additional business perspectives.

On the positive side, New Hampshire is expected to outperform its neighbors in labor supply growth over the next five years, the researchers noted. Population is expected to increase at modest rates and job prospects for people who live in the state are expected to be better than anywhere else in New England.

Already, the rate of new job creation there has surpassed that of every other New England state—and has even outpaced the nation. Much of that job growth, however, has been concentrated in one sector, high technology. In fact, New Hampshire ranks second among the 50 states in the share of employment concentrated in high-tech industries. So while good jobs are plentiful, they require skills that are in short supply, not only in New Hampshire, but everywhere else in New England and the United States.

Much discussion at the Nashua summit focused on changing demographics. In the past, New Hampshire has relied on its ability to attract workers from other states to meet the demands of its industries. A decade ago New Hampshire ranked eighth nationally and first in the Northeast in attracting workers from elsewhere, according to the state’s Business and Industry Association. But few believe New Hampshire can sustain that gravitational pull. Population grew by just 8.3 percent between 1990 and 1999. Total employment, on the other hand, is expected to increase by 15 percent over the next 10 years. Because of the strong presence of high technology, demand will be particularly strong for people with some postsecondary education.

The slowdown in population and labor force growth in New Hampshire would seem to make the state’s educational institutions even more critical to workforce development strategies. But New Hampshire educators and business leaders note that a higher than average share of Granite State high school graduates leave New Hampshire for college. Only 50 percent of all New Hampshire high school seniors enroll in a New Hampshire college after high school. (Fully 80 percent of New Hampshire students do stay within the six-state New England region for college, but employers at the New Hampshire summit appeared focused on state, not regional, dynamics.)

Given the intense regional pressure for candidates to fill SEIT jobs, educators and business leaders say the state can no longer rely as heavily on attracting workers from outside the state as it did before 1990. Instead, they argue, New Hampshire needs a “grow your own” strategy that relies more heavily on educating the state’s native-born population. Employers and educators alike believe that students from New Hampshire high schools who attend college in the state are much more likely to provide stable long-term employees to New Hampshire businesses. Thus, employers and educators at the summit agreed that retaining college-bound graduates of New Hampshire’s high schools should be an important ingredient in any long-term workforce development strategy.

The New Hampshire summit did what it was supposed to do. It helped deepen understanding of the problems faced by business, education and governmental leaders. It fostered local discussion among policymakers about the growing problem of outmigration among the state’s high school students and provided an important avenue for related research as the state-by-state study continues.

Moreover, the media attention received by the summit helped increase public awareness of the economic implications of the science, engineering and information technology worker shortage problem and what may happen without concerted action. And it provided some grist for the commission’s policy-development mill. If the project continues to discover a similar number of local issues and trends that appear ripe for further research, as it did in New Hampshire, the amount of information gathered promises to be enormous—and enormously complex.

Joan McRae Stoia is a visiting researcher at Northeastern University’s Center for Labor Market Studies where she is assisting the Commission on High Tech Skills Shortages. She is on leave from her post as director of career services the University of Massachusetts Amherst.



ADVANTAGE NEW ENGLAND?

> **How higher education can
bolster the regional economy** <

ROSS GITTELL AND PATRICIA FLYNN

Over the past three decades, New England has outpaced the nation in realigning its employment away from traditional manufacturing industries to high technology and services. Federal research and development (R&D) funding facilitated this transition by shifting from support of defense-related manufacturing to high value-added, non-manufacturing areas such as health care and biotechnology.

Venture capital, too, has fueled innovation and change in the region. The third leg of the tripod has been New England's colleges and universities bolstering the pool of well-educated, highly skilled workers and supplying new ideas for new industries and firms in the region.

For decades, this dynamic infrastructure has provided the backbone for New England's competitive advantage in innovation and high technology and helped the region lead the nation in productivity and per-capita income growth. New England leads the nation in per-capita R&D funding and per-capita venture capital. And though high-tech accounts for less than 7 percent of all New England jobs, the region's concentration of high-tech employment is 40 percent higher than the nation's. Indeed, New Hampshire and Massachusetts rank No. 2 and No. 3 nationally in terms of the share of employment in high technology.

Moreover, the high-technology sector has provided a major economic stimulus in New England. High-tech industries generate demands for supplier firms and for an array of personal services for relatively well-paid, high-tech workers. Plus, many industries outside the formally defined high-tech field, such as mutual funds,

health care and e-retail, use advanced information and other technologies and have benefited from the R&D, venture capital, skilled workforce and sophisticated consumers that the high-tech firms attract.

Challenges loom

Despite successes, significant challenges lie ahead. Federal R&D funding in New England has fallen as a percent of gross state product (GSP) and other regions are starting to claim an increasing share of Washington's research largesse. Job growth in New England has lagged the nation in recent years; employment in the region's high-tech industries, particular, grew well below the U.S. rate from 1992 to 1998.

Recent trends in New England's population, labor force and college degrees awarded could undermine the region's competitive advantage. Within the region, two different patterns have emerged. The three northern New England states, which have experienced relatively high growth, have benefited from in-migration from other states and from a significant increase in the participation of women in the workforce. Indeed,

the labor force participation rates of women in northern New England are well above the U.S. average, but unlikely to increase much. The three southern states, however, have experienced employment growth well below that of the nation. These states have become increasingly dependent on foreign immigration to offset significant domestic outmigration of well-educated individuals.

Recent changes in immigration laws have increased quotas, thereby allowing expansion of New England's immigrant workforce. The region is vulnerable, however, to possible changes in these federal laws, which could result in smaller numbers of immigrants allowed into the country. Moreover, the region needs to better understand the reasons behind the exodus of well-educated workers, especially in times of labor and skill shortages. A recent report by the Massachusetts Institute for a New Commonwealth suggests that skilled workers are leaving New England for geographic areas with a lower cost of living. If this is the case, then New England's employers have to consider increasing real wages or otherwise improving living and working conditions in order to attract and keep workers in New England.

The number of bachelor's degrees conferred by New England colleges and universities declined in recent years as did the region's *share* of degrees awarded nationally at all levels. This further limits the supply of workers from which the region's employers can draw. Demographic projections indicate that larger numbers of college degrees will be awarded in New England over the next few years, and enrollments will rise. But a shift in student interest away from engineering and other technical areas suggests that the overall increase in graduates will not solve the region's labor shortage problems in high-tech fields. Increases in relative pay in engineering and related fields have historically reversed student enrollment declines. But these market adjustments often occur with a lag of four to six years, and so will not in the near term alleviate shortages currently being felt by employers.

The early years of this decade are critical to New England's future. If the region is unable to maintain its strength and competitive advantage in innovation and high technology, other regions will make significant inroads, and New England may not be able to keep pace. The region needs to bolster its high-technology infrastructure and stay ahead of states such as North Carolina, Colorado and Georgia that are making significant new investments in their high-technology capabilities. By developing the region's high-technology infrastructure and human resources, New England's higher education institutions can help to secure the region's economic position as a leader in innovation in the 21st century.

There are three main ways New England's institutions of higher education can help secure the region's strong position in the New Economy: 1) by educating a skilled workforce for the 21st century; 2) by capturing and effectively utilizing R&D funding; and 3) by helping provide economic opportunity for all citizens.

Skilled workforce

Relative to several other regions such as the Southeast, Mountain States and West, New England's labor shortages are particularly acute, especially in the near term. If New England wants to continue to be a high-tech leader (which depends on highly educated, skilled workers) the region must be more innovative in addressing workforce issues.

The supply of skilled workers is at the top of the list of concerns of companies throughout the region. As of June 2000, New England's regional unemployment rate was one-third below the U.S. average, and every New England state had unemployment below the national average, which itself was at a low 4.2 percent. The region's demography—marked by a relatively older workforce and relatively slow population growth—suggests continued, even increasing, challenges in the labor market.

The most profound gap in the region is between the supply and demand of new college graduates with degrees in engineering and computer sciences. But New and Old Economy firms also require graduates in business, basic sciences or liberal arts who can think critically and write and communicate well.

Firms and industries have issued a challenge to educational institutions at all levels. Educational institutions are a key link in the labor supply chain. They should work more closely with economic development officials and firms and with each other in defining labor needs and designing and implementing programs to meet current and future labor demand. Working together, colleges and employers should be able to better communicate information about the rewarding and exciting employment opportunities in the region. Employers, too, need to be more forthcoming in working with a variety of schools and colleges by, for example, participating on advisory boards, providing internships and guest speakers, and arranging site visits.

There is also a need for more seamless and better integrated K-16-plus education. New England's colleges and universities help distinguish the region and make it unique. They should work with K-12 institutions throughout the region to provide expertise in curriculum development, testing and assessment, career and college advising and accessing grant support for technology needs.

Within higher education, institutions should work together to address specialized training needs and to support student access and transfer through articula-

tion agreements between two- and four-year programs. Educational institutions should form alliances among themselves to benefit from economies of scale and group purchasing power in areas such as health insurance, computers and legal services. They should also work collaboratively to learn from each other, recognizing and publicizing innovative approaches and best practices in educational change and labor market linkages. Finally, the New Economy and the rapid pace of change suggest that, now more than ever, “lifelong learning” must become a reality for workers across a wide range of industries and sectors. Given the region’s demographic outlook, incumbent worker training and retraining will be vital to our economic future.

New England colleges can also help address workforce needs by enhancing their traditional roles as points of entry for skilled foreign labor and as magnets to smart students and faculty. Efforts can be bolstered to attract foreign students to the region’s campuses and to keep the best and brightest high school students in the region through “stay-in-region” scholarship programs.

New England’s colleges and universities make strong contributions not only to the region’s educational infrastructure but also to the region’s quality of life. The concentration and quality of higher education institutions provide a competitive advantage for the region. New England’s higher education institutions can help in the recruitment and retention of skilled labor in the region by marketing themselves more aggressively and better coordinating their efforts with one another and with state and local economic development officials. Graduate schools of business, for example, have been successful in jointly sponsoring recruitment efforts in other countries based on the “Come to Business School in Boston” theme. Why not extend the international strategy along the lines of “Come to College in New England”?

Research and development

New England traditionally has been a major center for scientific research and has attracted a relatively large share of federal funds supporting R&D, particularly in defense-related areas. The region’s strength in R&D contributes to its strong performance in high-technology employment and patents per worker. New England boasts an average of 50 percent more patents per worker than the nation, with four states—Connecticut, Massachusetts, New Hampshire and Vermont—ranking among the top eight states nationally.

On a per-employee basis, the region received over 35 percent more dollars in Department of Defense procurement contract awards than the national average in 1970; by 1992, this lead had increased to over 78 percent. Defense-related R&D funds bolstered the initial development of the Cambridge/Route 128 high-tech corridor, which became a leader in electronics, instrumentation, communications and software. The 128-cor-

ridor development has benefited not only Massachusetts but the other New England states as well. The high-tech “production system” in the region includes: Cambridge/Boston as a center for basic research and innovation, Route 128 as an area of applied research in industry, and Route 495 and the southern tier of New Hampshire and parts of Connecticut and Maine with significant clusters of new product development activity and concentration of companies that supply original equipment manufacturers nationally and globally.

In recent years, however, federal R&D support has declined for defense-related fields and the region’s *share* of Defense Department funding has declined. The region has experienced a drop in total federal R&D dollars as a percentage of GSP from approximately 2 percent in the late 1970s to about 1 percent today. Though Massachusetts benefited from federal support of health-related R&D during the ’90s, the regional R&D advantage has eroded.

Higher education institutions can take the lead in bolstering R&D on a regional basis. New England’s education institutions can work together to establish research and training centers of excellence in emerging areas of federal and corporate R&D funding including biotech, software and medical sciences. Higher education officials, together with public officials across the region, can solicit increased corporate R&D spending with, for example, university-industry partnerships and the leveraging of public funding and tax incentives. University officials can also work with the region’s 12 U.S. senators and 23 U.S. representatives to bolster federal R&D funding to the region. Finally, universities in the region can form alliances with regions such as the Pacific Northwest to lobby for increased overall R&D funding nationwide. Given New England’s propensity to capture more than its share of R&D, this indirect approach will benefit the region.

Economic opportunity

If workforce development and R&D support are addressed effectively, venture capital will flow into New England, and new business development and economic growth will occur. This has been the history in New England.

But a few segments of New England remain untouched by this dynamic. They are: 1) geographic areas left behind by the New Economy, including rural areas of northern New England and inner city areas of Connecticut, Rhode Island and Massachusetts; and 2) the children of low-income families who lack the academic preparation and financial resources to pursue higher education.

Higher education institutions can play a more significant role as economic catalysts in parts of New England that have lagged behind. New faculty with

unique research and teaching specialization can help spur creation of new industries in an area. Community colleges and technical institutes have the flexibility, speed and expertise to assist firms seeking to retool their current workforce or to train new employees. Higher education's demand for advanced telecommunications services and low-cost energy can help encourage investment and competition that benefits all businesses and residents in a local community. Students and faculty can engage in community service projects and internship programs that can help improve local services and economies.

