

VOLUME I, ISSUE II • SUMMER 1986

CONNECTION

NEW ENGLAND'S JOURNAL OF HIGHER EDUCATION

Is There a New England STUDENT LOAN CRISIS?

Comments by:

Newman, ECS
Cronin, MHEAC

Bennington: Hooker
Boston University: Silber
Bowdoin: Greason
Brandeis: Handler
Brown: Swearer
Bryant: O'Hara
Dartmouth: McLaughlin
Hartford: Trachtenberg
UMO: Johnson
Wellesley: Keohane
Wheaton: Emerson

The University of Massachusetts at Amherst

Joseph Duffey, *Chancellor* • David Knapp, *President, University of Massachusetts*

At Massachusetts,
"commonwealth" isn't
just the synonym
for state.

It's the objective.

"... the focus of education is tied to the needs of our economy."

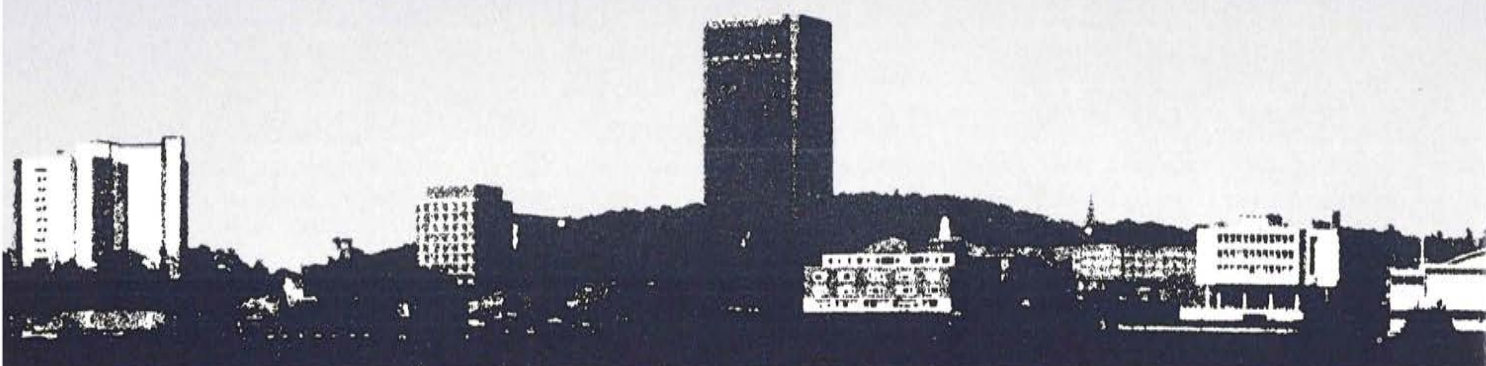
Chairman David Beaubien of the Massachusetts Board of Regents of Higher Education might as easily have said New England's economy depends on the choices we make about education. The connection is inescapable.

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At Massachusetts, "commonwealth" isn't just the synonym for state. It's the objective.





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 **The spirit of Massachusetts is the spirit of America.**

by John C. Hoy

President, New England Board of Higher Education

Corporate executives, government leaders and our colleagues in higher education responded to the charter issue of *Connection—New England's Journal of Higher Education* with the summary comment, "It's about time." One New England CEO said, "Quality higher education is New England's most precious resource. Its problems are our problems and the moral issues our colleges and universities confront reveal the conscience of New England. As difficult as it is, make the journal fly."

This issue of *Connection—New England's Journal of Higher Education* examines the growing problem of student indebtedness. To help gain a region-wide perspective, we asked former UPI reporter James W. Ryan, now a Boston-based freelance writer, to interview representative New England college presidents. Eleven provided thoughtful comment. Their detailed replies to Mr. Ryan's questions reveal the regional difficulties academic leaders now face despite our widely-acknowledged (*Time*, the *Wall Street Journal*, *Newsweek*) economic resurgence: soaring expenses and tuition bills, uncertain federal support, and increased competition among themselves for diminishing numbers of secondary school applicants. Two additional commentaries, by Frank Newman, president of the Education Commission of the States and former president of the University of Rhode Island, and James M. Cronin, president of the Massachusetts Higher Education Assistance Authority, also provide perspective on the loan crisis. We believe this *Connection* feature is of national significance.

New England has historically had a disproportionately large but declining share of national foreign student enrollment. This decline should be a matter of concern, since increased international student enrollment (as well as study abroad by American students) will be the educational backbone of internationalizing New England's economy. As NEBHE Research Fellow Richard G. King argues in his article, "Are New England's Doors Still Open? Three Decades of Foreign Student Enrollment Trends," the raw numbers don't tell the whole story.

Our Washington editor, Michael J. Bennett, looks at the slow progress of the Higher Education Reauthorization Act through the complicated political machinery on Capitol Hill. As Bennett warns, "A former teacher is no longer in the White House. Now we have a president with a different set of priorities."

Quality higher education is New England's most precious resource. Its problems are our problems and the moral issues our colleges and universities confront reveal the conscience of New England.

In an analysis drawn from his soon-to-be-published book, *The New Alliance—America's R&D Consortia*, Dan Dimancescu outlines how current research and development consortia are reshaping the academic agenda, as international competition compels industry/university research collaboratives to proliferate. High tech as perceived by an anthropologist, William O. Beeman of Brown University, is examined in a thoughtful analysis of campus computerization in the humanities and social sciences, where its future may lie.

In the Summer 1986 *Connection*, we explore for the first time the controversial divestment issue. We are gratified to present a provocative article by Alan Pifer, president emeritus of the Carnegie Corporation of New York. Pifer outlines his "moral and educational" argument

against divestment, pointing out the inconsistency in singling out corporations that do business in South Africa for punishment, but not those that do business elsewhere where there are evil regimes. *Connection* and the author welcome your responses.

The New England Board of Higher Education is indebted to Dr. Stuart J. Saunders, vice chancellor and principal of the University of Cape Town and chairman of the South African Council on Race Relations. He has been a courageous leader in the struggle for human rights and equal educational opportunity in South Africa. We appreciated his visit to Boston this spring to meet with the presidents of New England colleges committed to the development of the Open Society Scholars Fund. The Fund was established by the University of Cape Town Fund, Inc., a non-profit organization based in New York. New England colleges and universities have continued to contribute to the NEBHE South African Scholarship Program, towards scholarships defraying room and board expenses for black students admitted to South Africa's five "integrated" universities.

We hope that this issue of *Connection—New England's Journal of Higher Education* is as favorably received as the first. In keeping with our editorial goal of trying to help shape the agenda facing higher education and the economic development of New England, we welcome our readers' responses to these articles. We anticipate your suggestions concerning issues you believe will influence the quality of New England's most precious resource. ■

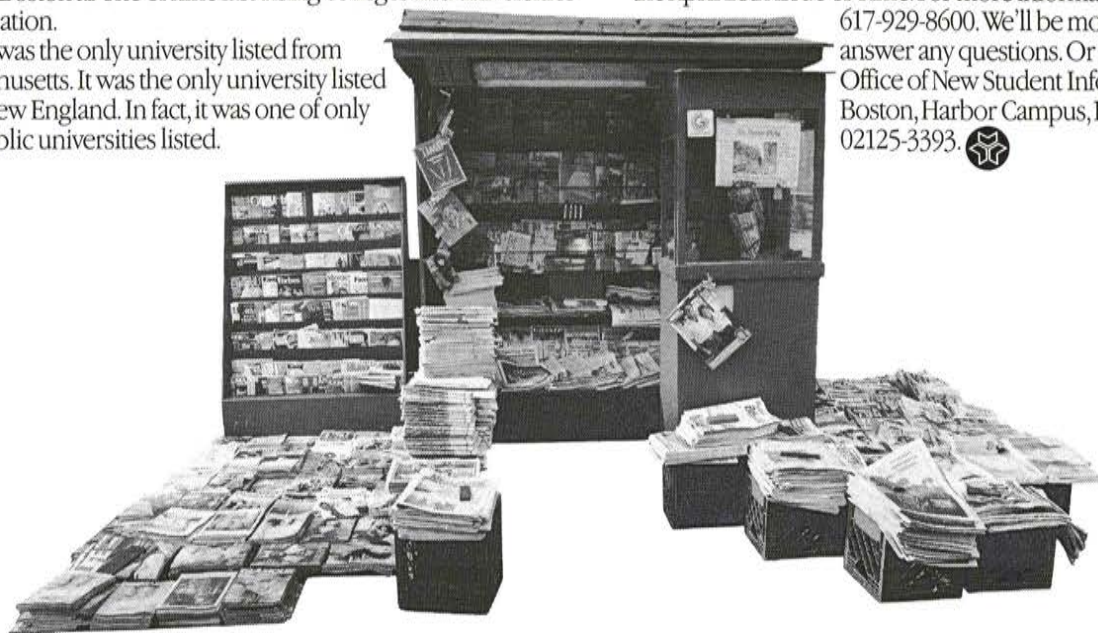
Last week UMass/Boston popped up in a whole new location.

Time Magazine. In their April 28th issue they listed UMass/Boston as one of nine fast-rising colleges and universities in the nation.

It was the only university listed from Massachusetts. It was the only university listed from New England. In fact, it was one of only two public universities listed.

In short, it's clearly a university whose Time has come – the April 28th issue of Time. For more information call us at

617-929-8600. We'll be more than happy to answer any questions. Or write to us at the Office of New Student Information, UMass/Boston, Harbor Campus, Boston, MA 02125-3393.



VOLUME I, ISSUE II • SUMMER 1986

CONNECTION

New England's Journal of Higher Education

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develop programs which encourage higher
educational opportunities and improve
efficiency in the use of resources among
New England's academic institutions.



Cover photo by Steve Dunwell.



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STUDENT
LOAN
REPORT

STUDENT HIGHER EDUCATION'S DILEMMA

*by Joseph M. Cronin, President,
and Sylvia Q. Simmons, Senior Vice President,
Massachusetts Higher Education Assistance Corporation*

Student indebtedness is one of today's most elusive higher education problems. While everyone agrees that students and parents need access to the vast funding source loan programs provide, there is concern about the increasing debt burden on our nation's youth. Between 30 and 50 percent of all post-secondary students seek loan assistance to finance tuition costs. And as New England college tuition, room and board charges increase, the potential problem will grow more complex.

Student loan borrowing under federal programs peaked in the early 1980s. As those borrowers begin to repay their debts, the number of defaulters will increase.

Borrowing students should be fully informed about the choices available to them and possible impact on future earnings and lifestyles.

Understanding what factors contribute to default—or to proper repayment—may help us find a balanced solution to this knotty problem.

As with other complicated issues of our time, there are lingering misconceptions about student indebtedness. Let's start by debunking some of these myths:

MYTH

- Borrowers fail to repay their education loans because they cannot afford to repay.
- The more a student borrows, the more likely he or she is to default.
- A married couple, both of whom borrowed for college, will have more trouble repaying than a single borrower.
- Student indebtedness will postpone purchase of cars, homes and other necessities of life.
- Students in New England borrow more for higher education than do students from other regions.
- Undergraduate indebtedness will play an important role in one's decision to pursue graduate studies.

FACT

- Studies in Massachusetts and nationally show that proper repayment has more to do with willingness rather than ability on the part of the borrower.
- The National Commission on Student Aid found just the opposite—the more indebtedness, the less likely the chances of default.
- Married couples sharing home and car payments make greater efforts to keep their credit rating solid.
- Several surveys of consumer lending have found no evidence of this for graduates who have jobs paying more than \$1,000 a month.
- Although the average loan burden in the six New England states is still below \$5,000, the average indebtedness nationwide for those with bachelor's degrees has risen close to \$10,000.
- Researchers have reported that indebtedness does not influence one's decision to become a doctor, lawyer, researcher, etc., to any significant degree.

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INDEBTEDNESS:

PRESIDENTIAL ASSESSMENTS

by James W. Ryan

Today's students and their families are tangled in a financial bind of Gordian proportions as they struggle to pay for higher education. While the strands of this intricate knot stem from many causes, a common thread is beginning to emerge: the possibility of consumer revolt over rising costs.

Whether or not this happens, the fact is that the cost of post-secondary education in this country has hit the highest level in history. Contrary to popular belief, the

Ironically, the cost of a college seems to be perceived as a measure of its quality: the higher the cost, the better the school.

—A. LeRoy Greason
Bowdoin College

culprit is not so much faculty salary hikes and deferred maintenance as the expense of providing new campus facilities and services. It may be true that announced 1986-87 tuition hikes at many New England colleges and universities are the smallest percentage increases in five years. But in that same period, the cost of attending any type of educational institution rose significantly faster than other prices in the general economy, according to the Consumer Price Index.

The essence of the controversy was sketched by Lawrence W. O'Toole, president of the New England Education Loan Marketing Association (Nellie Mae) in his article, "Financing the Future of Higher Education," (*Connection*—*New England's Journal of Higher Education*, Spring 1986). O'Toole writes, "College costs are rising faster than family income and consuming a greater portion of it. Families can neither have a sufficient amount of money for higher education before their children can reach college age, nor can they pull together the personal resources to pay for college costs out of current income."

For the Summer issue, *Connection* surveyed a group of New England college and university presidents to tap their views on this serious problem. Not every president responded to each question put to them, but all had responses in the way of possible solutions. Implementation of these solutions could help unravel the fiscal knot of rising costs.

We express our gratitude to the following college and university presidents for their donation of time and effort: Alice F. Emerson, Wheaton College; A. LeRoy Greason, Bowdoin College; Evelyn E. Handler, Brandeis University; Michael Hooker, Bennington College; Arthur M. Johnson, University of Maine at Orono; Nan-nerl O. Keohane, Wellesley College; David McLaughlin, Dartmouth College; William T. O'Hara, Bryant College; John R. Silber, Boston University; Howard R. Swearer, Brown University; and Stephen Joel Trachtenberg, University of Hartford.

Costs Will Continue to Rise

CONNECTION: Do you believe the trends of rising costs for higher education and increasing student indebtedness will continue?



Michael Hooker, Bennington College: Yes. And even with increased tuition, higher education will not come close to meeting its expenses. Those costs are subject to the same forces that are driving up the price of every item made by skilled labor. Alternative "production methods" for the

teaching process are available—and badly needed—to improve education's effectiveness for today's needs. But if those changes affect the price of education, it will

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STUDENT LOAN REPORT

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What Is Being Done?

Richard Kraus, a Harvard dean in the 1970s and now a Massachusetts state senator, was one of the first educators to propose that college students calculate their projected salaries to determine how much of a debt burden they could assume, and the impact of debt on their future and intended lifestyles. Lawyers, medical doctors and business executives can afford to borrow and pay back more than nurses, teachers and social workers.

At the same time, Yale University pioneered an income contingency loan program in which graduates could each year pay a percentage of their earnings rather than a fixed rate. At a recent College Board conference, Yale University's Donald Routh reported that Yale graduates continue to prefer a variety of repayment options to match their career decisions and lifestyle choices.

Students who drop out of college are more likely to default. This argues for entrance counseling at the college or school itself since the point of exit may be too late to avert loan default. The ideal remedy would be to increase scholarship or grant aid for the first two years, postponing reliance on loans to junior year and beyond.

We can help young people make educational credit a positive factor in their lives, not a negative one.

During 1983-85, the Massachusetts Higher Education Assistance Corporation formed a task force to address the following concerns: that borrowers too often underestimated the consequences of loan debt; that they did not understand the repayment obligation; and that colleges and lenders lacked the materials and "models" needed to counsel borrowers. MHEAC's "Loan Counseling Task Force" developed a model to provide accurate and timely information about credit finances and the responsibilities that go along with borrowing for higher education before and during the student's borrowing and repayment periods. The model included:

- A lesson plan for young students (junior high level) of the credit system and the various ways to pay for college.
- Letters to recent college graduates reminding them of their obligation to repay their student loans.
- A widely advertised, toll-free repayment hotline to reach out to borrowers with questions or problems concerning education debt.
- A loan repayment guide, "Everything You Wanted to Know About Repaying Your Student Loan," available to lenders, schools and families.

Several national studies find that women are less able than men to repay educational loans, largely because salary levels are lower in the entry- and mid-management jobs most often held by women.

- Posters, stickers, T-shirts and other promotional materials on student loan default obligations.

Materials are still being developed and the Massachusetts task force will promote:

- Entrance and exit interviews on debt management.
- Pamphlets on wise borrowing and alternatives to borrowing.
- A slide show on the application process and loan repayment.
- A student workbook on the use of credit for college.

Does counseling help? Some are skeptical, but we don't have enough experience to say it won't work. One critic of loan counseling says that the main reason borrowers default is lack of a job, not lack of money. Jerry Davis of Pennsylvania's higher education agency recommends more attention by college officials to job placement and *career* counseling. He does, however, concede that debt counseling and information are necessary and useful. Student debt management programs may not prevent the reality of increasing debt burden, but they do provide students with the necessary skills to budget their money and meet their loan obligations.

Even so, more than just counseling and information may be required. Several national studies find that women are less able than men to repay educational loans, largely because salary levels are lower in the entry- and mid-management jobs most often held by women. Employers must either adapt "comparable worth" or equitable pay policies for jobs held by women before we start to see a balancing of repayment abilities.

For those willing and able to repay, colleges, lenders and state agencies in New England have an obligation to make sure that they are fully informed, understand the choices available to them, and realize the possible impact on future earnings and lifestyles. We can help young people make educational credit a positive factor in their lives, not a negative one.

Over the next five years, New England will have more than 100,000 students a year entering the loan repayment period. State agencies, colleges and lenders share an obligation to counsel these students on how to protect their credit standing and fulfill their promise to repay government subsidized loans. ■

THE LIMITS OF LOANS

by Frank Newman, President, Education Commission of the States

In the growing national and regional debate about the future of student financial aid, two issues deserve particular attention: the amount of student aid and the form it should take. Because of reductions in the GI Bill and the Social Security Program, the total amount of aid has been dropping. This situation is creating concern as to how students will finance their undergraduate and graduate education, particularly minority students, whose enrollment in college is on a regrettable and disturbing downward slide.

Also important is the powerful, inexorable shift, over the past ten years, away from grants for students (particularly grants based on service like those provided by the GI Bill) to loans. Loan volume has increased five times over during the last decade. The effect has not been wholesome.

Ten years ago, a little over 20 percent of federal aid for students came in the form of loans. Today loans make up just short of 70 percent of total federal aid. With the continuing rise in the cost of tuition, colleges and universities increasingly look toward further expansion of loan programs, more funding from the states in the form of state scholarship programs, added institutional funding (particularly at private colleges and universities) and ever-greater contributions by families and from student earnings.

The important point to recognize is that all these new approaches do not yield the same results as previous arrangements. Take, for example, the shift from federal funding to state funding. Most state scholarship programs provide funding only for students who graduate from high school and then go on to a college within the borders of their state. If a larger and larger share of all student aid were to come from the states, without some change in the policy of interstate reciprocity, we would find students increasingly forced to attend college only within their own state boundaries. Certainly, this is a questionable approach.

But the most significant change, likely to continue, is the shift away from grants towards loans, particularly away from grants related to public service. The traditional American view is that it is "a good thing" for a student to work his or her way through college. The sons and daughters of the rich are able to avoid this necessity—unless they are the sons or daughters of the determined rich. The large majority of students, over 70 percent, earned some significant part of their college expenses. (The situation is far different in Europe, where

More and more students report they are troubled about going on to graduate or professional school because they don't wish to add significantly larger loans to their undergraduate obligations.

it is customary to provide not only tuition but also living stipends for university students.) Some students end up driving a car, some don't. But almost all work to help pay a portion of the costs of going to college. Our theory has always been that, whether one drives a car or not, whether one has rich parents or not, the effect of a college education is to allow the talented in our society to start out with a fair chance in the race of life.

It is hardly fair, however, if one student has a heavy debt that takes 10 to 20 years to pay off and another has no debt. Typically, the indebtedness of undergraduate students who borrow money to attend a private college or university has risen to somewhere between \$9,000 and \$12,000 upon graduation. The indebtedness of students who attend public four-year institutions is between \$7,000 and \$8,000. The debt load continues to rise at an accelerating rate, and there is no evidence that it will not continue to escalate. Debt ratios are also rising rapidly.

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STUDENT LOAN REPORT

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only be to raise actual costs if we're to pay capable teachers fairly.



John R. Silber, Boston University: This trend will indeed continue. What *must* change is the way our nation copes with it. Shifting the costs of education onto taxpayers may hold down the price paid by consumers. But actual costs will continue to rise, just as the cost of real estate will continue to rise.

I have proposed a Tuition Advance Fund, under which the federal government would advance money from this fund to any student to pay his or her tuition at an accredited college or university. College financial aid officers would open a Tuition Advance Fund account in the student's name, under his or her Social Security number. The federal government, in receipt of the proper forms, would send the advance directly to the college and record the obligation with the Internal Revenue Service. After graduation, the student would repay the advance at a rate equal to a fixed percentage of gross annual income.