Colleges and universities can also play a role in improving access to higher education for individuals. Achievement in higher education is highly correlated with family income and, thus, with individual and household economic well-being. Historically, the costs of higher education in New England have been well above the national average. This reflects the high proportion of private colleges and universities in the region, and to some degree, the cost of quality. However, it also reflects the relatively low funding of public higher education and the relatively low priority given to broad access to higher education in New England. For example, in fiscal year 2000 five of the New England states rank in the bottom eight nationally (all except Connecticut) in state tax funds for higher education on a per-capita basis.

To address shortcomings in economic opportunity, higher education institutions can work more closely with high schools to improve student preparation for college. These efforts could target secondary schools that have traditionally not sent many students on to higher education. Higher education institutions can

also organize advocates for increased public (state) support of higher education and to encourage increased private need-based scholarships. Creative partnerships with industry can be used to support increased enrollment, graduation and labor supply in the region. With incentives and stipulations some of these efforts can be used to increase enrollment and graduation in particular fields of greatest needs and to ensure that graduates remain in the region to provide a skilled labor supply.

Efforts to address economic opportunity will most likely be focused on the state level. They can, however, be pursued in partnership with regional and local development organizations as well as with industry associations and individual companies.

There are many challenges ahead for New England's economy and its colleges and universities. Yet the challenges provide opportunities. In the 21st century, higher education institutions in New England can enhance their distinction nationally and globally, not only as leaders in research and pedagogy, but also in regional development efforts.

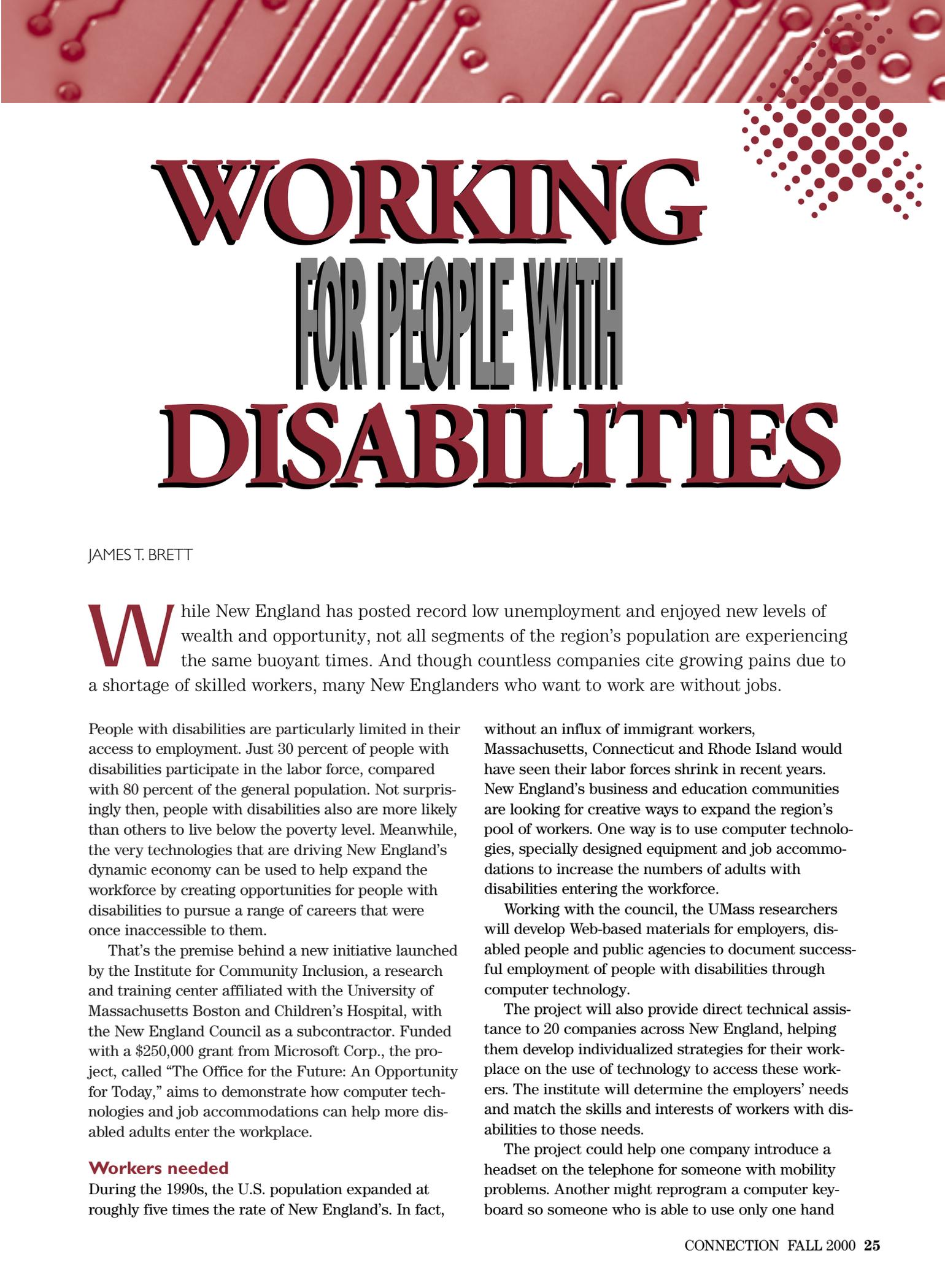
Ross Gittel is chair of the management department and associate professor of strategic management at the University of New Hampshire's Whittemore School of Business and Economics. Patricia Flynn is dean of the McCallum Graduate School of Business at Bentley College. This article draws from "New England as the Twenty-First Century Approaches: No Time for Complacency" which appeared in the Nov./Dec. 1999 issue of the New England Economic Review, and from the authors' presentation at a New England Board of Higher Education conference on workforce development held last spring.

A New Forum

THE NEW HAMPSHIRE HIGHER EDUCATION ASSISTANCE FOUNDATION (NHHEAF) NETWORK HAS PLEDGED \$75,000 PER YEAR FOR THE NEXT THREE YEARS TO A FLEDGLING HIGHER EDUCATION AND ECONOMIC DEVELOPMENT PARTNERSHIP IN THE GRANITE STATE.

The partnership to be called the New Hampshire Forum aims to better align New Hampshire graduates to state labor market needs, help New Hampshire colleges recruit and train teachers and school administrators and reduce the "brain drain" from the state, according to a statement from the NHHEAF Network.

The New Hampshire Charitable Foundation has also pledged \$40,000 to the forum.



WORKING FOR PEOPLE WITH DISABILITIES

JAMES T. BRETT

While New England has posted record low unemployment and enjoyed new levels of wealth and opportunity, not all segments of the region's population are experiencing the same buoyant times. And though countless companies cite growing pains due to a shortage of skilled workers, many New Englanders who want to work are without jobs.

People with disabilities are particularly limited in their access to employment. Just 30 percent of people with disabilities participate in the labor force, compared with 80 percent of the general population. Not surprisingly then, people with disabilities also are more likely than others to live below the poverty level. Meanwhile, the very technologies that are driving New England's dynamic economy can be used to help expand the workforce by creating opportunities for people with disabilities to pursue a range of careers that were once inaccessible to them.

That's the premise behind a new initiative launched by the Institute for Community Inclusion, a research and training center affiliated with the University of Massachusetts Boston and Children's Hospital, with the New England Council as a subcontractor. Funded with a \$250,000 grant from Microsoft Corp., the project, called "The Office for the Future: An Opportunity for Today," aims to demonstrate how computer technologies and job accommodations can help more disabled adults enter the workplace.

Workers needed

During the 1990s, the U.S. population expanded at roughly five times the rate of New England's. In fact,

without an influx of immigrant workers, Massachusetts, Connecticut and Rhode Island would have seen their labor forces shrink in recent years. New England's business and education communities are looking for creative ways to expand the region's pool of workers. One way is to use computer technologies, specially designed equipment and job accommodations to increase the numbers of adults with disabilities entering the workforce.

Working with the council, the UMass researchers will develop Web-based materials for employers, disabled people and public agencies to document successful employment of people with disabilities through computer technology.

The project will also provide direct technical assistance to 20 companies across New England, helping them develop individualized strategies for their workplace on the use of technology to access these workers. The institute will determine the employers' needs and match the skills and interests of workers with disabilities to those needs.

The project could help one company introduce a headset on the telephone for someone with mobility problems. Another might reprogram a computer keyboard so someone who is able to use only one hand

can carry out functions using one keystroke rather than two at a time. Or a company could introduce language-predictive software for people who have learning disabilities or reengineer computer screens so people can see them better.

It's not the first time the institute and the nation's oldest regional business group have teamed up in an effort to bring more people with disabilities into the workforce. Last year, the two collaborated on an initiative funded by the National Institute for Rehabilitation Research and Training to bring public and private sectors together to develop a comprehensive approach to employing people with disabilities

Untapped talent

An analysis by Richard Burkhauser of Cornell University's Rehabilitation and Training Center for Economic Research on Employment Policy for Persons with Disabilities reveals that people with disabilities (those who tell the U.S. Census Bureau that disability prevents them from working or limits the work they can do) participate in the labor force at lower rates than people without disabilities, and their participation actually declined from 1987 through 1997. While the labor force participation rate for men without disabilities dropped slightly from 96 percent in 1987 to 95 percent in 1997, the rate for men with disabilities sank from 44 percent in 1987 to 36 percent in 1997. And the rate for women with disabilities dropped from 38 percent to 32 percent even as the rate for women without disabilities grew from 77 percent in 1987 to 81 percent in 1997.

Moreover, the 2000 National Organization on Disability/Harris Survey of Americans with Disabilities found that while only 32 percent of 18-to-64-year-old

people with disabilities work full- or part-time, compared to 81 percent of the non-disabled population, more than two-thirds of those not employed said they would prefer to be working.

People with disabilities often work in entry-level and low-paying service jobs, according to nationwide data gathered by Andrew Houtenville, also of the Cornell research center. Houtenville found that the mean annual income for a person with disabilities was just \$17,928 from 1997-1999, compared with \$34,466 for someone without disabilities.

People with disabilities are far more likely than others to be poor. About 6 percent of men without disabilities and 10 percent of women without disabilities live in poverty and the figures have changed little since 1987, according to Burkhauser. By contrast, 26 percent of men with disabilities lived in poverty in 1997, up from 24 percent in 1987, and 32 percent of women with disabilities lived in poverty, up from 30 percent a decade earlier.

Education crucial

The impact of education on labor force participation is well documented. But educational attainment has an even more powerful impact on whether people with disabilities are working. Census data indicate that with each level of education, labor force participation rises more dramatically for people with disabilities than for people without disabilities.

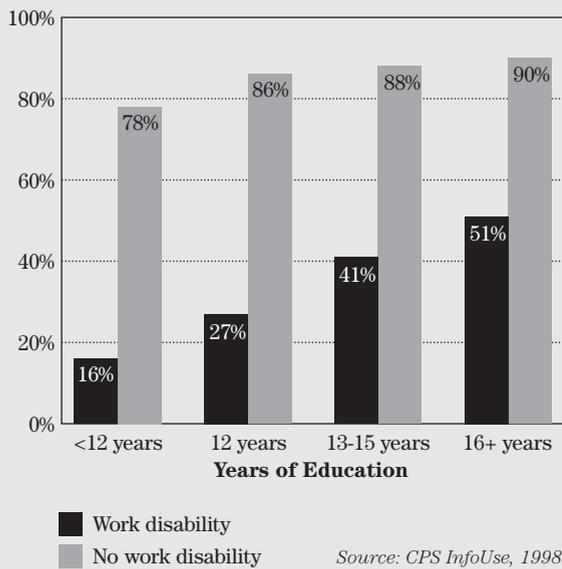
The Harris Poll suggests that the share of people with disabilities who complete high school has grown from six in 10 in 1986 to seven in 10 in the recent survey. But the trend at the college level has decreased in recent years. In 1985, two in 10 people with disabilities reported that they had a college degree. Today, the figure is one in 10.

PERCENTAGE OF PERSONS WITH DISABILITIES AND PERCENTAGE OF PERSONS WORKING 52 HOURS OR MORE IN THE PREVIOUS YEAR, FOR WORKING AGE (AGED 25-61) CIVILIANS, BY GENDER AND DISABILITY STATUS, FOR 1997, 1998 AND 1999 POOLED

Location	Prevalence of Disability (%)			Working 52 Hours or More in the Previous Year (%)					
	All	Men	Women	All People Without Disabilities	All People With Disabilities	Men Without Disabilities	Men With Disabilities	Women Without Disabilities	Women With Disabilities
Connecticut	7.7	9.0	6.4	89.2	34.2	94.4	35.7	84.5	32.1
Maine	10.2	10.9	9.6	90.2	38.1	95.6	38.5	85.1	37.7
Massachusetts	8.1	8.7	7.5	90.2	33.2	96.0	33.9	84.8	32.4
New Hampshire	8.5	7.5	9.6	90.9	47.3	97.2	60.4	84.4	37.1
Rhode Island	8.5	9.1	8.0	90.5	24.5	96.3	26.4	84.9	22.3
Vermont	8.4	8.4	8.3	92.2	43.4	97.0	37.2	87.4	49.9
United States	8.1	8.0	8.2	87.6	33.9	95.1	36.1	80.5	31.8

Source: Andrew Houtenville (2000), Cornell University; Current Population Survey

HOW LABOR FORCE PARTICIPATION INCREASES WITH LEVEL OF EDUCATION



Spurred on by passage of the Americans with Disabilities Act in 1990 and attendant federal technology grants, New England colleges and universities have launched a wide range of programs to make education and training more accessible to disabled students and established research centers to explore policy issues related to disabilities. Some campuses have become key players in the development of so-called “assistive technologies” that help people with disabilities live and work independently.