The TAF would require a major initial budgetary outlay. But within twenty years, TAF would be self-perpetuating; no further appropriations from Congress would be needed. The start-up costs of TAF would be a wise national investment in higher education and in the intellectual capital formation that is our hope for a bright future.



A. LeRoy Greason, Bowdoin College: There is little hope that the rising cost of higher education and student indebtedness will end soon. Ironically, the cost of a college seems to be perceived as a measure of its quality: the higher the cost, the better the school. Much more important is the suitability of a particular college for an individual student.

The costs of higher education have begun to make colleges and universities compete against one another more fiercely than in the past.

—John R. Silber
Boston University



Howard R. Swearer, Brown University: Yes, the cost of higher education will continue to rise. While tuition increases at Brown and comparable universities have moderated, they are well in excess of the overall rate of inflation. With these increasing costs and dramatic shortfalls in federal assistance, tuition

and other expenses will have to increase. As a result, more and more families will unfortunately feel greater financial pressure.



Stephen Joel Trachtenberg, University of Hartford: Whether you deny it, invert it or surround it with euphemisms, the challenge we now face in American higher education remains the same. With the exception of the limited number of private schools, whose endowments—and public institutions, whose political clout—make them invulnerable, we're all driving a 1970-model car in a 1986 environment.



Arthur M. Johnson, University of Maine at Orono: There's no question that rising higher education costs and diminishing resources will continue to force greater indebtedness on a growing number of students. There will be an increased social cost associated with this trend, reflected in the changed

composition of the student body, altered expectations of the "payoff" of higher education, and the like.

STUDENT LOAN REPORT

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Part of the reason for this is that student aid officers now routinely build student aid packages, particularly at private institutions, with \$2,500 dollars as a loan base. One might wonder why students put up with that figure as a beginning point. But students have an interesting response to this question: that they trust their colleges and universities. So they sign the obligation without quite realizing that in four or five years they will find themselves with an entry-level job and a substantial loan to repay.

Loan volume has increased five times over during the last decade. The effect has not been wholesome.

What are the effects of heavy loan indebtedness? Some people will argue that it makes relatively little difference how much a student borrows, that any foreseeable amount is well within the capacity of a college graduate to pay back. In fact, some argue that the sum is no more than a student might borrow to buy a new automobile. I think the evidence to date suggests quite the opposite.

More important, loan indebtedness or the threat of it appears to affect who will attend college. Hard data are difficult to obtain, but there are some troubling signs. Interviews with minority students indicate that fear of loans is a growing problem. More and more students report they are troubled about going on to graduate or professional school because they don't wish to add significantly larger loans to their undergraduate obligations.

Heavy loan indebtedness may affect career choices—the willingness to enter public service, for example, or a useful but not high-paying occupation such as teaching. Interviews with students indicate a continuing troubled concern that they must first take care of their credit terms

Our theory has always been that the effect of a college education is to allow the talented in our society to start out with a fair chance in the race of life.

now that their loans are due and payable.

I am also concerned that heavy loan indebtedness affects one other crucial variable: the graduate's understanding that he or she has an important responsibility as a citizen to contribute to the public welfare. I refer not only to the contributions of money to good causes—not an insignificant point—but to the contribution of time and energy to the public benefit as partial repayment of the opportunity to move ahead because of the value of one's education. In our interviews with students, we discovered over and over again feelings of resentment replacing a sense of positive obligation. We found a reluctant need to put "self" first rather than engage the public interest. This is particularly marked among medical students, planning where they will practice, perhaps as a result of their extraordinarily heavy indebtedness.

One final point: our institutions of higher education have much at stake in reviewing the loan obligation issue. Think for a moment about the importance of preserving the balance between public institutions and private ones. Presently, a student who borrows money to attend college knows that he or she will end up with a substantially larger debt at a private institution than at a public institution. Do we really want students to select colleges on this basis? Will that, in the long run, preserve the diversity that is so important to the health of the American system of higher education?

None of this argues for the elimination of student loans. Like so many things in life, loans in moderation are useful and important. But also like too many things in life, loans in excess are dangerous for the health of the nation as well as the individual. ■

continued from page 11



Nannerl O. Keohane, Wellesley College: Rising costs and—at best—steady state revenues are a pressing concern for institutions of higher learning. Costs will certainly go up. Revenues *may* go up, as colleges and universities make changes in the composition of their student bodies, their financial management and fund-raising techniques.



Alice F. Emerson, Wheaton College: The numbers of students and families willing to incur increasing indebtedness to obtain quality higher education will diminish over the next decade. There will always be a significant core of people who see education as the most critical investment they can make in their children. The drying-up of sources for aiding

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students with need and the current undervaluing of the importance of a broad general education in a rapidly changing world may keep the numbers down.

This Trend is Dangerous

CONNECTION: What are the real and potential prospects and dangers of the student indebtedness issue?

Hooker: The prospects apparent today will assuredly become realities, and all will be dangerous. The immediate prospect is that we will continue to charge more each year for a "good education," which is delivering less education every year in terms of assured, decisive, pro-active, worldly-wise graduates. One prospect is an educational elitism based on ability to pay. An obvious corollary of that is our shutting out—discarding—the largest part of our national resource in young brainpower, talent, initiative and constructive citizenship. We will continue to train increasingly narrow specialists and hope they can somehow solve our problems through an alchemy of economics and technology.

Silber: The costs of higher education, without a rational system that places those costs on the student while providing a fair means of paying them, are a major disincentive to the pursuit of learning. The better independent colleges and universities are becoming increasingly populated by the children of the well-to-do. The social and educational ambiance of these schools is growing increasingly separate from the economic reality of American society. Moreover, the costs of higher education are a drag on the American economy. The enormous debts that more and more students must bear are detrimental to the consumer economy they enter after graduation.

The costs of higher education have begun to make colleges and universities compete against one another more fiercely than in the past. State-run institutions, of course, have an unfair disadvantage. Their costs are at least as high as those of independent schools, but the price charged to students in the form of tuition is kept artificially low by shifting most of these costs onto taxpayers. Competition among universities would be a good thing if the rules of the game did not tilt so baldly toward the state sector. Implementation of the Tuition Advance Fund would correct this inequity.

Greason: A further irony is the role that students and parents play in generating rising costs. The more money spent, the more services anticipated. As a result, colleges find themselves dealing with students and parents who conceive of themselves as consumers wishing to have a variety of needs met. Students expect many forms of counseling and supervision. It is because of this appetite that the budgets of our deans' offices have expanded so dramatically.



Evelyn E. Handler, Brandeis University: First, the rapidly rising cost of education is a reflection of the dependence of institutions of higher education upon tuition dollars. The cost of living increases associated with the goods and services colleges buy is rising far faster than the average of the overall cost-

of-living index. Much of this increase is borne by students and their parents because of the relative inability of colleges and universities to increase other sources of revenue. Second, the rise in the cost of education may lead increasing numbers of students to make their educational choices based on ability to pay rather than ability to learn and profit from a particular institution. Such an outcome represents not only a loss for the individual but a loss for American society.

Finally, the rise in the cost of education threatens the unique range of opportunities offered by American higher education as a result of the existence of strong public and independent systems operating side by side. This country can ill afford influences that would create distinctions between those two systems based solely on students' ability to pay.

Swearer: Universities will have to significantly revise their allocation of funds, with a greater proportion going to financial aid and a small proportion coming from government sources. If this trend continues, Brown and other universities will be forced to make some very difficult choices, such as reducing the number of students receiving aid each year, reducing per-capita aid or limiting faculty salaries and capital expenditures, each of which carries its own negative impact on the quality of education we can offer.



William T. O'Hara, Bryant College: Recent research we have completed indicates that prospective college students and their parents associate high quality with high costs. Our research also reveals that students and their parents are not fully aware of cost differences and probably don't thor-

oughly understand the intricacies of the subject when making college decisions. While there is a tendency to associate cost and quality, other data suggest that people are quite willing to accept other explanations

A Strong Commitment to Higher Education in New England

All securities have been sold. This announcement appears as a matter of record only.

New Issue

\$200,000,000

The New England Education Loan Marketing Corporation

Student Loan Revenue Refunding Bonds, 1985 Issue A

The Bonds will bear interest at 6 3/4% up to but not including September 1, 1988, are dated August 1, 1985, are due March 1, 2002, are subject to redemption or tender for purchase on September 1, 1988, and are subject to special redemption prior to September 1, 1988 under certain circumstances.

In the opinion of Bond Counsel, under existing law, interest on the Bonds will be exempt from federal income taxes, and the Bonds, the transfer thereof and the income therefrom, including any profit made on the sale thereof, will be exempt from taxes imposed by existing Massachusetts law, although the Bonds and the interest thereon may be included in the measure of estate and inheritance taxes and of certain corporate excise and franchise taxes.

Price 99 3/4%

The Bonds are limited obligations of the Corporation secured by and payable from certain monies, revenues and funds available under the indenture as more fully described in the Official Statement relating to the Bonds dated August 7, 1985.

The Bonds are not a debt of the Commonwealth of Massachusetts or any instrumentality or political subdivision thereof for any purpose whatsoever and neither the faith and credit nor the taxing power of the Commonwealth or any political subdivision thereof is pledged to the payment of the principal or interest on the Bonds.

The Bonds are subject to the approval of legality by Mintz, Levin, Cohn, Ferris, Glovinsky and Popeo, P.C., Boston, Massachusetts. Bond Counsel. Certain legal matters will be passed upon for the Underwriters by their counsel, Palmer & Dodge, Boston, Massachusetts.

Chemical Bank **Shearson Lehman Brothers Inc.**

Kidder, Peabody & Co.

incorporated

August 1985

New Issue

\$10,700,000

State of Connecticut

Health and Educational Facilities Authority

Variable Rate Demand Revenue Bonds, Trinity College Issue, Series B

Dated: Date of Initial Delivery Due: July 1, 2010

The Bonds will be issued only in fully registered form in the denomination of \$100,000 or any multiple thereof. Principal will be payable upon surrender of the Bonds at the principal office of The Connecticut National Bank, Hartford, Connecticut, as Paying Agent, or Hartford Trust Company of New York, New York, New York, as its Paying Agent, interest will be payable on February 1, 1986, and on the first business day of each month thereafter, unless the Bonds are converted to a fixed interest rate at which time interest will be payable on January 1, by check, draft or wire transfer of the Paying Agent to the registered owner as of the Record Date as described in the Official Statement.

The Bonds will be special obligations of the State of Connecticut Health and Educational Facilities Authority payable solely from the revenues of the Authority paid to The Connecticut National Bank, Hartford, Connecticut, as Trustee by The Trustees of Trinity College in accordance with the provisions of the Agreement and the Mortgage dated as of December 15, 1985, by and between the Authority and the Institution. The obligation to make payments pursuant to the Agreement and the Mortgage is a general obligation of the Institution secured by a pledge of certain of its tuition fees. The Bonds will be secured under the provisions of the Trust Indenture by and between the Authority and the Trustee, dated as of December 15, 1985.

The Bonds will bear interest at a rate of 8% per annum to and including January 7, 1986, and thereafter at a variable interest rate determined weekly on the second business day of each week by Chemical Bank, as Reinvesting Agent, as described in the Official Statement effective on the Wednesday of such week through the following Tuesday. The interest rate on the Bonds may not exceed 15% per annum.

The Bonds or portions thereof in denominations of \$100,000 will be purchased on tender interest by the Bondholders upon seven days' written notice in Hartford Trust Company of New York, as Tender Agent, at a price of par plus accrued interest.

Under certain circumstances described in the Official Statement the Bonds may be converted to bear interest at a fixed interest rate to maturity in which event the Bonds will be subject to mandatory tender on the fixed interest rate conversion date. Owners of Bonds will be mailed notice of such conversion to the fixed interest rate and of the final opportunity to redeem their Bonds. Notwithstanding conversion to the fixed interest rate, after conversion to the fixed interest rate the Bonds may not be tendered for purchase.

The Bonds are subject to optional and mandatory redemption, including annual sinking fund installments, commencing July 1, 1988, as described in the Official Statement.

Payment of principal of and interest on the Bonds when due will be secured by an irrevocable letter of credit issued by

The Sumitomo Bank, Limited

acting through its New York Branch. Letters for the payment of tendered Bonds not remain valid as so provided by the letter of credit. The letter of credit will expire December 31, 1989, subject to earlier termination as described in the Official Statement.

In the opinion of Bond Counsel, as described under "Tax Exemption" in the Official Statement under existing statutes, regular income tax and surtaxes on the Bonds will be exempt from all federal income tax and, under and pursuant to the Act, the Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, shall be free from taxation (except as to the State of Connecticut and by the municipalities and other political subdivisions in the State of Connecticut) however interest on the Bonds or profit made on the sale of the Bonds would be included in the measure of the Corporation's Business Tax imposed by the State of Connecticut under Chapter 90B of the General Statutes of Connecticut, as amended.

The Bonds shall not be deemed to constitute a debt or liability or a pledge of the faith and credit of the State of Connecticut or any political subdivision thereof, nor shall be payable solely from the revenues derived by the Authority under the Agreement and the Mortgage. Neither the faith and credit nor the taxing power of the State of Connecticut or any political subdivision thereof is pledged to the payment of the principal or interest on the Bonds. The State of Connecticut Health and Educational Facilities Authority does not in any way create a so-called moral obligation of the State of Connecticut to pay, debt service in the event of default by the Institution or the Authority. The Authority does not have any taxing power.

The Bonds are offered when, as and if issued and received by the Underwriters, subject to prior sale to another, or modification of the offer without notice, and to the approval of legality by Mudge Rose Guthrie Alexander & Fenton, New York, New York, Bond Counsel to the Authority. Certain legal matters will be passed upon for the Institution by its counsel, Day, Berry & Howard, Hartford, Connecticut, and for the Underwriters by their counsel, Webster & Sheffert, New York, New York. It is expected that the Bonds will be available for delivery in New York, New York on or about December 30, 1985.

Chemical Bank

Kidder, Peabody & Co.

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December 23, 1985

The leading underwriter in Massachusetts in 1985* Third leading underwriter in New England in 1985*

In 1985, Chemical Bank was a leader in providing investment banking services for New England institutions of higher education. Contact us for expert advice on tax exempt and taxable bond issues, liquidity enhancements and financial advisory services.

CHEMICAL BANK
Public Finance Department
Education Finance Group

Contact:

John F. Wallace III Edward S. Fishman
(212) 310-5030 (212) 310-5070

*Source: Securities Data Corporation
Student Loan and Higher Education Finance

STUDENT LOAN REPORT

of why college costs vary.



David McLaughlin, Dartmouth College: The spiraling cost of higher education poses a major challenge for those who are concerned about the contribution our colleges and universities must make to the welfare of society. Repetitive annual increases in tuition which exceed

growth in real disposable income are not sustainable without risking the presence of qualified students from middle-income families in our institutions.

Trachtenberg: The expansion American higher education underwent in the three decades following the Second World War cannot be sustained on its present demographic, social and ideological base. In turn, this points toward the conclusion that what we face, as educators, is a sea-change rather than patchwork adaptation. We are going to have to rethink the assumptions that rule our working lives.

Indebtedness Distorts Career Decisions

Johnson: The trend will reduce the number of students seeking to go to college because their indebted-

ness will not, in their estimation, be offset by increased earning power upon graduation. In tuition-driven institutions the response may be to lower standards and concentrate on "practical" courses at the expense of a well-rounded education.

Keohane: We remain confident that we can contain costs *and* maintain the quality of the education we offer. It will take intensive effort to set priorities, manage efficiently, and ensure that a spirit of inquiry, vital to intellectual pursuits, prevails.

Emerson: If the number of students declines, our nation is in real danger of producing too few broadly educated persons in relation to the needs of our polity, our economy, and our international interdependence. We will also need fewer numbers of places at liberal arts institutions. This will work a great hardship on colleges with very honorable and significant educational histories.

CONNECTION: Is this issue a concern to your specific institution?

Hooker: Sure. Being a non-traditional school, we may not be as vulnerable to enrollment declines as many hundreds of other liberal arts colleges. Contrary to the trend, applications from our atypical pool are rising. Still, we want to maintain financial aid and hold or reduce our tuition. We don't yet have the endowment to do that, so the corollary problems of building

SHARE Loan Program Helps Carry Private College Cost Burden

A new supplemental loan program, SHARE, makes \$2,000 to \$15,000 available annually for students attending the 30 private colleges and universities who are members of the Consortium on Financing Higher Education (COFHE). The privately-funded loan program, available through the New England Educational Loan Marketing Corporation ("Nellie Mae"), has been developed to help families meet soaring higher education costs.

By supplementing other aid programs, federal, state, and private, SHARE (not an acronym) provides long-term, low-cost loan capital to families who may have no other loan program available. Nellie Mae President Lawrence O'Toole anticipates \$20 million demand for SHARE during 1986-87. SHARE can be used for both undergraduate and graduate education expenses.

Eligibility for SHARE loans is based on credit-worthiness and a demonstrated ability to repay the loan. Repayment begins while the student is in school, but families can choose to defer principal payment on SHARE loans until graduation. Borrowers may take up to 15 years to repay their SHARE loans.

The interest rate on SHARE loans is kept as low as possible. The rate is variable and will always be lower than regular commercial rates. For example, the rate as of May 1, 1986, did not exceed 9.75 percent.

Katharine H. Hanson, executive director of COFHE, said, "The SHARE loan program was developed as a result of the work of the COFHE Loan Study Group chaired first by Fred Bohen of Brown and subsequently by William Herbster of Cornell. We believe SHARE is the best private loan product currently on the market. The program is designed to meet the needs of our middle- and higher-income families."

SHARE is sponsored by COFHE in cooperation with Nellie Mae and The Education Resources Institute. Nellie Mae, based in Braintree, Massachusetts, has made over one quarter of a billion dollars in education credit available to students in New England. Headquartered in Boston, Massachusetts, TERI is a non-profit corporation that supports education through the administration of programs including the guarantee program for SHARE. TERI will guarantee SHARE loans against such occurrences as the death or disability of the borrower.

COFHE conducts research, provides analysis, and coordinates cooperative activities for its 30 member institutions, of which 42 percent are in New England.

According to O'Toole, Nellie Mae is considering additional proposals from organized consortia of colleges and universities seeking programs similar to SHARE for their students. ■

STUDENT LOAN REPORT

strong support are as real for us as for any college.

Silber: Of course it is. When I arrived at Boston University in 1971, I knew we could not compete with state institutions in price. We had to compete in quality. We sacrificed much to make academic quality the main attraction of Boston University, and today, that strategy has borne fruit: in spite of inevitable tuition increases, the attractiveness of Boston University is on the rise.

Greason: As for the long-range effect of rising tuition prices, a number of able students from families of

We are not only asking the next generation to pay for most of the mistakes of the past; we are equipping it less well to do so.

—Howard R. Swearer
Brown University

modest means will turn away from some of our most expensive colleges because of high cost. As they turn to state universities and colleges, the costs for taxpayers will increase. If state schools become crowded, students will suffer too.

Independent colleges will continue to counter such a consequence by providing as much scholarship and loan aid as possible. Even so, students who graduate with large debts will feel that they cannot afford to go into such fields as teaching, religion and social service—for the remuneration will not enable them to carry large debts. In another sense, the cost to society will be great.

Handler: It is a major concern to Brandeis, and I have testified on these very dangers before Congress in support of increased financial aid. Brandeis has also made a concerted effort to slow the rate of tuition increase, although I remain concerned regarding the financial burdens we are placing on our students and their parents.

O'Hara: The rising cost of a college education is indeed a concern of Bryant College, as it is of every other college and university. While financial considerations are important in choosing a college, I do not believe it is the number-one concern students and their parents bring to the decision process in choosing a college. Much more significant is the concern that the student receive a quality education. The best strategy for a college in today's marketplace is to focus on the quality of academic programs, rather than recruiting on the basis of being a "bargain" institution.

McLaughlin: This issue is of vital concern to Dartmouth. As federal financial aid programs are restricted further, the problem will become even more acute. Parents will generally stretch to have their children attend first-rank colleges, but at some point in the comparative scale of tuition rates, the question of relative value must be raised. For those institutions committed to admitting

the highest qualified students regardless of their ability to pay, greater reliance on subsidized loans may be the only logical answer to sustain "need blind" admissions.

Johnson: This issue is of deep concern to the University of Maine at Orono, although its impact is presently limited. If Gramm-Rudman materializes, that impact could be substantial within a year.

Emerson: Although overall demographics suggest an increase in the number of eighteen-year-olds in the late 1990s, it seems clear that many families will not view liberal arts education or post-secondary education of any kind other than direct training for jobs as an appropriate investment of time or resources. It is my view that important changes in the patterns and relationships of work and learning will and must occur in the coming decades.

Wheaton has established a Center for Work and Learning, which we hope will enable students to have significant hands-on experience in the world of work while at college and earn some portion of their college costs.

CONNECTION: Will the indebtedness issue make parents question the need for post-secondary education?