Hampshire College’s Lemelson Assistive Technology Development Center, for example, works with public agencies and academic institutions to identify needs for assistive technology, and undergraduates design products that companies and nonprofit organizations, in turn, make available to people who need them. Lemelson students have designed a computer mouse that better conforms to the hand and computer icons that make touch screens more usable for people who cannot control hand movements. They have also designed a mounting system for a power pack and throttle to make additional power available as an added feature on tricycles specially designed for people with balance difficulties.

The University of Maine’s Center for Community Inclusion in Orono offers interdisciplinary undergraduate and graduate programs in disability studies, conducts applied research and policy analysis on disability issues and provides community education and technical assistance programs.

Vermont Technical College’s Rehabilitation Engineering Technology degree program prepares technicians and technologists to provide and modify special products incorporating assistive technologies.

The New Hampshire Assistive Technology Partnership Project at the University of New Hampshire develops UNH courses on assistive technology and operates programs such as a Refurbished Equipment Marketplace in Concord, N.H., which fixes up donated equipment such as wheelchairs, walkers and communication devices, and makes them available at low cost.

A Community College of Rhode Island program that helps students with disabilities overcome barriers to education and employment has become a national model.

Assistive tech

Fortunately, assistive technologies can be used to help people with disabilities access the higher-paying and faster-growing segments of the New England labor market, including scientific and engineering occupations, particularly in the information technology sector where employment is expected to grow by more than 90 percent over the next 10 years.

Computer technologies are opening new doors for people with disabilities to pursue opportunities in back-office retail and service industries such as finance and insurance. A worker who is visually impaired may be able to access a job just by having a computer that includes an enlarged cursor or a different color screen and icons. Other software programs read screen text aloud, eliminating the need to read off the screen.

People with learning disabilities can customize their computers with a variety of programs to target their individual needs. For workers who have a limited range of motion, head sticks can be used to maneuver a keyboard, while a specially designed mouse can be controlled by foot. Or voice-activated systems may allow workers to avoid using a keyboard and mouse altogether.

The rise of telecommuting expands opportunities even more profoundly. The Harris Poll reveals that people with disabilities are almost three times more likely than others to say that inadequate transportation is a problem. Working from home eliminates that major obstacle.

In short, computers have the capability to level the playing field for all workers, thus Microsoft’s interest.

With little population growth projected for New England, it is increasingly critical for the business community, educators and government leaders to explore ways to enhance and grow the existing workforce. By better utilizing the creative force behind our economy, we can close the gap between those who want to work and the growing number of vacant jobs. Our future economic growth truly depends on the success of such initiatives.

James T. Brett is president and CEO of the New England Council.



ILLUSTRATION BY JEFF KILBURN OF THE PUBLICATION GROUP

Teacher Competency Whitewash

How one high-stakes test eliminates diversity from the teaching force

RONA F. FLIPPO AND JULIE G. CANNIFF

Most educators in Massachusetts are in favor of competency testing for prospective teachers. But current Massachusetts Educator Certification Test (MECT) policies present a series of new problems related to the quality and selection of teachers, relationships between colleges and state education departments and the impact on minorities who are enrolled in teacher education programs.

The dilemma is that a test that was designed to assess a candidate's knowledge of basic literacy and specific content fields is now being used as a means of screening out applicants to teacher education programs as well as passing judgment on colleges of education. Lesley University Vice President of Public Affairs Paul Karoff noted last November in a letter to the state's Joint Commission on Educator Preparation that the state's policy requiring colleges of education to achieve an 80 percent pass rate on the MECT would effectively eliminate teacher education programs all over the state. The test, he said, "would 'weed out' the overwhelming majority of teacher preparation programs in the Commonwealth. As a result ... the supply of new certified teachers avail-

able to fill the increasing number of positions in Massachusetts K-12 public schools could be dramatically reduced."

Now, a preliminary analysis indicates that *minority candidates* seem to be at the greatest risk of being denied certification in Massachusetts due to a significant and persistent failure rate on the MECT.

This is not surprising. Consistent evidence suggests that high-stakes tests like the MECT adversely affect underrepresented minorities and second-language learners. The National Education Association in 1987 found that entry-level teacher licensure testing excluded tens of thousands of African-Americans and Hispanics from the teaching force.

Changing demographics

The changing demography of New England, and Massachusetts in particular, means the region will face an increasing need to expand its minority teaching force by 2010.

Prior research on competency testing for teacher certification indicates

Most of the minority students who are taking, and failing, the MECT are highly motivated to become teachers and to work with non-English-dominant students.

that as the use of these tests increases, the number of minority students enrolled in teacher education programs or entering the profession after completing teacher education programs decreases. As older minority teachers retire, fewer and fewer minority teachers are available to take their place. This results in a lack of role models for minority students and a teaching force that is practically all white.

The need for Massachusetts public schools to increase their bilingual teaching force is quite apparent. Noted educational demographer Harold Hodgkinson points out in the Summer 1999 issue of CONNECTION that over the next 10 years, the white population will decline in Connecticut, Massachusetts and Rhode Island, while the Asian and Hispanic populations will grow all across the region. Moreover, Massachusetts is among the 10 states that account for fully 90 percent of the Hispanic population of the United States. Brown University Professor Eleanor McMahon noted in the Spring 1999 issue of CONNECTION that shortages already exist for teachers in math, science and computer technologies, but especially for those who are trained in English as a Second Language and in Spanish.

In spite of the changing demographics, many colleges of education are reducing the number of students they accept into their teacher education programs in order to increase their pass rates. One way they do this is by changing the affiliation status of teacher education candidates, designating only those students who have passed all three components of the MECT—reading, writing and subject area tests—as officially part of their teacher education programs, and admitting students into these programs whose test scores indicate they have already passed the MECT and will therefore help the college meet the state's 80 percent pass rate minimum.

If minority students are screened out of education programs because of

poor performance on the MECT, they are likely to choose other majors such as business or technology. This diverts talented, passionate young people from entering teaching. Inevitably, teachers will be certified who do not represent the diverse populations that most certainly will fill the classrooms of the future.

Impact of the test

In a report prepared for the Mauricio Gastón Institute for Latino Community Development and Public Policy at the University of Massachusetts Boston in March 2000, Miren Uriarte and her associate Lisa Chavez observed that 19 states require exit exams for high-school graduation, including states with large Hispanic populations such as New York, Texas and California. Uriarte and Chavez confirm that large numbers of black and Hispanic youth are failing these tests. Fully 80 percent of the Hispanic 10th-graders who took the Massachusetts Comprehensive Assessment System (MCAS) exam failed the math and science portions of the test. The Gastón Institute report echoes studies such as those by Gary Orfield and Johanna Wald of the Harvard Graduate School of Education, who state in a recent article in *The Nation* that "Despite the political popularity of the testing 'solution,' many educators and civil rights advocates are suggesting that it has actually exacerbated the problems it sought to alleviate. They claim that these policies discriminate against minority students, undermine teachers ... and deny high school diplomas ... High-stakes tests attached to grade promotion and high school graduation lead to increased drop out rates, particularly for minority students."

Scholars have long noted that many behaviors, such as competitiveness, are valued differently by different cultures. Linguistic factors pose a tremendous barrier for minorities who may be competent English

speakers but are at a disadvantage when taking a test that requires a facility with abstract concepts and sophisticated vocabulary.

Another factor is that the stereotype that all minorities will fail becomes a self-fulfilling prophecy. Minority students at one Massachusetts state college told us the tests are simply the means to deny them admission to a college program or promotion from one level to another. By contrast, when a test is used as a diagnostic tool, minorities appear to score at the same levels as their white peers.

Furthermore, some researchers believe that minorities are less likely than whites to take advantage of private test preparation services that offer students strategies guaranteed to produce high test scores. These factors, however, have not been studied well enough to sufficiently explain the persistent failure rate of minorities on standardized tests.

In light of this history, we began looking at the actual performance rates for minorities on the MECT. The Massachusetts Department of Education (DOE) provided cumulative summaries from the first administrations of the MECT in April 1998 and July 1998, including pass rates by gender, ethnicity and educational status. However, requests to the DOE to provide information on minority performance for subsequent test administrations in 1998-1999 and 1999-2000 were denied. DOE legal counsel Lucy A. Wall stated that "the Department does not have any responsive documents."

By not providing the ethnicity data, the DOE deprives colleges and universities of important information concerning their students, and the means to ascertain what the short and long-term results will be on the minority and language-diverse teaching pools in the state. To get these data from the DOE, professors and state teachers' union officials have resorted to pursuing this information under the

MECT PASS RATES BY RACE/ETHNICITY

	Asian/Pacific Islander	Black	Hispanic	White
Communication and Literacy Skills: Reading	77% (n64)	46% (n65)	56% (n79)	81% (n2,665)
Communication and Literacy Skills: Writing	69% (n65)	39% (n67)	46% (n80)	77% (n2,676)
Elementary Teacher	71% (n28)	21% (n24)	50% (n26)	66% (n990)

Note: n=number of test-takers

Source: Massachusetts Department of Education

A variety of performance-based assessments are just as important and relevant, if not more relevant, than a paper and pencil competency test of cognitive and content skills.

federal Freedom of Information Act, but as of midsummer, the state DOE had not complied with the request.

In preparation for this article, we reviewed the April 1998 and July 1998, cumulative scores for minorities provided by the DOE. Our analysis

reveals that 77 percent or more of white students and nearly as high percentages of Asian-American students passed the reading and writing tests. But just 46 percent of black test-takers and 56 percent of Hispanic test-takers passed the reading portion of

the test. Just 39 percent of blacks and 46 percent of Hispanics passed the writing portion. The subject test for elementary teachers shows the same disparity with 21 percent of black students and 50 percent of Hispanic students passing, compared with 66 percent of white students and 71 percent of Asian-American students.

With help from the Massachusetts State Colleges Council of Presidents, we requested information on minority pass rates from Massachusetts state colleges. We also requested information from public and private universities. We managed to gather preliminary data for all three test-year cycles (1997-98; 1998-99; 1999-2000) from only eight state colleges. Nonetheless, we came away with significant insight into the difficulties all colleges and universities were having in tracking the pass/fail rates of minority students enrolled in their teacher education programs. Some could not provide the information because the numbers of minorities in the teacher education programs are so small that the individuals would be easily identified, others could not because their student databases are not set up to track minority candidates. Regrettably, the universities with the highest numbers of minority students in their education programs cannot easily determine the ethnicity

of their students who have taken the tests, since students don't have to indicate their ethnicity.

Of the eight institutions that did provide data, a common response was that the second cycle (1998/1999) or third cycle (1999/2000) likely included students who were taking the tests for the second, third or fourth times. Thus the *same* minority students may be counted in successive test cycles. Most colleges are now tracking their students by looking at the year of program completion which would indicate that the student had passed all three tests.

Because of this dilemma, the scores provided by these eight institutions are useful primarily because they indicate a persistent failure rate among African-American and Hispanic students. A more accurate assessment of minority performance may be to track the number of minority students who were enrolled in teacher education programs in each of the past three years; how many completed their teacher education programs and were approved to begin student teaching; how many dropped out of the programs; and how many applied and were accepted into graduate programs. Once the Massachusetts DOE, in conjunction with its testing contractor, National Evaluation Systems, releases minority pass rates on all test administrations, the colleges and universities will be able to accurately analyze and interpret the data.

Most of the minority students who are taking, and failing, the Massachusetts Educator Certification Tests are highly motivated to become teachers and to work with non-English-dominant students. They are discouraged by the new requirements to pass the MECT to gain certification, and they are discouraged by the numbers of minorities failing the tests. With an increasing need to diversify the Massachusetts public school teaching force, the state, in conjunction with colleges of education, must diversify the means by which they certify all teachers for the classroom.

Over the past 20 years, education scholars including Orfield, Richard Valencia and Gloria Ladson Billings

have cited the need to account for cultural differences in how students learn, interact in groups, respond to content and perform on assessments. Alternative assessment tools such as portfolios, performances and group projects appear to be consistently fairer for minorities and students for whom English is the second language. Many states including Connecticut are now using portfolios and performance assessments to better understand the abilities of beginning teachers. The National Board for Professional Teaching Standards has demonstrated that these kinds of assessments, though time-consuming, are an instructive way to evaluate competency and at the same time help teachers feel valued as professionals.