Hooker: They already have, and their questions lead to concentric circles of doubt. Their doubts about the relevance and worth of a college education lead to questions like, "Is it fair to us and to our children to jeopardize our future security for such an investment? Could we live with ourselves if we denied our children this opportunity?"

Silber: This seems to miss the point. No one questions the *need* for medical care, no matter how expensive it is. Similarly, few rational parents would reason that because they could not afford to send their children to college, a college education was not worth acquiring. The issue isn't the need for higher education. It's how to fulfill the need without going bankrupt.

Handler: While a few parents may begin to question the value of higher education for their children, that is not my major concern. There is a far greater risk, a skewing of fundamental values of American higher education because of excessive financial burdens. We also have to consider the effect of rising costs on the students themselves. An increasing number of them now complete undergraduate or graduate studies burdened with substantial debt.

Swearer: Parents will not begin to question the need for post-secondary education for their children. What will happen is that more and more families will be forced to limit their hopes for the best available education for their children. We all need to make a stronger and more convincing case that education is critical, not only for our democracy, but for our national security

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and prosperity—including the ability to compete effectively in a global economy.

O'Hara: Parents will continue to sacrifice to send their children to college. In addition, there is now increased receptivity to employment for students, either on a part-time basis during the academic year or during the summer. While there may be a shift among the most popular majors, I doubt that the need for post-secondary education will be questioned.

Johnson: I don't think parents will question that need. They will question whether they can afford it, raise doubts in their children's minds as to whether it's worth going into debt, and argue that there must be a practical "payoff" relative to the size of the investment.

Keohane: I doubt it, although the pattern for acquiring that education may change. Perhaps some young women and men will begin to acquire working experience as they continue to go to school, or elect to work before continuing their education. Liberal arts colleges may emphasize career opportunities available in various disciplines.

Emerson: Looking ahead, I believe that post-secondary education will be important for many families, although liberal arts education may continue to be misunderstood in terms of its practical value for lifelong career development. Even those families who value higher education opportunities would probably benefit from financial planning and options not now generally available. For example, the ability to spread the cost over eight or twelve years would ease the burden for many families.

Available Solutions Too Limited

CONNECTION: Can you suggest any specific solutions to this issue?

Hooker: Possible solutions lie within a triangle that must be realigned. On one side of the triangle is the family. Their hard decision is whether there should be college at all. If "yes," that family must be prepared to make the heaviest personal financial commitment their conviction will bear. On the second side are the resources of government, philanthropy and business. In government there are multiple possibilities waiting to be pressured by common sense and fairness. Here are two examples that could cut \$100 million a year from outlays for education.

One points up the serious flaw in the government's need test for qualifying for Guaranteed Student Loans. Instead of overkill on the *income* limit for a GSL, there should be routine scrutiny of the family *assets* available for education. The government should also use suasion to get banks to lower their profit levels on these loans.

By changes in tax policy from curtailment to encouragement, government can renew philanthropy's role as

a prudent investor in society's interest. Business wants good young brains and is willing to help develop them. By encouraging a closed loop between education and business, government could accomplish a godsend. It would add stimulus to business's appreciation of the managerial potential of a liberal arts major.

Education, the third side of the triangle, has to raise more money and spend it better. At most colleges, faculty and students are more often supplicants and critics of fund-raising efforts than active participants. Increasing participation can multiply fund-raising effectiveness manifold. With the additional monies, colleges can be more demanding that all administrators, faculty

The rise in the cost of education threatens the unique range of opportunities offered by American higher education as a result of the existence of strong public and independent systems operating side by side.

—Evelyn E. Handler
Brandeis University

and students earn their places in the system. Thus, we will not only hold down the rate of tuition increase but raise the value of education in relation to the price.

Greason: Curriculum changes have also had an impact on the cost of college. There is little that we can do about the improved technology that requires investing in computers and in scientific research equipment and facilities. On the other hand, there is something that colleges, particularly small ones, could do about their mushrooming curriculum in other areas. Their strength should lie in the personal attention that they can give to students and not in the unlimited course offerings of the curriculum. To continually expand curriculum is to water down its strength and increase its cost.

Handler: I think that government needs to look closely at the entire issue of low-cost loan funds for students at both the undergraduate and graduate levels. There's a critical need to support students at the graduate level in the humanities and social sciences, disciplines that are witnessing a serious decline in the pool of able students who will form the next generation of scholars.

Swearer: The first step is to recognize that this is not just a crisis for private higher education, but for public higher education as well—and for the future of our nation. We are not only asking the next generation to pay for most of the mistakes of the past; we are equipping it less well to do so. The second step is to increase

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Are New England's Doors Still Open?

Three Decades of Foreign Student Enrollment Trends

by Richard G. King
Research Fellow

Current discussions of college and university enrollments have tended to focus on the demographic decline of high school graduates, a decline that has been under way since 1980 but is due to accelerate sharply in the period 1988-1992. Also customarily noted are the increasing enrollments of older students, and women, which have tended so far to counterbalance the decrease in high school graduates. Less noted but of significance to many institutions is the remarkable increase of foreign students since the mid-1950s. It is to an analysis of this latter growth that this article is directed.

In an excellent review, "Migration of Foreign Students to the United States" in the September/October 1985 issue of the *Journal of Higher Education*, Vinod Agarwal and Donald Winkler compare the sources of data provided by the U.S. Department of State Visa Office; the U.S. Department of Justice Immigration and Naturalization Service; and the Institute of International Education (IIE). The first two sources report the flow of immigrants and infer total enrollments from tallies of student visas (all types) issued and used. Only the IIE conducts a direct survey of institutions of higher education and can link foreign students directly with institutional enrollments. Over the years since 1949 there have been differing rates of response to the IIE survey, and definitions of enrolled foreign students have been slightly modified. Nevertheless, the IIE annual report *Open Doors* is clearly the preferred source of data on enrollments of foreign students and will form the basis of the discussion below.

How has New England been faring in the importation of foreign students in comparison with the U.S. as a whole? In 1957-58 IIE tallied 43,391 foreign students in U.S. institutions of higher education, a number that had increased to 342,113 by 1984-85, a 688 percent increase. The comparable numbers for New England were 3,847 for 1957-58 and 23,488 for 1984-85, a 510 percent increase.

New England, with 5.3 percent of the nation's total population, had enrolled 8.9 percent of our foreign students in 1957-58 and 6.9 percent

Three Decades of Foreign Student Enrollment Trends

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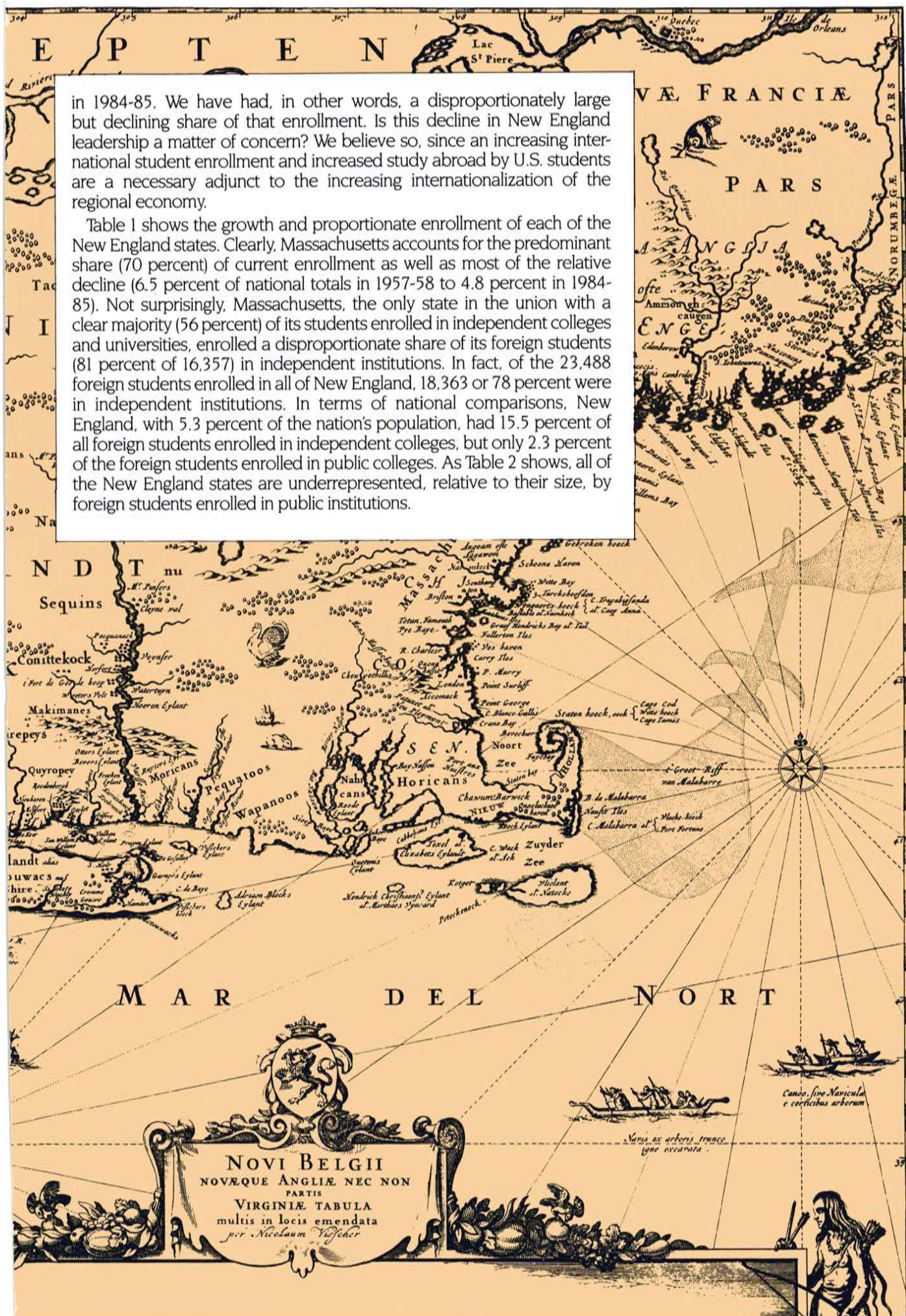
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in 1984-85. We have had, in other words, a disproportionately large but declining share of that enrollment. Is this decline in New England leadership a matter of concern? We believe so, since an increasing international student enrollment and increased study abroad by U.S. students are a necessary adjunct to the increasing internationalization of the regional economy.