A variety of performance-based assessments are just as important and relevant, if not more relevant, than a paper and pencil competency test of cognitive and content skills, and these performance assessments should be used to ensure that those who want to enter the teaching profession, and have so much to offer minority and language-diverse students, are allowed to do so. Rather than screening out minorities from the Massachusetts teaching force, the DOE should be looking for ways to ensure that more and more prospective minority and language-diverse teachers are included, even if it has to eliminate its current testing program to do so.

Rona F. Flippo is a professor at Fitchburg State College whose books include "What Do the Experts Say? Helping Children Learn to Read" from Heinemann (1999); "TestWise: Strategies for Success in Taking Tests" from Frank Schaffer Publications (2000); and "Handbook of College Reading and Study Strategy Research" from Erlbaum (2000). Julie G. Canniff is a clinical lecturer in the University of Southern Maine's Extended Teacher Education Program and a recent graduate of the Harvard Graduate School of Education.

LESLEY UNIVERSITY HAS LAUNCHED AN EFFORT TO INCREASE THE NUMBER OF MINORITY TEACHERS IN THE BOSTON AREA.

In the spring, Lesley received a three-year, \$330,000 grant from the Lloyd G. Balfour Foundation of Attleboro, Mass., to provide scholarships, one-on-one mentoring and other services to help students of color complete master's degrees and earn certification as teachers.

The program supports 40 students of color who currently work in urban public school systems in Greater Boston. The students will study part-time at Lesley for two years until they complete their requirements. Students pledge to remain in those urban areas once they complete their studies at Lesley.

The Massachusetts Department of Education has estimated that just 6 percent of Bay State teachers are black or Hispanic, compared with 19 percent of students.



ILLUSTRATION BY JEFF KILBURN OF THE PUBLICATION GROUP.

Boys Club

Women are moving into New England leadership positions, but slowly

TERRI TENENBAUM

The 14-member Yale School of Management panel set up recently to explore the New Economy includes 13 men and one woman, revealing a striking similarity between the New Economy and the Old Economy—namely that a combination of gender stereotypes, child-rearing responsibilities and entrenched old boy networks continue to close women out of New England leadership positions.

But let's not pick on Yale. Consider a few of the region's technology-oriented business boards. The 40-member board of the Massachusetts High Technology Council includes just one woman. The 26-member board of the New Hampshire High Tech Council has two. The 23-member Connecticut Technology Council is something of an overachiever with five women members, including the chair and president.

Flip through the *Boston Business Journal's* weekly lists of the chief executives of the top companies in various Massachusetts industries and you will find that women are CEOs of only one of the top 25 manufacturers, one of the top 25 architectural firms, one of the top 25 engineering firms, just three of the 100 largest private

companies and three of the 100 fastest-growing companies. Only one of the 25 largest Massachusetts newspapers has a female publisher (though six have female editors) and only one woman ranks among the 100 highest-paid CEOs in Massachusetts.

No wonder 97 percent of women surveyed at the recent Leadership Conference for Women in Boston concurred that the restraints of the Old Economy have not been removed and that gender remains an obstacle to advancement.

Even in industries presumed to be more fertile ground for women, the *BBJ* data tell a story of underrepresentation: women serve as CEOs of just three of the top 25 nonprofit organizations, three of the top 25 advertising agencies, eight of the top 25 public

relations firms and nine of the top 25 travel agencies.

Not all the news is so grim. A recent United Nations report ranks the United States No. 1 for women's share in decision-making jobs in management and the economy. And New England is home to more than half a million women-owned businesses. Still, whatever the historical and cultural reasons behind gender inequity, women lag behind men in leadership positions in business, education and government. The Jeanne Shaheens are rare in New England politics. So are the Judith Ramaleys among New England college presidents and the Cathy Minehans among the region's economic leaders.

Campus inequity

The record of gender inequity in higher education is particularly disturbing considering the prominence of New England colleges and universities and the dominance of women among college students. Women have represented the majority of U.S. college students since 1979, and New



Massachusetts Higher Education Chancellor
Judith I. Gill.

England's 450,000 female college students account for 56 percent of the region's total full- and part-time enrollment. Female enrollment continues to grow faster than male enrollment. The U.S. Education Department projects that by the year 2008, 9.4 million women will attend U.S. colleges, compared with 6.3 million men.

Women earned 63 percent of the associate degrees granted by New England colleges in 1997, 56 percent of bachelor's degrees and 59 percent of master's degrees, according to the most recent data available. The trouble starts at more advanced levels. Women earned 45 percent of first professional degrees in fields such as law and medicine that year and only 38 percent of doctoral degrees. (Women account for just 29 percent of U.S. lawyers and 17 percent of U.S. doctors.)

To be sure, women's share of first professional degrees and doctorates has grown in the past 15 years. In Vermont, for example, only six women or one fifth of all Ph.D. recipients were women in 1980. By 1997, 26 women received Ph.D.s, accounting for half the total.

Women are also underrepresented on college faculties and in key campus administrative posts. Men hold 59 percent of college faculty positions across the United States, and an estimated 72 percent of full-time male faculty have tenure compared with just over 50 percent of full-time female faculty.

The faculty imbalance is especially striking in science fields and at selective institutions. For example, just 25 percent of medical school faculty

What Share of College Presidents are Women?

	1979	1992	2000
New England	14%	20%	28%
United States	5%	12%	20%

Source: American Council on Education

nationally are women. At Harvard Medical School, women accounted for 50 percent of the class of 1999, but only 10 percent of full-time professors.

The typical college president also is male. Nationally, 20 percent of college presidents are women, up from 5 percent in 1975. In New England, the number of women presidents has roughly doubled from 37 in the late 1970s to 73 today—or 28 percent of the total

One way to increase the number of female college presidents is to increase female representation on presidential search committees. And indeed, the nine-member committee charged with finding a new Harvard president includes two women, one of whom is Sharon Gagnon, president of the Harvard Board of Overseers. The 17-member search committee at Brown includes five women, two of whom serve as *ex officio* members—Vice Chancellor Marie Langlois and Secretary Wendy Strothman.

Even at the K-12 level, women have not achieved parity. Nationally, women earned 75 percent of education degrees at all levels and account for 73 percent of U.S. elementary and secondary school teachers. Still, only 35 percent of U.S. principals and 12 percent of school superintendents are women.

Business women

Thanks to better education opportunities, women now fill two-thirds of all new jobs, but still report mainly to men. Women's share as executives, managers and administrative workers grew from 39 percent in 1988 to 44 percent in 1996, but they account for less than 5 percent of top executive positions.

Of the 100 members of the Commonwealth Institute, a forum for female CEOs in Boston, 22 lead high-tech companies, while 13 head marketing and communications firms and

nine run retail businesses.

Yet 70 percent of the 50 public New England technology companies surveyed by *Mass High Tech* do not have any women on their board of directors. Nationally, women held 11 percent of board seats in *Fortune 500* companies and 12 percent were corporate officers in 1999. "Property and money are still in the hands of men," says Vermont state Rep. Alice Miller, "and that is where the power lies."

This problem further manifests itself on the boards of various New England councils and trade associations. For instance, on the Massachusetts Interactive Media Council, seven of 36 board members are women (though the entire five-person staff is female). Also, women represent only 10 percent of the board members at the New England Council, the nation's oldest regional business group, though a woman chair and vice chair may change that.

One barrier to women's business achievement, according to Kathryn Hunt, editor of the University of Maine's *Maine Policy Review*, is that the model of a leader was designed by a man before women entered the working world. And women's leadership qualities often differ from men's, and therefore from what people expect. As more women become model leaders, and gain the history of success that their male counterparts have, this barrier will fall.

Lucretia P. Hunter noted in 1932: "Not only have women been successful in entering fields in which men are supposed to have a more natural aptitude, but they have created entirely new businesses." Indeed, women are starting businesses at twice the rate of men, according to the U.S. Small Business Administration. Furthermore, 38 percent of all firms in the United States are women-owned, accounting



Federal Reserve Bank of Boston
President **Cathy E. Minehan**.

for 9 million businesses, an increase of more than 2 million since 1992, according to the National Foundation for Women Business Owners. In Massachusetts, where Granite City Electrical Supply Co. of Quincy was founded in 1923 as one of the nation's first women-owned businesses, the foundation now counts more than 215,000 firms headed by women.

One factor easing the step into the CEO's shoes before women start families is that "longevity is no longer key in the New Economy," says New Hampshire radio talk show host Deborah "Arnie" Arnesen, a former state representative and gubernatorial candidate.

Madame Governor

Arnesen warns, "there's no New Economy in politics." Eighty years after Jeanette Rankin became the first woman in the U.S. House of Representatives, just 56 women serve in the 435-member House and nine in the 100-member U.S. Senate.

Two of the 56 women in the House today are New Englanders: Rosa DeLauro and Nancy Johnson, both of Connecticut. Two of the nine women in the U.S. Senate are also New Englanders: Susan Collins and Olympia Snowe, both of Maine.

Women in key state government posts in New England include: New Hampshire Gov. Jeanne Shaheen (one of three female governors nationally); Vermont Secretary of State Deborah Markowitz; Massachusetts Lt. Gov. Jane Swift and State Treasurer Shannon O'Brien; and Connecticut

What Share of State Legislators are Women?

	1979	1999	U.S. Rank (1999)
Connecticut	20%	29%	9
Maine	18%	28%	12
Massachusetts	8%	26%	14
New Hampshire	27%	32%	6
Rhode Island	9%	25%	19
Vermont	19%	32%	7
New England	19%	28%	
United States	10%	23%	

Source: Center for American Women and Politics, Rutgers University

Lt. Gov. M. Jodi Rell, Secretary of State Susan Bysiewicz, State Treasurer Denise Nappier and State Comptroller Nancy Wyman.

Women hold 28 percent of state legislative seats in New England, compared with 23 percent nationally, according to the Center for American Women and Politics at Rutgers University. The number of women in the region's state legislatures has grown by 150 percent since 1979. And New Hampshire and Vermont, which are among just six states that have never sent a woman to the U.S. Congress, rank No. 6 and No. 7, respectively, in electing women to the state legislature.

Moreover, women account for 25 percent of senate presidents, house speakers and majority and minority leaders in the region's state legislatures, compared with 11 percent nationally. Connecticut, New Hampshire and Maine rank Nos. 2, 3 and 4, respectively, with women occupying more than 30 percent of legislative leadership posts. Women account for 30 percent of committee chairs in New England legislatures, compared with 20 percent nationally. Maine and Vermont rank Nos. 3 and 4, respectively by this measure. Connecticut ranks No. 6, while Rhode Island, Massachusetts and New Hampshire rank Nos. 12, 13 and 14, respectively.

Governing magazine's annual *State and Local Sourcebook*, lists the major decision-makers in every state. Two of the region's six chief administrative officers are women, according to the directory, as well as two state personnel officials, two state performance

measurement officials, two technology officials, two social service officials, two environmental officials, five health officials and five of 17 finance officers. Just one state economic development leader is a woman and one K-12 education commissioner. But none of the state attorney generals, state corrections officials or public works officials are women.

About 200, or 19 percent, of the nation's 1,101 city mayors are women. But while women have won New England mayoral contests from Greenwich, Conn., to Lewiston, Maine, they lead less than 2 percent of New England cities with populations greater than 30,000, according to the U.S. Conference of Mayors. And just one of the seven New England cities surveyed by *Governing*—Burlington, Vt.—has a woman police chief.

Beyond business and government, women fare only slightly better in the so-called third sector, or civil society. Women represent 33 percent of foundation board members, according to the Council on Foundations. In contrast, more than half of the nation's 667 foundation CEOs (and 92 percent of their support staff) are women. Among corporate foundations, 61 of 80 CEOs, or 76 percent, are women.

Just 8 percent of publishers and 10 percent of editors of the 90 daily newspapers in New England are women. No Roman Catholic, Latter-day Saints or Seventh-day Adventist priests are women. No Orthodox rabbis either. Look at leaders in almost any New England sector and you will find mostly men.



Nellie Mae Foundation President
Blenda Wilson.

Past stereotypes

Despite strides to reduce discrimination in the workplace, stereotypes still prevail. "Gender discrimination now is so deeply embedded in organizational life as to be virtually indiscernible, write Debra Meyerson and Joyce Fletcher in the January 2000 *Harvard Business Review*. "It's not the ceiling that's holding women back, it's the whole structure of the organizations in which we work." Since mothers tend to assume a greater portion of responsibility for child care, they are given fewer opportunities and less flexibility than men to advance in their careers. Furthermore, employers begrudge working mothers promotions and challenging assignments, concerned that they will leave the workplace, at least part-time, to take care of their family.

Girls as young as age six still eliminate certain careers because they do

not fit in with their proper "sextype." As a result, women make up 0.6 percent of auto mechanics, 0.9 percent of plumbers and 1 percent of electricians, but 99 percent of secretaries, 93 percent of registered nurses and 84 percent of elementary school teachers. Even in occupations with more gender balance, the scales tip in favor of men in high level, executive positions.

One recommendation to help women further their careers is to find a solid mentor. During a career's early stages, many women receive inadequate mentoring and support, discouraging them from a continued pursuit of that career. Additionally, women must possess several different qualities to move forward, such as variety of experiences, determination, capability for the job, confidence, problem-solving skills and critical-thinking. They should not internalize failure, but rather see it as an "opportunity to transition to the next moment," says Arnesen. Networking with other women who are at the top is also key. Continued pressure will help women pursue their goals, despite the stereotypes, or else "people will fall back to doing what is easy and familiar—looking to men to do the job," warns Deborah Hirsch, director of the New England Resource Center for Higher Education at the University of Massachusetts Boston.

The relatively few women in New England business leadership are turned to repeatedly to demonstrate

gender diversity on boards. So the woman executive vice president of Boston-based Frontier Capital Management Co., for example, is chair of the University of Massachusetts system trustees, chair of Zoo New England, director of the Commonwealth Institute and overseer of the Boston Center for Adult Education. To prevent this "recycling," Arnesen urges women who have made it to the top to recommend other women for spots on boards, rather than accept more appointments themselves.

Arnesen concludes that the female majority on New England college campuses will create a shift over the coming decade that will bring unprecedented numbers of women into leadership positions. Previously most women could not aspire to high-level occupations because they did not have the necessary educational background. Now they have the skills, the talent, the knowledge to perform any job as well as a man.

Hirsch predicts that since "the pool [of talented people] is aging and becoming exhausted, people [will] reach broadly and think deeply to find women of talent." And when they do, they will find a wealth of intellect and ability.

Terri Tenenbaum served as the summer 2000 NEBHE/CONNECTION intern. She graduates from Boston University in January 2001.

• More than three-quarters of female medical school faculty nationwide believe gender discrimination exists in the workplace, and more than half of those women think it has hindered their professional advancement, according to a study published in June by the Boston University School of Medicine and Massachusetts General Hospital. By contrast, one of the study's authors noted, male medical school faculty see their advancement taking place in a "gender-free meritocracy." ...A variety of initiatives across New England aim to prepare women for careers in which they have been underrepresented. In April, Florence S. Weil established two full-tuition scholarships at Vermont Technical College for women who enroll in either civil engineering technology, computer engineering technology, electrical and electronics engineering technology, mechanical engineering technology or automotive technology. ... Ninety-six percent of men and women said both parents should share equally in raising children, and 68 percent said one parent should stay home during early childhood, according to a survey by the Radcliffe Public Policy Center. ... In 1972, Congress passed Title IX of the Higher Education Act, which prohibits discrimination of any kind in an educational program or activity, including athletics. Since then, female participation in intercollegiate athletics has soared by 400 percent. ...The 48-member New England Board of Higher Education includes 16 women, including the board's second female chair, Nancy I. Chard, who also chairs the Senate Education Committee of the Vermont Legislature. Brown University professor and former Rhode Island Higher Education Commissioner Eleanor M. McMahon served as the board's first woman chair in 1996. ...Women account for under 20 percent of New England school superintendents. Six of New Hampshire's 77 superintendents are women, 23 of 157 in Maine, 32 of 158 in Connecticut, 58 of 279 in Massachusetts, eight of 35 in Rhode Island, and 17 of 65 in Vermont.

What do Women Want? Equity

CHRISTINA L. BAKER

In August 1994, 16 of 17 tenured women science faculty at the Massachusetts Institute of Technology sent a proposal to their dean urging improvements in the status of women faculty in the School of Science.

In response to their request, Dean Bob Birgeneau established a committee to review space and resource allocations, salaries and teaching assignments for women faculty. The committee, composed of one tenured woman from five of the six departments in the School of Science plus three senior male faculty who had experience as department heads, set out to analyze the status and equitable treatment of women faculty.

The results were startling. The committee found that most senior women faculty were “invisible,” excluded from a voice in their departments and from positions of any real power. Their salaries were much lower than salaries of male faculty; their labs and offices were smaller; and so were their research stipends. This marginalization had occurred as the women progressed through their careers at MIT.

Upon receiving the committee’s interim report in the summer of 1995, Birgeneau moved quickly to remedy the inequities of space, resources, equipment and salaries. He worked vigorously with department heads to include women in significant departmental activities, and to identify and recruit exceptional women at all faculty ranks. These actions have dramatically improved morale and the professional and personal lives of many senior women faculty. One described the outcome as “more progress for women faculty at MIT in one year than was accomplished in the previous decade.” By 1999, the number of tenured women faculty in the School of Science had increased by a remarkable 40 percent.

More recently, the University of Rhode Island settled a faculty grievance brought by three women faculty members who complained that they were assigned heavier teaching loads than male colleagues, denied laboratory facilities and equipment that they had been promised and subjected to demeaning actions and statements. Upon reaching a settlement in March 2000, URI publicly acknowledged that its engineering school—with 60 male and two female faculty—was hostile to women. URI President Robert Carothers pledged to “take affirmative steps to train personnel to work actively toward gender equity and to make the distribution of work loads, lab space, equipment and institutional research funding equitable.” URI also promised to increase female representation on the engineering faculty and to contribute \$25,000 (matched by the faculty union) to a faculty development fund for women.

The “glass ceiling”—that historical barrier to women’s advancement—is beginning to crack.

Until 1920, American women were not allowed to vote; today women constitute the majority of the electorate. At one time, women could not open their own bank accounts; today they make 80 percent of all consumer purchasing decisions (though not investment decisions). To the visionary group of women who gathered at Seneca Falls in 1848, owning one’s own business or leading a major corporation seemed unimaginable. Now, 7.1 million women hold full-time executive, administrative, or managerial positions—a 29 percent increase since 1993. Businesses owned

by women represent the fastest growing segment of our economy.

Inequities for women faculty aside, the gains for female students in higher education at the lower levels are significant. For the better part of two centuries, popular thought in America held that higher education would render females unfit as wives and mothers. Dr. Edward Clark, a Harvard Medical School professor, insisted in 1883 that studying would impair the “female apparatus.” As recently as 1956, presidential candidate Adlai Stevenson prodded Smith College graduates to forego the workforce and take on “the humble role of housewife” with pride, adding, “I can wish you no better vocation than that.”

Nonetheless, between 1980 and 1997, the percentage of American women with four or more years of college increased from 14 percent to 22 percent. Today, females make up a majority of college students, although certain graduate fields remain almost exclusively male. New England, which once refused to admit women into its all-male institutions and instead established separate female colleges, now boasts an average of 21 percent of women having graduated from college. And Massachusetts is second in the nation with 24 percent of its women holding college or graduate degrees. Even Maine, with New England’s lowest percentage of women graduates—17 percent—ranks in the middle of the pack nationally.

Despite all the advances, economic equity for women remains elusive. A wage gap persists. Anglo-American women earn only 74 cents for every \$1 men earn doing the same work. The gap for minority women is even wider. African-American women earn 63 cents and Hispanic women earn 56 cents for every \$1 a man earns.

Why this disparity? Part of the gap can be attributed to the fact that men secure high-paying jobs and promotions more easily than women. Some power holders still believe women should not be high-paid professionals. Based on this assumption, they proactively serve as gatekeepers who block women's entry and promotion and deny them an equitable share of resources and power. Again, the higher education workplace is illustrative. Though more than half of college students are women, just one-third of full-time faculty are, and they tend to occupy the lower paid, less prestigious and less secure faculty ranks. Just 51 percent of women professors are tenured versus 72 percent of males, according to the American Association of University Women. At the University of Maine at Augusta, none of the nine female professors earn as much as the average male professor. In fact, all nine of the female professors earn less than two-thirds of the male professors. In addition, 85 percent of the female associate professors earn less than the average male associate professor. Female *associate* professors' salaries are more closely aligned with the average salaries of lower-ranked male *assistant* professors.

In the past, women who complained about gender discrimination were often seen as overly sensitive and their perceptions distorted. The MIT women brought that reality to the fore by exposing a pattern of powerful but unrecognized assumptions and attitudes that work systematically against women faculty even in the face of apparent goodwill. MIT President Charles M. Vest observed, "I have always believed that contemporary gender discrimination within universities is part reality and part perception. True, but I now understand that reality is by far the greater part of the balance."

Subtle, unspoken discrimination against women remains a barrier to women's advancement in the beginning of the 21st century. The few occupations traditionally open to women, such as public school teaching, health care, clerical work and child care, are low-paid. Caregivers for both children and the elderly are

especially vulnerable to low wage scales, and women constitute three-quarters of all caregivers. Women compose an even greater percentage of clerical and secretarial staffs at most universities and earn far less in salaries and benefits than faculty and administrators.

Childbearing and childrearing cost women dearly. Caught in a classic double-bind, women lose financially if they stay home to care for their children or if they go outside the home to work. Today, almost two-thirds of women with children under the age of five are in the workforce, and over three-quarters of women with children ages six to 17 work outside the home. For these families, child care is the third greatest expense after housing and food. (At MIT, the most common concern among younger women faculty was the extraordinary difficulty of combining family and work.)

Because of children, women often delay or interrupt their careers. Many take part-time jobs which normally pay no health benefits. Only 16 percent of part-time workers have health insurance, compared with nearly two-thirds of those working full-time, and women of childbearing age spend 68 percent more than men in out-of-pocket health care costs.

Uneven career patterns render women less than half as likely as men to receive retirement pensions and Social Security benefits. Two-thirds of the 60 million women working outside the home do not have a pension plan. Those who do, receive half as much as men. As a result, nearly 40 percent of women over age 65, compared with 13 percent of men, fall below the poverty line.

Of all American families living in poverty, some 4 million are maintained primarily by women. Ethnic and racial factors weigh heavily in the equation. Whereas white women constitute only 10 percent of America's poor, African-American women make up 29 percent and American Indian women another 29 percent. Hispanic women account for about 24 percent, while Asian-American women account for 13 percent.

These numbers are unacceptable in a nation that considers itself a beacon of equal opportunity. It is especially no longer acceptable to ignore an arrangement where the majority of corporate CEOs and political and education leaders are men and the majority of poor, voiceless people are women and their children. To end this imbalance of power and income distribution, we must champion equal access not only to education, but also to employment and business opportunities. We must demand equal pay for women, pro-rated benefits for part-time and contingent work, Social Security reforms that accurately reflect women's unique role in the home as well as the marketplace, more, better and more affordable day-care facilities and professional development for child-care providers.

The status of women in society is a strong indicator of the democratic well-being of our communities. In our workplaces, communities and nation, we must develop policies and priorities that reflect the changing workforce and enable women to support themselves and their families now and in the future. Women themselves must shape public policy from a position of strength. Their voices should be heard and their needs met if we, as a nation, are to compete in this global economy.

In response to Freud's oft-quoted query, "What do women want?," women today know what they want. Karin Anderson, executive director of the grantmaking Maine Women's Fund, states it succinctly in a recent issue of the *Maine Sunday Telegram*. In addition to safe streets, good schools, and decent health care, women want "to be able to take care of themselves and their families without working two jobs or drifting in and out of the welfare system. They want living wages that support basic needs including housing, child care, transportation and nutritious food. They want to be paid equally for equal work." Women want equity.

Christina L. Baker is a state representative from Maine and Trustee Professor at the University of Maine at Augusta.



Is Big Brother Watching the Wired Campus?

Information technologies undermine the climate of freedom in academia

ALAN R. EARLS

Four years ago, in a dispute that still symbolizes the complex privacy issues facing the academic world, the American Civil Liberties Union (ACLU) faced off with Princeton University officials over a policy barring students and staff from using the Internet for “political purposes.” Princeton officials, according to the ACLU, were advising faculty, staff and students that the school’s nonprofit status barred it from allowing use of the Internet “for political purposes,” particularly in that presidential election year.

The ACLU called this conclusion mistaken, pointing out in a letter that the Internal Revenue Code specifies that only the university itself is barred from political activity—not faculty, staff or students acting independently. In fact, the ACLU said, the Internal Revenue Service had previously held that statements in support of political candidates appearing on the editorial page of a student newspaper would not be considered violations of a university’s 501(c)(3) tax-exempt status.

“Because there exists no legitimate reason for Princeton’s blanket prohi-

bition of political speech over the computer network,” the ACLU letter stated, “it is an unjustified content-based restriction on the free expression rights of students, faculty and staff. Therefore, the policy is not only unworthy of a great university like Princeton, it is in violation of the New Jersey State Constitution.”

At the time, ACLU attorney David Rocah said, “We understand the university’s concerns regarding its tax-exempt status but this is Free Speech 101. Sadly, Princeton is not making the grade.”

In the four years since that controversy, the Internet has only grown more pervasive—touching nearly every aspect of academic life—while a host of other surveillance, security and management technologies have conspired to embrace and control nearly every individual on many campuses.

Indeed, Bentley College Professor Coralee Whitcomb, a member of Computer Professionals for Social Responsibility, says: “If a crime were committed on our campus, involving a student, it would be possible to trace the whereabouts and activities of that student from the time they got up to the time they went to bed.” Whitcomb explains that every transaction and many movements into and out of buildings are controlled and tracked by the magnetic strip on a student ID card. Of course, time spent online can also be identified.

Continuing her litany, Whitcomb notes that the campus is laced with security cameras, and even the ATM

**Universities lag behind the private sector
in developing privacy policies for their Websites,
despite the fact they often collect large amounts of personal information
via online applications and other means.**

provides detailed information on the transactions it supports. "I was shocked to find that when faculty or staff use a key card to enter a building, their picture pops up on a screen in the security office," she adds.