Table 1 shows the growth and proportionate enrollment of each of the New England states. Clearly, Massachusetts accounts for the predominant share (70 percent) of current enrollment as well as most of the relative decline (6.5 percent of national totals in 1957-58 to 4.8 percent in 1984-85). Not surprisingly, Massachusetts, the only state in the union with a clear majority (56 percent) of its students enrolled in independent colleges and universities, enrolled a disproportionate share of its foreign students (81 percent of 16,357) in independent institutions. In fact, of the 23,488 foreign students enrolled in all of New England, 18,363 or 78 percent were in independent institutions. In terms of national comparisons, New England, with 5.3 percent of the nation's population, had 15.5 percent of all foreign students enrolled in independent colleges, but only 2.3 percent of the foreign students enrolled in public colleges. As Table 2 shows, all of the New England states are underrepresented, relative to their size, by foreign students enrolled in public institutions.



An even more striking underrepresentation for New England comes in its enrollment of foreign students in two-year colleges. The IIE report for 1984-85 shows only 1,395 foreign students enrolled in all of New England's two-year colleges, and all but 33 of them enrolled in Connecticut and Massachusetts (see Table 3). By contrast, Florida's Miami-Dade Community College enrolls 4,316 foreign students *all by itself* for the largest total of any U.S. institution, public or private, two-year or four-year. Bunker Hill Community College, with 483 students enrolled, leads all New England public and independent two-year campuses.

The leading twenty individual New England institutions enrolling the largest number of foreign students in 1984-85 were:

Institution	Foreign Students	National Rank
Boston University	2,467	9th
Harvard University	2,056	17th
Northeastern University	1,866	30th
M.I.T.	1,745	36th
University of Massachusetts/ Amherst	1,226	63rd
Yale University	716	
University of New Haven	701	
University of Bridgeport	556	
Tufts University	522	
University of Connecticut	516	
Brown University	486	
Bunker Hill Community College	483	
University of Hartford	417	
University of Rhode Island	409	
University of Lowell	391	
New Hampshire College	389	
Wentworth Institute	331	
University of Massachusetts/Boston	282	
Dartmouth College	243	
Central Connecticut State College	223	

Who are these foreign students? By and large, they are single (80.4 percent), males (69.8 percent), the majority of whom (58.2 percent) are undergraduates, with 35.1 percent in graduate study and 6.7 percent having some sort of special status. Most of them (91.4 percent) are registered as full-time students with the majority of part-time students enrolled in two-year colleges.

Apparently, we attract students world-wide, but particularly those from the Third World, the majority of whom seek to learn things practical and technical.

At both the two- and four-year institutions, over 20 percent are in engineering programs and an equivalent percentage are in business and management. The next most popular field is mathematics and computer sciences (over 10 percent at each level). Apparently, we attract students world-wide, but particularly those from the Third World, the majority of whom seek to learn things practical and technical. One hopes that they return to their home countries with a view of the U.S. and its system of higher education as something more than a storehouse of hardware, software and technique with a variety of business and military applications. In fact, ideally, should not an understanding of at least some aspect of the social, political, economic and intellectual history of the United States and the West, or some aspect of our own scholarly efforts to understand other civilizations, form part of the educational experience of a visiting foreign student? Cannot the same be said for U.S. and world literature, art and music, or for an understanding of active participation in modern science through original research as opposed to already-developed application? Do not we and the rest of the world need understanding at least as much as "knowhow"? We believe so.

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TABLE 1: TOTAL NUMBER OF FOREIGN STUDENTS IN NEW ENGLAND INSTITUTIONS OF HIGHER EDUCATION (PERCENTAGE OF U.S. TOTAL IN PARENTHESES)

	1957-58	1973-74	1983-84	1984-85	% Of Total U.S. Pop.	% Increase
U.S.	43,391	151,066	338,894	342,113		688%
CT	550 (1.3%)	1,415 (.9%)	3,695 (1.1%)	3,881 (1.1%)	(1.3%)	515%
MA	2,801 (6.5%)	7,982 (5.3%)	16,428 (4.8%)	16,357 (4.8%)	(2.5%)	484%
RI	183 (.4%)	670 (.4%)	1,263 (.4%)	1,363 (.4%)	(.4%)	645%
ME	75 (.2%)	220 (.1%)	382 (.1%)	383 (.1%)	(.5%)	411%
NH	108 (.2%)	269 (.2%)	857 (.3%)	948 (.3%)	(.4%)	777%
VT	130 (.3%)	228 (.1%)	566 (.2%)	566 (.2%)	(.2%)	335%
Total NE	3,847 (8.9%)	10,784 (7.1%)	23,191 (6.8%)	23,488 (6.9%)	(5.3%)	510%

Source: Institute of International Education, *Open Doors* for years indicated NEBHE Analysis, March 1986

Total Enrollments	1957-58	1984-85	% Increase
U.S.	3,068,417	12,241,940	299%
N.E.	205,194	786,236	283%

Source: National Center for Education Statistics (1984-85) and the *Book of the States*, 1957-58

The New China Trade

Recognized for excellence by their peers in the People's Republic of China, the business managers and academicians who arrived at Tufts University in June are not typical exchange students. But then Tufts University's China Project is not a typical educational exchange program.

When four university professors and six business managers from the People's Republic of China began intensive studies at Tufts this summer, they inaugurated the first reciprocal program between the United States and China that integrates academic study with internships at American corporations.

"There has been a hiatus in our intellectual relations with a country that represents 20 to 25 percent of the world's population and has the oldest continuous cultural tradition of any country in the world," says Tufts President Jean Mayer, chairman of the New England Board of Higher Education. "A close exchange between us and China is bound to benefit both parties."

If successful, this first phase of the China Project may lead to an expanded program of exchanges between other New England univer-

sities and the People's Republic of China. "New England institutions should celebrate their growing network of international connections, which enrich the possibilities for students and alumni in a world where international politics, business and cultural exchanges play an increasingly crucial role," says Dr. Thomas W. Murnane, senior vice president of Tufts.

Funded by a \$500,000 congressional appropriation through the United States Information Agency (USIA), the exchange with Fudan University in China will also allow three Tufts students to study and receive internships in mainland China. The China Project also includes two visiting scholars from Jiao-Tong University, who will team at Tufts for the academic year.

"The program is filling a need for both Fudan and Jiao-Tong universities, which want to offer professors and business persons more exposure to American and cross-cultural issues as well as the latest Western management techniques," says William Carruth, associate director of government resources at Tufts and co-director of the project. "Tufts has a unique blend of curriculum in international politics and business, as well as a strong American Studies Department

that can address the broad interests of the Chinese students," Carruth says.

The program will also enrich Tufts academically, according to David Lundberg, associate dean for faculty development and co-director of the program with Carruth.

"The ten students were selected from over 100 applicants," says Lundberg, who recently visited China to interview the finalists. "Their average age is 28, and two of the ten are women. The four from academe are all junior-level professors at Fudan, and the other six were chosen by their peers at the communal work units where they are employed. They are bright, dedicated and enthusiastic, and we can't help but learn from them and benefit from their presence on campus." The program will help enrich and expand Tufts' Chinese studies program and existing exchange programs with China.

The China Project will help develop ongoing relations with universities in China that are producing tomorrow's global business leaders. "New England has always been attracted to the Orient. Since the early Chinese traders, New England has had ties with Asia," says Sol Gittleman, Tufts provost and senior vice president. "With all due caution, Tufts is examining the possibility of keeping this tradition alive." ■

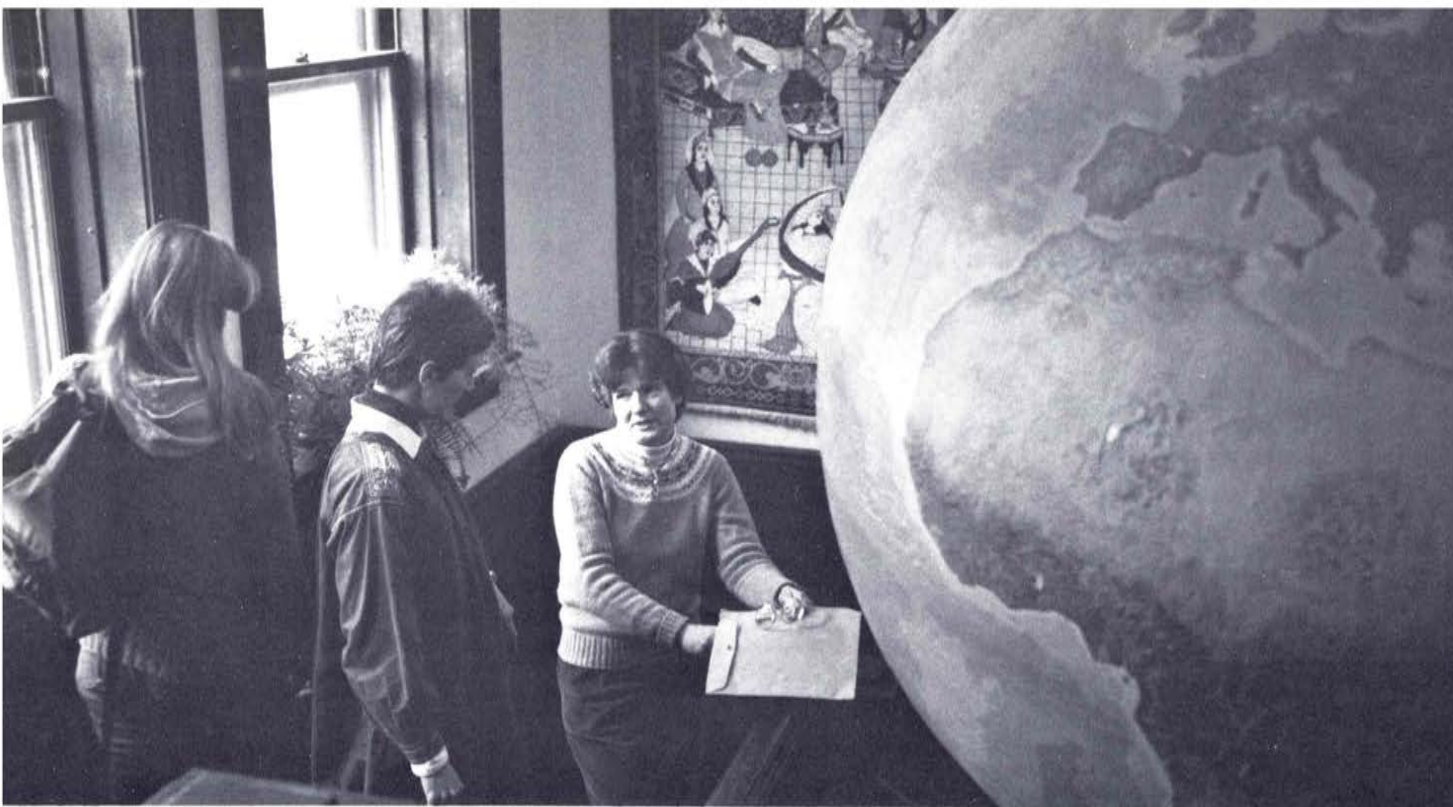
TABLE 2: DISTRIBUTION OF FOREIGN STUDENTS IN PUBLIC AND INDEPENDENT INSTITUTIONS (PERCENTAGE OF U.S. TOTAL IN PARENTHESES)