Not all these developments are negative, Whitcomb admits. But they do change the way individuals must think about their relationships with peers and authorities on and off campus—and their level of autonomy.

Then there is the comparatively prosaic matter of the security and privacy of individual information. "There is always a risk when there is information on an intranet—a greater risk than when paper documents are kept in a locked office," Whitcomb says.

Mary J. Culnan, the Slade Professor of Management and Information Technology at Bentley, has similar concerns, hers stemming from earlier experiences at Georgetown University, where she led the creation of a landmark online privacy study underwritten by the Federal Trade Commission.

"When compared to the private sector, there is a lot more workplace privacy [in academia]," says Culnan. "Policies exist for acceptable use but there is not the surveillance of Web surfing and email that appears to take place increasingly in the private sector."

Conversely, she notes, one area where universities seem to lag behind the private sector is that they have not developed privacy policies for their Websites, despite the fact they often collect large amounts of personal information (via online applications) and other means.

"I suspect if someone did a survey of .edu Websites using the FTC's standards, the universities would not come out as well as the private sector," says Culnan. "I don't think this is because colleges and universities are against privacy," she adds, but

"because so many people are involved in policy decisions, the wheels turn slowly or colleges and universities haven't gotten the message that this is important."

Roy Hall, the chief information officer at Framingham State College, agrees that the approach to privacy issues at his institution and others is ad hoc and informal.

Hall says Framingham has an acceptable use policy that prohibits felonious activity, plagiarism and running a private business with the school's resources. There is also a less formal prohibition against using an unfair share of "bandwidth" for any one activity. "Everyone is pretty much assumed to be a good doobie," he says.

Hall says that means the institution has no pornography filters (common in the business world). Indeed, he says, "if a faculty member was working on something that involved pornographic elements which might offend some, we would have no problem as long as it wasn't on the front page of the Website," explains Hall.

"On the few occasions we have had to do something like that we have just advised the individual student that they are out of bounds," he says. "Everyone understands the policy, it is elastic but if something is repetitive and outrageous we can respond."

Hall says security on Framingham's network is "enough to keep honest people honest."

So might concerns about a mortar-board-topped Big Brother be overblown?

University of Pennsylvania law Professor Anita Allen-Castellito thinks so. She recommends putting the privacy equation in perspective. "The Internet helps academic freedom more than hinders it," she says, "by creating avenues for more effective, potentially global communications among intellectuals; [and] by making political organizing more efficient and

potentially more effective."

That universities control networks and email is an issue, she admits, because "some schools might decide to monitor email more closely than they ought." As an example, she cites the instance of the dean of Harvard's Divinity School who was forced to resign in 1998 after a university computer technician discovered and disclosed that the dean had downloaded pornography onto a university computer. (Divinity School spokesperson Wendy MacDowell stresses that the original disclosure was serendipitous and not the result of a program of network surveillance.)

Allen-Castellito also warns against Ludditism. Faculty were accountable prior to the Internet, she says. "Being a thorn in the side of the administration; being gay; being an outspoken feminist—all of these could affect appointment and tenure and still do. Technology has simply created new methods of surveillance," she says.

Allen-Castellito says that the solution is for colleges and universities to adopt and conform to privacy policies. And she adds, "faculty and students must be made aware of the potential for technological invasions of privacy."

"Schools should commit themselves to policies that strictly limit access to email and computer files," she says. At UPenn, for example, student government leaders as well as faculty and administrators, played an integral part in the drafting of the university's proposed policy. "Computer files and email should be treated like information stored in locked file drawers in faculty offices and dorm rooms wherever possible, consistent with university responsibility to detect and address employee misconduct," she concludes.

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

Gates Scholarships: Philanthropy and Access to Higher Education

JANE SJOGREN

As the gap between rich and poor grows, due partly to differences in educational attainment, a new breed of millionaires popping up across the American landscape may target their philanthropy toward access to higher education. But will their largesse make much difference?

This past April, I spent four days with about 70 other people at a conference center in rural northern Virginia reviewing applications for the first round of the Gates Millennium Scholarships.

Last year, the Bill & Melinda Gates Foundation pledged \$1 billion over 20 years to provide financial assistance to minority students in college and graduate school. To be eligible, scholars must: be African-American, American Indian/Alaska Native, Asian Pacific Islander or Hispanic citizens or permanent residents of the United States; have attained a cumulative grade point average of 3.3; have enrolled or been accepted as full-time undergraduates at an accredited college for the 2000-2001 academic year or as graduate students in mathematics, science, engineering, education or library science; have significant financial need; and have demonstrated leadership through participation in community service or other extracurricular activities.

The objective of this enterprise is not only to help minority students at U.S. colleges and universities reach their full potential in an increasingly diverse society, but also to help develop leaders from the ranks of minority students. Philanthropy is not easy to do well. And the more money involved, the more difficult it becomes. While \$1 billion over 20 years is not a large share of the foundation's assets, it is a lot of money.

The Gates Millennium Scholarship Program has the potential to do much good, but one wonders how much it can really accomplish in terms of broadening access to higher education.

The foundation appointed the United Negro College Fund (UNCF) to administer the program, thereby setting both tone and priorities. With assistance from the American Association of Collegiate Registrars and Admissions Officers (AACRAO), the UNCF began this sizable endeavor last winter. The first scholarships were awarded on May 1. (At the Gates's request, the Millennium Scholarships were distributed among students in all levels of postsecondary education during this inaugural year in an effort to realize the effects of the program sooner than waiting for a cohort to finish. After this year, they will go to applicants entering college.)

Distributing funds

By the time application reviewers arrived at the Virginia conference center, the UNCF and AACRAO had set up a large database containing the complete applications of the 20,000 high school and college students (out of 50,000 total applicants) who were eligible for scholarships and designed a system in which every application was randomly assigned to two independent readers for evaluation.

We spent the four days and most evenings in a single large room containing banks of computers. The first

day we were trained in how to read and evaluate the applications (as were subsequent waves of readers in Denver and San Francisco that same week). We were taught how to search each applicant's materials for an interesting and enlightened combination of cognitive skills and non-cognitive student characteristics not revealed by tools such as test scores and grades. The basis of this approach is the research of William Sedlacek and others on what personal qualities are related to a student's ability to succeed in college. Thus, we found ourselves looking for evidence of a student's ability to self-assess or to reach out for support from others, for example, rather than for the more traditional criteria often used by admissions staff. (We were asked to leave the specifics of the evaluation forms and the forms themselves at the site only.)

Once everyone got working, the room was quiet, save for the occasional short discussion with a colleague at a neighboring terminal or clarification questions for the staff. It was absorbing work.

Readers came from all over the country, even from as far as Hawaii and American Samoa. My demographic characteristics (white, female, middle-age) clearly put me among the outliers (except, perhaps, for the middle-age). We came from all kinds of institutions, prestigious and not-so-prestigious, large, small, and mostly somewhere in between. We were academics, administrators, researchers, public sector employees, adults with and without agendas, parents, mentors and citizens. I don't think that a single one of us got through those days without an occasional involuntary intake of breath at what we read.

Every applicant had a story to tell, and sometimes the stories were stunning.

A particularly thoughtful aspect of these scholarships, which now have been awarded to 4,000 students for the 2000-2001 academic year, is that they are structured so they do not replace federal, state or institutional aid except for loans. The recipients will continue to receive financial assistance from the foundation until they finish their formal education, even through graduate school. This means the Gates Scholars can pursue as much postsecondary education as they choose and complete their education without debt.

I came away from this intense experience both cheered and puzzled. I felt cheered in some fundamental way because reading the applications and seeing those young people in an oddly intimate context left me with a more immediate and real confidence in the breadth and depth of the many varied and wonderful young minority people who are part of our national community. They are a rich and wonderful resource for our common future. But I am still puzzled by why we are left trying to realize this through a philanthropic base that is by definition idiosyncratic and based on extremes of wealth. Is this the best way for us as a society to accomplish what this program seeks to do?

Indeed, what is the relationship between access to higher education and philanthropy? And what should it be? Can we, as a society, look to private gestures of largesse to help young people, especially the disproportionately large numbers who are minority and/or the first generation to consider college but for whom the expenses of college and beyond are daunting?

U.S. higher education received \$20.4 billion in private philanthropic support in 1999—about 9 percent of the \$190 billion given to all causes. This sounds like a lot of money, and it is. But consider the context. Philanthropic support accounts for under 10 percent of what is spent in higher education. And only a very small proportion of that goes to students in the form of financial assistance for the personal expenses of a college education and beyond.

Data from the New York City-based Council for Aid to Education give some

indication of how few of the philanthropic dollars contributed to higher education find their way to students in the form of financial aid. More than half of donations to colleges and universities go directly to capital accounts for physical facilities or for building endowments. About 35 percent of donation dollars are earmarked for restricted endowments, which generate roughly 5 percent to 15 percent in annual returns. An estimated 34 percent of that endowment *income* (not the principal) is spent on student financial aid. Additional funds for financial aid may come from donations for operating expenses, but their impact is difficult to estimate because the funds are spent idiosyncratically based on the preferences of individual institutions. And what operating funds are used for financial aid are often geared to students who have particular qualities such as academic prowess, athletic talents, minority status as well as financial need.

Considering the intricacies of endowment management and the vagaries of operating budgets, it would not be unreasonable to suggest that only about 5-8 cents of every \$1 given to higher education goes toward financial aid.

A college degree has become a prerequisite for social and economic mobility, particularly for members of minority groups, and enrollment of minority students is projected to increase. But college participation among these traditionally underserved students will actually decrease in proportion to their populations.

Can surging philanthropy make a difference? Yes, but only for a relatively small group of individual students, much as it has in the past. The Gates Millennium Scholarship Program is visible because it is so large relative to other individual philanthropic initiatives. Indeed, it is the largest single private donation to higher education in U.S. history by a factor of three and one of only two among the 20 largest donations to higher education to be earmarked for scholarships. (The other is restricted to students at a single institution.) But even the Gates program's impact is hardly noticeable in the broader context of the \$64 billion in federal, state and institutional stu-

dent aid in 1998-99 (three-quarters of the total being federal dollars, and three-quarters of that coming in the form of loans).

Is there enough philanthropic support to take pressure off public sources of aid funding? Not in a systematic way. Even if institutional aid—which is often awarded to attract certain types of students such as scholars or athletes rather than based on financial need—is counted as philanthropy, philanthropic donations account for less than \$1 out of every \$5 received by students, and they tend to be generally limited to the very small proportion of colleges and universities that have sizable endowments relative to their numbers of students.

So while there may be cases in which the availability of institutional and philanthropic funds for financial support of need-qualified students affected the amount and composition of individual student aid packages at particular institutions, the idiosyncrasies of both institutional and outside philanthropic support for students dominate the distribution of these forms of aid so that there is no real impact of these funds on public (state and federal) student financial assistance. The number of these cases and the amount of aid are so small relative to the larger picture that they have a negligible impact on access to higher education overall.

I hope the Gates program will be effective in helping more minority students move into and through a postsecondary education. This particular philanthropic effort is being thoughtfully and carefully done. But private philanthropy is still private and thus subject to the tastes, preferences, interests and beliefs of the individual donors. Our society is diverse and our philanthropy reflects that. But even if giving expands dramatically, there is no reason to think that philanthropy can be counted upon to express and support those fundamental social goals, that reflect our collective ideals and well-being. Even Bill Gates cannot meet the financial needs of most young minority students and our collective need for those young people to flourish.

Jane Sjogren is a professor at Johnson & Wales University.

New England's Nonprofit Sector Searches for a Regional Voice

MELVIN H. BERNSTEIN

New England lost one of its most ardent voices for the emerging nonprofit sector when in May the six-year-old *New England Nonprofit Quarterly* dropped both the “New England” part of its name and its regional focus in search of nationwide readers and ad dollars.

With founding editor David Garvey at its helm, the quarterly had established itself as a lively regional forum to address the tough issues confronting the fragmented nonprofit sector, often urging nonprofits and foundations to build stronger links to higher education in the region's six states.

The metamorphosis of the *New England Nonprofit Quarterly* into a national magazine has not gone unnoticed. George McCully, trustee of the Ellis L. Phillips Foundation and author of the influential *Catalogue for Philanthropy*, believes the quarterly's abandonment of its New England orientation creates a “vacuum” at a crucial time for the future of philanthropy in the region. McCully underscores the importance of “having a regional periodical covering strategic issues in philanthropy during a period of significant transformation.”

Ironically, the quarterly is pursuing its national ambition just as New England's nonprofit sector and foundation community seem ready to embrace *regionalism*. The 30-year-old Associated Grantmakers of Massachusetts recently dropped “Massachusetts” from its official name and began focusing more on the broader nonprofit constituency of the six-state region. Meanwhile, with funding from the Washington-based coalition of foundations called New Ventures in Philanthropy, the Giving New England initiative is promoting a series of philanthropic organizational projects in the five states of Maine, Massachusetts, New Hampshire, Rhode Island and Vermont. (Connecticut, through its Council on Philanthropy, has its own giving project.) These New England

initiatives augur well for improving the philanthropic climate in the region, but it will take some time to see results.