	1983-84		1984-85		% of U.S. Pop.
	Public	Independent	Public	Independent	
U.S.	220,274	118,620	223,529	118,584	
CT	1,001 (.5%)	2,694 (2.2%)	1,143 (.5%)	2,738 (2.3%)	(1.3%)
MA	2,689 (1.2%)	13,739 (11.6%)	3,052 (1.4%)	13,305 (11.2%)	(2.5%)
RI	421 (.2%)	842 (.7%)	440 (.2%)	923 (.8%)	(.4%)
ME	232 (.1%)	150 (.1%)	203 (.1%)	180 (.2%)	(.5%)
NH	155 (.1%)	702 (.6%)	146 (.1%)	802 (.7%)	(.4%)
VT	130 (.1%)	436 (.4%)	141 (.1%)	415 (.3%)	(.2%)
Total N.E.	4,628 (2.1%)	18,563 (15.6%)	5,125 (2.3%)	18,363 (15.5%)	(5.3%)

TABLE 3: DISTRIBUTION OF FOREIGN STUDENTS IN NEW ENGLAND IN TWO-YEAR AND FOUR-YEAR INSTITUTIONS IN 1984-85

	2 YR	% Of Total	1984-85 4 YR	% Of Total	% Of Total U.S. Pop.
U.S.	42,083	100%	300,030		100%
CT	256	(.6%)	3,625	(1.2%)	(1.3%)
MA	1,106	(2.6%)	15,251	(5.1%)	(2.5%)
RI	18	(-)	1,345	(.4%)	(.4%)
ME	2	(-)	381	(.1%)	(.5%)
NH	6	(-)	942	(.3%)	(.4%)
VT	7	(-)	549	(.2%)	(.2%)
NE	1,395	(3.3%)	22,093	(7.4%)	(5.3%)

Source: Institute of International Education, *Open Doors* for the year indicated. NEBHE Analysis, March 1986



RICHARD A. CHASE/COLLEGE OF THE ATLANTIC PHOTO

BEYOND DIVESTMENT: THE MORAL UNIVERSITY

by Alan Pifer, President Emeritus, Carnegie Corporation of New York

No issue created more dissension on New England college and university campuses this spring than divestment of the stock of American corporations doing business in South Africa. There are a number of practical reasons why divestment does not make sense, but, since they are generally well known, I will turn directly to the moral and educational arguments against such an action.

It is often claimed that owning stock in companies that do business in South Africa is, on the face of it, immoral, since the government of that country is basically immoral. First, granting that the regime in South Africa is odious, there are many others in the world that also commit daily crimes against humanity, in the name of religion, ethnic group membership or political persuasion. In these circumstances, the claim that South Africa is *sui generis* because it has the only government that discriminates and oppresses solely on the basis of race seems disingenuous to me. The denial of political rights, imprisonment without trial, torture, or murder by one type of regime is no less reprehensible than the same behavior by another. Therefore, to single out corporations that do business in South Africa for punishment,

but not those that do business elsewhere where there are evil regimes, is morally inconsistent.

We do not, however, have to look beyond the South African case to discover moral inconsistency. What about the products of companies that do business in South Africa? Should they not be banned on the campus? And what about grants or contract support from those companies? Should that be accepted? What about the more than 10,000 American corporations that trade with South Africa, some of which make far more money thereby than do some of those that have a physical presence there? Aren't colleges and universities that decide to divest obliged to sell their stock too? Isn't that also profiting from apartheid?

There is simply no way that an academic institution can obtain moral purity, if that is its objective, by the simple act of selling off its stock. Using its investment policy in this manner to achieve a moral purpose immediately makes it subject to other equally compelling actions it must take to be morally consistent—and these other actions no institution wants to take because of the heavy administrative and fiscal penalties they entail. Divestment, by itself, therefore, inevitably exposes an institu-

tion to the charge of moral selectivity—in short, hypocrisy. I see no way out of that dilemma.

What I, personally, on moral grounds, find most disturbing about divestment is that the battle over it on a campus often becomes a media event or takes on a life of its own that has little to do with apartheid. The controversy distracts attention from the real problems faced by blacks in South Africa—grinding poverty, lack of employment, poor health care, police brutality, the denial of elementary civil rights, inferior, segregated education, poor housing—and therefore seems morally contaminated.

Also, for many of its proponents, divestment fits into the “worse-the-better” school of thought about South Africa: that the more chaotic the situation becomes, however much killing it leads to, the better, because it will hasten the downfall of apartheid. For young black militants in South Africa who are putting their lives on the line, this may be a legitimate stance. I would not want to judge them. For outsiders, however, whose lives are not in danger, to hold such views strikes me as morally questionable.

My final objection to divestment on moral grounds is that it encourages the members of a college or university community where the issue has been fought out to feel that they have delivered a significant blow against apartheid and can now wash their hands of the matter. I have noted that interest in South Africa on a campus dies very quickly once the divestment battle has been “won.” In fact, the institution that divests has not even begun to discharge its responsibilities regarding apartheid. Any sense of satisfaction or self-congratulation that it has now done its part is, therefore, unseemly, and a moral affront to those who have made a long-term commitment to change in South Africa.

At the heart of the divestment issue is the question of what divestment really is—a moral or a political act. The proponents want it both ways: when their objective is simply to “purify” their institutions, they define it as a moral act. When the objective is to force change in South Africa, they behave as if it were a political act. The problem, of course, stems from a confusion between apartheid, clearly a moral issue of immense significance, and divestment, which is essentially a political act. How can it possibly be otherwise when no one can say what the ultimate effect of it will be? Taken with the actions of other divestors, the net results may be good or bad. It may help to precipitate change in a favorable direction or it may help bring on a bloodbath in which thousands of people, most of them black, are slaughtered. That may be a risk one is prepared to take with a political act. For an act to be moral, however, one must have some idea of what its consequences will be.

What I find most disturbing about divestment is that the battle over it on a campus often takes on a life of its own that has little to do with apartheid.

If divestment is a purely political act made on an institutional basis, does it not violate a college's or university's function—perhaps one of its most valuable functions—of being a forum for discussion and debate? An institutional decision on divestment establishes an orthodoxy. It says, with all the authority of the institution behind it, that one position is right and the other wrong, and tells students and faculty who disagree that their institution considers them in error.

New England Divestment

Thirty-one, or 28 percent of the 112 colleges and universities in the United States that have sold investments in companies doing business in South Africa are New England institutions.

A total of \$206,981,664 has been involved in divestiture by New England college and university boards of trustees.

The Five College Consortium of Amherst College, Hampshire College, Smith College and the University of Massachusetts divested in 1977, followed by Mount Holyoke College in 1978.

All New England land-grant universities are engaged in divestment.

Total Divestment	Dates of Policies	Amount Involved		Dates of Policies	Amount Involved
Bates College*	1982, 85, 86	\$ 6,423,588	Northeastern University	1985, 86	\$21,000,000
Clark University	1986	—	Trinity College*	1978, 85, 86	17,226,896
Emerson College	1986	44,000	University of CT*	1986	217,000
Fairfield University	1985	4,000,000	University of ME*	1982	1,906,724
Hampshire College	1977	39,000	University of MA	1977, 85	1,004,106
Hartford Seminary*	1985	5,000,000	University of RI*	1985	868,000
Mount Holyoke College	1978, 85	18,890,000	University of VT*	1978, 85	10,471,333
Partial Divestment					
Amherst College*	1977, 85	\$ 7,872,920	Harvard University	1978, 85	54,800,000
Boston University*	1979	6,840,554	Middlebury College*	1986	—
Bowdoin College*	1985	1,850,000	Smith College	1977, 86	1,781,728
Brandeis University	1977, 79	400,000	Tufts University*	1979	2,917,000
Brown University	1984, 86	20,600,000	University of NH System*	1985	453,276
Bryant College*	1985	—	Wellesley College*	1978, 85	2,900,000
Colby College	1978, 85	2,935,669	Wesleyan University*	1979, 85	750,000
Connecticut College*	1986	6,000,000	Williams College*	1978, 83	1,489,870
Dartmouth College*	1979, 85	1,800,000	Yale University	1978, 85	6,100,000

*Participant in New England-South African Student Scholarship Program

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5/86

C2M

We all receive in our daily mail literature from organizations that seek to ban abortion or protect a woman's right to free choice, stop or support the Strategic Defense Initiative, initiate or prevent a nuclear freeze, or help or not help the contras in Nicaragua. To many people these issues are far more important than divestment, and they would dearly love to see higher educational institutions support their pet causes with public institutional statements.

I have noted that interest in South Africa on a campus dies very quickly once the divestment battle has been "won."

But is that what we would want to see happen—even if the cause aided were one we cared passionately about? I think not. We would prefer to see these issues fought out in the media, in the court of public opinion and in our political institutions. We would be afraid that if our colleges and universities took institutional stands on such issues, they would violate the code of institutional neutrality that immunizes them from intrusion into their affairs by political authority or vigilante groups. Why is divestment not subject to these same constraints?

Divestment is not the simple, straightforward, moral act so many people on the campus think it is, nor does it substantially address the issue of apartheid. Rather, it is a political act with complex ramifications and consequences—no more so than in its apparent violation of the constraints placed on academic institutions simply because they are that. Students especially resist these constraints; they are anxious to *do* something, right now, about apartheid, and divestment is what lies most readily at hand.

Given the many difficulties with divestment—practical, moral, and academic—what can a college or university do, as an institution, to discharge its responsibility to help bring about peaceful change in South Africa? First, in keeping with its historic mission, it can foster teaching and learning on its campus about South Africa, so that its students, faculty and administrators can play an effective role in the developing national debate about United States policy toward that nation. Given the widespread ignorance about South Africa among Americans, the importance of this educational mission cannot be overstated.

Second, institutions can reach out to those South African universities that have chosen to desegregate fully. They urgently need additional scholarship funds for the black students they are admitting. The recently established New England Board of Higher Education program of scholarship support for these universities promises to be a model for other groups in this country. In its first year, some 30 colleges and universities in New England will be supporting 39 students at South African universities.