To be sure, the rapid emergence of the nonprofit sector as a major force in society and the economy is not just a New England phenomenon. Nationally, 1.2 million tax-exempt nonprofit organizations are registered with the Internal Revenue Service, according to the latest data available. The assets of those nonprofits reached a total of \$1 trillion for the first time in 1995. And annual revenue of the nonprofits more than tripled during the 20-year period from 1975 to 1995—a growth rate nearly three times that of the national economy during the same period.

The emergence of fast-growing nonprofit sectors in the economies of nations has become a worldwide phenomenon. David Borenstein writes in the *New York Times* that the number of registered nonprofit organizations in the Philippines, for example, grew from 18,000 in 1989 to 58,000 in 1996. Slovakia, too, had only a few such citizen-based organizations in the 1980s; today, it has more than 10,000. This burst of activities in recent years has led the Johns Hopkins Institute for Policy Studies to launch a comparative study to chart the size and scope of nonprofit organizations in 22 nations across the globe.

New England, meanwhile, has a long and robust history of creating and supporting a diverse array of productive nonprofit organizations to address educational, health, cultural and social needs. Higher education itself has been at the forefront of innovations in the nonprofit arena for four centuries. Harvard College, for example, became America's first nonprofit

organization when it was chartered in 1636. Yale University, long a citadel of original nonprofit thought, created the first university professorship on philanthropy in 1914, and in 1977 established the first scholarly center in the country to sponsor basic research on the nonprofit field.

The regional tradition of undertaking creative nonprofit initiatives to address society's emerging needs continues with the new College of Citizenship and Public Service at Tufts University. The Tufts enterprise, launched earlier this year, is a pioneering effort to educate students about the importance of “giving back” to society as a sort of *quid pro quo* for the unparalleled standard of living, economic opportunity and individual freedom they enjoy. The “giving back” takes the form of personal service contributed to public service organizations in need of professional help. The new college represents a unique commitment by Tufts (written into its official mission statement) to make such public service a fundamental component of a sound college education.

The full range of distinguished New England nonprofit organizations goes far beyond colleges and universities. People around the globe know of Boston's Museum of Fine Arts, the Boston Symphony Orchestra and Massachusetts General Hospital, just to name a few of the exceptional nonprofit institutions located in New England.

Indeed, the presence of an estimated 50,000 nonprofit organizations gives the region a special identity as suggested by the following findings:

- With only 5 percent of the U.S. population, New England is home to nearly 8 percent of the nation's nonprofit organizations and 11 percent of the nation's nonprofit assets.
- All six New England states rank in the top 15 nationally—and Vermont ranks first—in share of the workforce attributed to nonprofit organizations.

- New England's nonprofit sector accounts for an estimated 17 percent of the entire regional economy—nearly twice the proportion represented by nonprofits nationally.

Coinciding with the unprecedented growth of the nonprofit sector, a boom is underway in the creation of nonprofit management programs at colleges and universities. The first such educational efforts appeared in the early 1980s, increasing gradually to 17 by the end of the decade. After 1990, as the nonprofit sector began to emerge as a major partner with business and government in creating proactive ways of responding to pressing social needs, the number of university programs began to take off, soaring fivefold to 91 by the year 2000.

Nonprofit organizations have played a vital role in improving the quality of life in New England's towns and cities since the colonies were first settled. But the sector's recent emergence and explosive growth suggest the importance of having a regional journal provide a forum to air critical issues and to report on sector performance. The *New England Nonprofit Quarterly* had started to fill that role. What it did for New England that nobody else is doing was to provide a focal point for new ideas and to act as a catalyst for change.

In the absence of the *New England Nonprofit Quarterly*, any number of the region's public and private higher education institutions may have the resources and expertise to support a regional journal covering the nonprofit sector. It should not be overlooked that colleges and universities are themselves nonprofit creatures, receiving benefits made possible by Section 501(c)(3) of the Internal Revenue Code. After all, higher education's leaders are coming around to the notion that students should be taught to give back to their communities. Higher education, a notable beneficiary of society's largesse in the form of generous tax exemptions and tax-deductible gifts, can help steer the fledgling nonprofit sector in the right direction by practicing what it preaches.

Melvin H. Bernstein is a senior fellow at the New England Board of Higher Education

BOOKS

Two on Race and Higher Education

Andrew G. De Rocco

Access Denied (Race, Ethnicity, and the Scientific Enterprise), George Campbell Jr., Ronni Denes and Catherine Morrison, Eds., Oxford University Press, 2000; \$65

Affirmative Action and the University (Race, Ethnicity, and Gender in Higher Education Employment) by Kul B. Rai and John W. Critzer, University of Nebraska Press, 2000; \$45

In the decades following the G.I. Bill, American higher education has grown from an enterprise serving a modest proportion of secondary school graduates to one more representative of the nation's population as a whole, encompassing women and men of all ages, all stages of preparation, varied interests and objectives and widely varying means. This growth has brought stresses, not the least of which have been to adapt institutions to their increasingly inclusive student bodies and to reflect these changes in their faculties and leadership.

Though drawn from a 1995 conference organized by the National Action Council for Minorities in Engineering, *Access Denied* offers a timely and relevant examination of access as it obtains for the natural sciences, mathematics and engineering. Following an account of our likely demographic future, extended chapters focus first on

early education, moving through secondary school, the university years and concluding with early career preparation both within the academy and industry.

Each chapter is initiated by a lengthy paper and followed by commentaries that speak to the remaining research issues and, importantly, to the policy implications and options suggested by the evidence. To the credit of the editors, there is a greater



degree of coherence among the presentations than is usual for such compendia. Even so, the style is canted in the direction of professionals, so the lay reader will need persistence to gain all that is available. The bibliographies attending each major paper are extensive, as are the tables, graphs and data.

What stands out? We are clearly becoming a more heterogeneous society. But within our constituent cultures, patterns of opportunity and expectations differ, even between

women and men. Moreover, the effect of social/economic class remains an important variable in the mix of drivers for educational access and persistence.

Additionally, University of California Irvine education scholar Joan S. Bissell presents ample evidence of the natural curiosity of children as “proto-scientists.” But alas, this curiosity peaks before grade 9, and the middle-school years are marked by attrition of both interest and performance. To compound the problem, initial matriculation in college science, engineering and mathematics programs is followed by significant shifts, notably in engineering, and attrition is especially noticeable among minority students (with the exception of some Asian subgroups) and women.

In a chapter on early preparation for the academy, Shirley Vining Brown, the late senior research scientist at the Educational Testing Service, raises the question, “Why are minority faculty concentrated in the social and behavioral sciences?” and then goes on to discuss at some length the patterns of “field switching” that occur both at the undergraduate level and between the bachelor's level and graduate study.

Here again, ethnicity and gender play significant roles. For example, more minority women switch from the physical sciences than from the life sciences. This raises questions about preparation, institutional accommodation, personal and financial support and, not insignificantly, the persistent absence of “role models”—a theme that is heard at every level. What is

troublesome in studies of this sort is that beyond documenting the conditions that prevail, too little is revealed of the underlying dynamics that compel choices at critical junctions in the unfolding of a scientific or technological personality.

This volume is not characterized by controversy. The authors appear to agree on research methodologies and the schema for their interpretation, though not surprisingly, “more studies are needed” is a constant refrain. Welcome then is the piece by self-described “policy practitioner” Daryl E. Chubin of the National Science Foundation, who limits his call for additional research to that which would get beyond the known circumstances and instead clarify the “origins and prevailing conditions of this underrepresentation.”

Chubin observes critically that, research aside, “residual empirical uncertainty is a constant in *policy analysis* and—like it or not—in *policy-making*.” There follows a proposal for a policy agenda containing six elements that strike me as the most incisive and thoughtful notions advanced for coming to grips with ensuring that accidents of birth and circumstance are ameliorated as impediments for choosing and pursuing a career in natural sciences, mathematics and engineering.

Rai and Crizer’s *Affirmative Action and the University*, meanwhile, is rich with data, sporting 40 appendices as well as 48 tables containing every imaginable comparison of minority/majority participation in faculty and administrative roles. But this volume authored by two Southern Connecticut State University professors is far more than a compendium, as witnessed by its early chapters documenting the history of affirmative action or better stated, efforts at nondiscrimination that culminated in the Civil Rights Act of 1964, in which President Kennedy’s use of the phrase, introduced in his Executive Order 10925 in 1961, came to carry authority as remedial action. While other accounts of the history are available, I know of none so straightforward, thorough and crisply written.

Subsequent chapters examine in detail the conditions of participation for each identified minority, making regular reference to the appended compendia of data. I would have preferred that the data be included in the body of the text, eliminating the constant distraction of flipping to the tables. But this is a minor complaint.

The authors make reference to Hoover Institution Senior Fellow Thomas Sowell’s proposition that affirmative action tends to bestow benefits on the most advantaged candidates within a targeted group, whether minorities or women. Their examination of the evidence in higher education, however, indicates that, by and large, minorities and women occupy what would be characterized as “lower-status” positions, while majority males continue to hold the bulk of the “higher-status” assignments. Presumably, Sowell’s thesis has not prevailed as a condition in higher education.

On the other hand, if one argues that the benefits accrue to those best prepared to take advantage of them, then within the communities of women and minorities, the differences could as easily reveal intellectual and professional accomplishment as an intended or unintended outcome of policy. It is not an easy task to disaggregate the data to seek an alternative account of their assertion that university employment is easily divided into lower- and higher-status groups.

The final two chapters provide a setting for the socioeconomic determinants and political forces that shape employment in higher education and summarize the findings while pointing to still uncharted waters. These chapters, along with the early ones on the history of efforts to end discrimination, constitute an important primer at a time when both the courts and state referenda are striking at affirmative action’s essential purposes and achievements.

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Peanuts

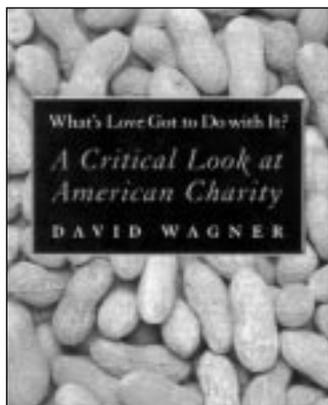
George McCully

What’s Love Got to Do with It? A Critical Look at American Charity, David Wagner, *The New Press*, 2000, \$25

American philanthropy, God knows, needs and has always needed constructive criticism—as does everything else in this democracy. Currently almost every aspect of philanthropy is undergoing critical review as the field is being transformed by Internet technology and the New Economy, and “new and emerging donors” are outspokenly critical of the customs and institutions that characterized philanthropy in the last half of the 20th century. Congress is always more or less nipping at philanthropy’s heels. Even philanthropy’s promoters and defenders—Claude Rosenberg (www.newtithing.org), and myself (Fall/Winter 1999 issue of CONNECTION) among others—are (constructive) critics.

So I eagerly accepted the invitation to review this book, and when I received it, I enjoyed its title and cover (a full-bleed photograph of peanuts). Alas, I must report that this critique of American philanthropy will not change anything, for three reasons: it is not constructive, so it goes nowhere; it is too often intellectually sloppy, so it fails to establish respectable authority; and its argument is grounded in personal belief and antipathy rather than an objectively demonstrable strategic problem, so it is at bottom more about its author than its subject or its readers.

Wagner, a history professor at the University of Southern Maine, prefers (without persuasive argument) government solutions to social problems, and believes as a general proposition that philanthropy, in particular respect for philanthropy, impedes political solutions (citing as argument a similar assertion by Franklin Pierce). Accordingly, he muckrakes—adducing such weaknesses, bad apples, failures and cultural limitations as the racism



of early ventures among Native Americans, moralistic imperialism among human services, William Aramony and United Way, etc.—apparently to denigrate all of philanthropy. In concluding several pages, he proposes, as an alternative, “social movements” and “public social welfare” (as if these do not have their own problems) without bothering to provide substantive or procedural details.

But of course philanthropy—private initiatives for public good, focusing on quality of life—has made far more profound and beneficent contributions to American history than are acknowledged in this small book. Wagner does not come close to mortally wounding his target because he attacks only a few sore-thumb extremities, while ignoring the vital organs: namely, the philanthropic impulse (voluntary public benefaction) and its many successes achieved (needs met) by small charities with dedicated, heroic, underpaid and overworked professional staff. American philanthropy may not have produced social transformation of the kind sought by Wagner, but the great reform movements that have transformed American life—e.g., anti-slavery, private education, religion, the American Revolution itself, feminism, environmentalism, anti-nuclear weapons and human rights—were all philanthropy in action. In that larger context, Wagner’s cavils are small peanuts indeed.

George McCully is a trustee of the Ellis L. Phillips Foundation and the Crossroads Community Foundation and originator of The Catalogue for Philanthropy and the Generosity Index.

Thou Shalt Serve Working Students

The following are University of Phoenix President Jorge Klor de Alva’s “six basic propositions” related to the needs of working students. Klor de Alva, a former professor at Berkeley and Princeton, outlined the propositions in the March/April 2000 issue of Educause magazine and reiterated his points at a May 2000 New England Board of Higher Education conference on distance learning. The University of Phoenix, the nation’s largest for-profit higher education institution, enrolls only working adults.

We believe that the needs of working adult students can be distilled into six basic propositions. Like the Ten Commandments, these are simple to state but difficult to live up to.

1. These students want to complete their education while working full-time. They want all necessary classes to be available in the sequence they need and at times that do not conflict with their work hours. For this to happen, the rule permitting faculty to decide which classes they will teach, and when, must be modified, and that is not an easy matter, especially when it comes to tenured faculty.

2. These students want a curriculum and faculty relevant to the workplace. They want the course content to contribute to their success at work and in their career, and they want a faculty member who knows more than they do about the subject and who knows the subject as it is currently understood and as it is being practiced in fact, not merely in theory. For this to happen, institutions need to revamp the rule allowing faculty to determine the content of their courses. In addition, faculty would have to stay abreast of the most recent knowledge and most up-to-date practices in their field. The dominant trade version of the meaning of “academic freedom” would have to be reconsidered; otherwise there would be no force compelling a tenured professor either to stay up-to-date or teach a particular content in a particular way.

3. These students want a time-efficient education. They want to learn what they need to learn, not what the professor may desire to teach that day; they want to gain their education in a structure that will maximize their learning; and they want to complete their degree in a timely fashion.

4. These students want their education to be cost-effective. They do not want to subsidize what they do not consume (e.g., dorms, student unions, stadiums) and they do not want to pay much overhead.

5. Not surprisingly, these students expect a high level of customer service. They want their needs to be anticipated, immediately addressed and courteously handled. They do not want to wait, stand in line, deal with indifferent bureaucrats or be treated like petitioning intruders rather than valued customers.

6. Lastly, these students want convenience: campuses that are nearby and safe, with well-lit parking lots, and campuses that offer classes and all administrative and student services at the same location.

WORCESTER, MASS. — Becker College and the Massachusetts School of Law launched a six-year law degree program in which students combine their senior year at Becker with their first year of law school. Graduates earn bachelor's degrees in legal studies from Becker and law degrees from the Andover-based Massachusetts School of Law.

WELLESLEY, MASS. — Babson College entered a three-year agreement with the Bright China Management Institute to provide the Beijing-based management education research agency with consulting services and the rights to market Babson-taught programs in entrepreneurship for Chinese managers.

KINGSTON, R.I. — The University of Rhode Island reached agreement with Delaware State University to collaborate on research and education initiatives. URI officials said the arrangement with the historically black university would help recruit minority students to URI graduate programs and help both institutions compete for research funds from federal agencies that give preference to partnerships between minority and predominantly white institutions. In addition, URI fisheries and aquaculture students gain access to Delaware State's important outdoor research fishponds.

RANDOLPH CENTER, VT. — Vermont Technical College announced it would offer new degree programs in e-commerce technology and computer engineering technology, beginning in fall 2000. The two-year, associate degree program in e-commerce technology will prepare students for work in fields such as Website design and administration, graphic design and database management. The "plus-two" bachelor's degree program in computer engineering technology builds on the college's existing two-year curriculum in the field and prepares students to work as advanced computer hardware techni-

cians, programmers or advanced network and system administrators.

BURLINGTON, VT. — Champlain College introduced new certificate, associate and bachelor's degree programs in international business and e-business & commerce. The international business program combines coursework and internships to provide students with skills in international marketing and finance, import-export strategies and cross-cultural business negotiations. The e-business & commerce program teaches students to use Web technology to create interactive relationships with customers and businesses.

PORTLAND, MAINE — The University of New England received authorization from the Maine Board of Education to offer the state's first online degree program for working educators who want to pursue post-master's degree professional credentials. The program, which includes courses in school reform, school/community relations, staff supervision and evaluation and school law, aims to prepare teachers and administrators for educational leadership positions.

CAMBRIDGE, MASS. — Lesley University received \$2.7 million from the National Science Foundation to develop courses leading to an online science education master's degree program for elementary and middle school teachers. The Web-based program will prepare teachers to integrate inquiry-based science learning and Web technologies into the classroom. Lesley will develop the courses in collaboration with TERC, a 35-year-old Cambridge-based educational research firm.

BURLINGTON, VT. — The University of Vermont's College of Education and Social Services was awarded a three-year, \$1 million grant from the U.S. Department of Education to prepare teachers to use new technologies in the classroom. Under the program, UVM faculty will attend professional devel-

opment courses to learn how to develop standards-based, electronic portfolios and to use interactive Websites in which teachers share teaching units. The faculty will model these skills in training undergraduate students and local teachers, who will then incorporate the methods into their classrooms.

MANCHESTER, N.H. — New Hampshire College was awarded a two-year \$300,000 grant by the Ford Foundation to support faculty and student research in community economic development. The college was awarded an additional \$200,000 Ford Foundation grant to support a new Scaling-Up Institute. The three-week training program for community development professionals focuses on how non-governmental organizations can expand their impact without losing the features that make them effective at the local level.

LONGMEADOW, MASS. — Bay Path College won state approval to offer its first graduate degree program, an accelerated master's in communications and information management, beginning in October 2000. The interdisciplinary program aims to prepare graduates for work in areas such as information management, Website design and computer network design. Though Bay Path is a women's college, the master's program will be open to both men and women.

CAMBRIDGE, MASS. — Harvard University established the David T. Kearns Program on Business, Government and Education to explore the corporate role in education reform and the impact of private companies on education. Kearns, the former CEO of Xerox Corp., was deputy secretary of education in the Bush administration. The program will involve faculty from Harvard's Kennedy School of Government as well as the Graduate School of Education.

BURLINGTON, VT. — The University of Vermont received a gift of nearly \$9

million from the estate of the late Genevieve Patrick to support student scholarships and health and environmental research. The largest individual gift in UVM history includes \$4.3 million to provide merit scholarships for Vermont students; \$1.5 million to establish a chair in watershed science and planning; \$1.5 million to establish a chair in nephrology at UVM's College of Medicine; and \$1.5 million for unrestricted purposes. Patrick, who died in April 1999, was the widow of Robert Fleming Patrick, a 1925 UVM graduate who became president of the G.S. Blodgett Co. and chair of Rock of Ages Corp.

AMHERST, MASS. — The University of Massachusetts Amherst was awarded a two-year, \$220,000 grant by the National Science Foundation to support economically disadvantaged undergraduates in math, computer science and engineering. Each year, the NSF Computer Science, Engineering and Mathematics Scholarship will offer \$2,500 scholarships to 40 financially needy UMass juniors and seniors and to 10 first-year students. Upperclassmen in the program will also take a specialized technical writing course to help them develop crucial presentation skills.

FAIRFIELD, CONN. — Fairfield University received \$6 million from Boston venture capitalist William P. Egan to support scholarships and help build a campus athletic center. The 1967 Fairfield graduate's gift is the largest in the university's history. Each year, \$250,000 will be awarded to financially needy incoming freshmen studying economics, English or modern languages.

WALTHAM, MASS. — Brandeis University received \$5 million from the Chase Manhattan Foundation to endow a faculty chair in ethics and provide scholarships for underprivileged students, particularly first-generation college students.

STORRS, CONN. — The University of Connecticut's School of Business Administration received \$2.7 million from Hartford-based Aetna Financial Services and an additional \$1.3 million in state matching funds to endow a faculty chair in financial services and establish a public policy institute dedicated to research on financial issues such as long-term savings, investment and income management. As part of the UConn 2000 program, the Connecticut Legislature agrees to provide \$1 for every \$2 in private gifts to UConn for endowment.

STANDISH, MAINE — An environmental scientist at Saint Joseph's College of Maine was awarded a four-year, \$314,430 grant by the National Science Foundation, the largest faculty grant in the college's history, to study sediment chemistry in Casco Bay. Assistant Professor Mark Green will work with 100 undergraduates to study how seasonal fluctuations in sediment chemistry may be destroying millions of seed clams sown each year by Maine's aquaculture industry. The project will also bring prominent women marine scientists to the campus to lead a seminar and talk with students about science careers.

STORRS, CONN. — University of Connecticut pathologist Richard French and colleagues at the Connecticut Veterinary Diagnostic Laboratory were awarded \$98,000 by the U.S. Environmental Protection Agency and the Connecticut and New York Sea Grant programs to study the health of lobsters in Long Island Sound where a major lobster die-off took place last fall. French also was awarded an additional \$10,000 by New York Sea Grant to study a parasite found in sick lobsters in the sound.

KINGSTON, R.I. — Two University of Rhode Island scientists and a biologist with the Williams College-Mystic Maritime Program were awarded a two-year, \$350,000 grant by the National Science Foundation to study

how nitrogen and carbon affect the groundwater surrounding Rhode Island's coastal salt ponds. The research by URI biologist Barbara Nowicki and natural resources professor Arthur Gold along with Williams biologist James McKenna will inform efforts to protect and restore Rhode Island's fragile coastal zone and help in the design and siting of wastewater systems.

DANVERS, MASS. — North Shore Community College was awarded a three-year, \$247,600 grant by the National Endowment for the Humanities to develop www.hawthorneinsalem.org, a new Website devoted to author Nathaniel Hawthorne and his life in nearby Salem, Mass. The grant allows North Shore to make available on the Web a variety of Hawthorne artifacts, documents, paintings and essays from Salem museums, as well as virtual tours of relevant locations and material from a series of special lectures by Hawthorne scholars. The grant is the largest National Education Projects award made by the endowment this year and the only one to a community college.

BURLINGTON, VT. — The University of Vermont College of Medicine was awarded a four-year, approximately \$8 million grant by the Freeman Foundation to encourage Vermont medical students to practice in Vermont. The grant creates scholarships worth approximately \$10,000 a year for Vermonters and selected out-of-state students who commit to practicing medicine in Vermont and funds programs to place students in rural areas during medical school and recruit physicians to rural areas. Eleven of Vermont's 14 counties fall below federal standards for the ratio of primary care physicians to area residents. And though many UVM medical students graduate with above-average student-loan debt, doctors' salaries in rural Vermont tend to lag behind those in other states.

- Percentage by which average public college tuition in Vermont exceeds average annual child care costs for a 4-year-old at a Burlington, Vt., child care center: 11%
- Number of other states where public college tuition is higher on average than the cost of child care for a 4-year-old at an urban child care center: 0
- Approximate number of annual applicants for the 93 slots in the incoming class at the University of Vermont College of Medicine: 5,000
- Percentage of Greater Boston's 25 largest sports facilities that are owned by municipalities: 20%
- Percentage that are owned by private interests: 24%
- Percentage that are owned by colleges and universities: 56%
- Number of New England higher education institutions that announced plans to change their names from "college" to "university" during the past year: 2
- Number of New England cities that have one or more Sister Cities in foreign countries: 89
- Percentage of high school students who say the United States should not do business with countries that grossly abuse the human rights of their citizens: 57%
- Massachusetts cities and towns as a percentage of all U.S. municipalities that have enacted trade sanctions against selected foreign countries: 27%
- Increase in minority freshman enrollment at the University of Connecticut from fall 1998 to fall 2000: 39%
- Number of points by which average SAT scores have increased among University of Connecticut freshmen during the same period: 24

Sources: 1,2 Children's Defense Fund; 3 University of Vermont; 4,5,6 NEBHE analysis of *Boston Business Journal* data; 7 NEBHE analysis (Lesley College became Lesley University in September 2000; New Hampshire College will become Southern New Hampshire University in July 2001); 8 Southern Growth Policies Board; 9 Brown University; 10 Organization for International Investment; 11,12 University of Connecticut.

The New England Board of Higher Education

NEBHE Minority Student Science and Engineering Network
 Massachusetts Institute of Technology,
 Cambridge, Mass.,
Saturday, Oct. 14, 2000

The Housing Crunch: Campus and Community Perspectives
 Batterymarch Conference Center, Boston, Mass.,
Wednesday, Oct. 25, 2000

Higher Education and New England's Future: Scenarios and Choices
(Invitation Only;
 Cosponsored by the Education Commission of the States and Brown University's Futures Project)
 MIT Endicott House, Dedham, Mass.,
Friday, Dec. 1, 2000

New England's Changing Nonprofit Sector
 Federal Reserve Bank of Boston, Boston, Mass.,
Date to be announced, December 2000

New England's Emerging Populations
 Federal Reserve Bank of Boston, Boston, Mass.,
Friday, Jan. 12, 2001

America's Laboratory? Future of New England R&D
 Federal Reserve Bank of Boston, Boston, Mass.,
Friday, Feb. 23, 2001

Workforce Development: Reaching Out in a Time of Shortage
 Federal Reserve Bank of Boston, Boston, Mass.,
Friday, March 23, 2001

The Art of New England's Economy: Focus on Academic Arts Programs
Location and date to be announced, April 2001

The State of Telecommunications and Distance Learning in New England
 Federal Reserve Bank of Boston, Boston, Mass.,
Friday, May 25, 2001

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presentations