In defense of academic freedom, non-racial admissions

South African universities participating in the Open Society Scholars Fund are taking a stand in defense of academic freedom and non-racial admissions in their troubled nation. With the assistance of the South African Scholars Fund initiated by the New England Board of Higher Education, the University of Cape Town and the four other South African universities that admit black students are fully committed to non-racial admissions, instruction and student housing. Although state-supported, they will persist in defending their institutional autonomy against encroachment by South Africa's apartheid government.

That was the message UCT Vice Chancellor and Principal Stuart J. Saunders delivered to representatives of the 29 New England colleges committed to developing the Fund at a recent meeting in Boston. "South Africa is a political minefield right now," he said, "and it is not possible to predict what the recent violence in the townships portends. But I have come to Boston to thank you, the representatives of the New England colleges that have given scholarship assistance to our black students, for your magnificent generosity."

Saunders, a member of UCT's distinguished Faculty of Medicine, is also president of the South African Institute of Race Relations and a leader in the struggle for human rights and equal educational opportunity in South Africa. He has constantly urged his medical colleagues to demand equal access to quality medical care for all the people of South Africa.

"The bursaries you have made possible will be allocated through the Open Society Scholars Fund [established by the University of Cape Town Fund, Inc., a nonprofit organization based in New York] and distributed equally to the five South African universities that have already agreed to abide by the guidelines adopted by the Carnegie Corporation in 1985. Those guidelines state that any university receiving aid must be committed to a non-racial, democratic South Africa, and must not discriminate on the basis of race in its admission policies, appointments, or housing of staff and students."

Participating South African universities in addition to UCT are the University of Natal, the University of Rhodes, the University of the Western Cape, and the University of Witwatersrand.

As of May, 29 New England colleges and universities had committed funds for 39 three-year, \$2,800 scholarships defraying room and board expenses for black students. The South African universities will absorb tuition costs. ■

Further, these universities need faculty and the funds to support their teaching in basic-studies programs, designed to enable students who are badly prepared—because of poor, segregated secondary education—to

catch up. Americans with such experience would be a considerable help.

Finally, colleges and universities in this country can raise funds to support important voluntary organizations, black and white, in South Africa—organizations such as Black Sash, the Legal Resources Center, SACHED (The South African Council on Higher Education)—and a number of others helping black people deal with the cruel effects of apartheid on their lives.

While divestment is a political, not a moral question, apartheid itself is a moral issue of such magnitude to us

While divestment is a political, not a moral question, apartheid itself is a moral issue of such magnitude that every American college or university has a responsibility to deal with it.

as Americans—because of our multi-racial society and our devotion to basic human freedoms—that every American college or university has a responsibility to deal with the issue the best way it can. I have suggested what some of those ways might be. There are others. But whatever an institution decides to do must be done with a sense of humility—humility that consciousness of our own history of race relations should inspire. That history, we must not forget, included over 200 years of slavery and 60 years of *de jure* racial segregation. And ours is still a *de facto* segregated society in some respects.

The struggle for justice in South Africa will not end quickly, and the road ahead for everyone there will probably be painful and fraught with danger. In the end, South Africans of all four racial groups must discover a way to build a just society for all. Neither we nor anyone else can do that for them. Here in the United States, however, we do have experience in desegregation that may be useful; we have resources, both of money and people, and an immense fund of goodwill. I hope that all of us who are concerned about South Africa, however much we differ on the issue of divestment, can work together, along the lines I have suggested, to improve the life chances of individual black South Africans and help to bring peaceful change to their country. ■

Who are these foreign students? By and large, they are single males, the majority of whom are undergraduates, with 35.1 percent in graduate study and 6.7 percent having some sort of special status.

Where do the students come from? Not primarily from Western Europe. Although state-by-state data on origin are not reported in *Open Doors*, the distribution for the Northeast region of the U.S. in 1984-85 was: South and East Asia, 39.5 percent; Europe, 15.8 percent; the Middle East, 14.1 percent; Latin America, 14.0 percent; Africa, 9.9 percent; North America, 6.0 percent; and Oceania, .7 percent. Not surprisingly, as one moves west to other regions of the U.S., the percentage from Europe drops and the percentage from Asia increases. The respective

An increasing international student enrollment and increased study abroad by U.S. students are a necessary adjunct to the internationalization of New England's economy.

percentages for the Pacific states are: Asia, 52.2 percent; and Europe, 9.6 percent.

Clearly, the influx of foreign students depends in some substantial part on the waxing and waning of the economic fortunes of the exporting homeland. Table 4 shows the rankings of the leading exporters over the past decades. Taiwan, the industrial marvel of postwar Asia, has stayed near the top, to be joined recently by Malaysia and Korea. Nigeria with its new-found oil joined the pack in the 60s and is now 4th but likely to drop with the decline in oil prices. Iran's delegation peaked to first in the 70s, but for reasons which are well-known has declined significantly since.

That the economic circumstances of the exporting country are important is attested to by the reported sources of funding for individual students. For 66.2 percent of all students, family and personal funds are the primary source of support; 12 percent report their home government as primary source, while others report their primary source as: the U.S. college or university (11.6 percent); foreign private sponsor (3.0 percent); current U.S. employment (2.1 percent); a U.S. private support sponsor (1.9 percent); and "Other" (3.2 percent).

Funds from these sources of support translate themselves, of course, into payments for tuition and fees. A conservative estimate in New England might be an average of \$4,500 per student in public and \$9,000 in private institutions, or something approaching \$200 million for the region (See Table 5), less, of course, an unre-

continued on page 31

New England Governors' Conference, Inc. Charter of the

New England Board of Higher Education

We, the undersigned Governors, commemorating the

30th Anniversary

of the New England Board of Higher Education Compact, and reaffirming our original Charter of the New England Board of Higher Education, adopted on September 9, 1968, do hereby certify and declare as follows:

That the New England Governors' Conference, Inc., recognizes the New England Board of Higher Education as responsible for the formulation and coordination of regional activities relating to its area of educational specialization and, further, that we recognize this organization for the following purposes:

To advise the New England Governors' Conference, Inc. in identifying specific areas within which the six individual states can:

- Exchange views and experiences on subjects of general importance to the people of the New England States.
- Foster interstate cooperation and regional development.
- Attain greater efficiency in state administration.
- Facilitate and improve state-local and state-federal relationships.

*In Witness Whereof, the undersigned design this Charter on
this 6th day of March, 1986.*

Governor Michael S. Dukakis
Massachusetts
Chairman

Governor Joseph H. Brennan
Maine

Governor William A. O'Neill
Connecticut



Governor Madeleine M. Kunin
Vermont
Vice Chairman

Governor Edward D. DiPrete
Rhode Island

Governor John H. Sununu
New Hampshire

*Accepted by the New England Board of Higher Education
this 6th day of March, 1986.*

[Signature]
Chairman

[Signature]
President

S. GOODMAN, BOSTON

AN OPPORTUNITY THAT BEGS FOR DEFINITION:

ACCESS AND QUALITY IN NEW ENGLAND HIGHER EDUCATION

by John A. Dunn, Jr.

"On a relative per capita basis, New England exceeds any other region of the country in high school graduates each year. And what has been the response of the New England higher education community to the largest enrollment potential in the country? Allowing the opportunity to remain unfulfilled."—from "New England Public Higher Education Enrollment: An Opportunity Unfulfilled," by Kent Halstead, *Connection—New England's Journal of Higher Education*, Spring 1986.

In the Spring issue of *Connection—New England's Journal of Higher Education*, Kent Halstead congratulates New England on achieving a high rate of secondary school completion compared to the rest of the country. He faults us, especially the public sector, for not enrolling a correspondingly high percentage in colleges and universities.

TABLE 1: HIGH SCHOOL GRADUATES AS PERCENTAGES OF THE ESTIMATED 18-YEAR-OLD POPULATION
SELECTED STATES, 1983

SELECTED STATES, 1983						Total
CT	MA	ME	NH	RI	VT	N.E.
77.6%	74.9%	81.8%	76.2%	66.7%	70.0%	75.4%
				NY	CA	Total
				68.4%	55.1%	U.S.
						64.8%

Source: Based on HEGIS and Census Data

Using California as a standard, Halstead estimates that "about 64,000 residents of the five New England states
continued on page 32

TABLE 2: HIGHER EDUCATION ENROLLMENTS AS PERCENTAGES OF THE 18-24-YEAR-OLD POPULATION-SELECTED STATES, 1983*

	CT	MA	ME	NH	RI	VT	Total N.E.	NY	CA	Total U.S.
Public Enrollment:										
Doctoral	5.9%	3.5%	0.0%	9.8%	10.8%	15.4%	5.3%	3.5%	4.2%	8.1%
Compre. & Gen. Bac.	9.0%	9.8%	16.2%	5.8%	7.2%	6.1%	9.5%	9.1%	9.6%	8.7%
Two-Year	11.5%	10.0%	5.3%	5.5%	9.8%	4.8%	9.4%	12.7%	32.7%	14.9%
Other	0.1%	0.4%	2.3%	0.3%	0.0%	0.0%	0.5%	1.1%	0.2%	0.7%
Total	26.6%	23.7%	23.8%	21.4%	27.8%	26.2%	24.7%	26.4%	46.6%	32.3%
Private Enrollment:										
Doctoral	2.7%	10.9%	0.0%	3.8%	5.5%	0.0%	6.6%	6.8%	1.7%	2.1%
Compre. & Gen. Bac.	11.5%	12.1%	4.1%	6.9%	9.7%	12.3%	10.7%	8.9%	2.6%	4.8%
Two-Year	0.8%	3.3%	1.5%	2.1%	5.8%	4.4%	2.7%	1.7%	0.2%	0.9%
Other	1.0%	4.0%	8.1%	8.7%	6.6%	1.1%	4.1%	2.8%	1.6%	1.5%
Total	16.0%	30.3%	13.7%	21.5%	27.5%	17.7%	24.1%	20.2%	6.2%	9.3%
Total Enrollment:										
Doctoral	8.6%	14.4%	0.0%	13.5%	16.3%	15.4%	11.9%	10.3%	5.9%	10.2%
Compre. & Gen. Bac.	20.5%	21.9%	20.3%	12.7%	16.9%	18.3%	20.2%	18.0%	12.2%	13.5%
Two-Year	12.3%	13.3%	6.8%	7.6%	15.6%	9.2%	12.1%	14.4%	32.9%	15.8%
Other	1.1%	4.4%	10.4%	9.0%	6.6%	1.1%	4.5%	3.9%	1.8%	2.2%
Total	42.6%	54.1%	37.5%	42.8%	55.3%	43.9%	48.7%	46.6%	52.8%	41.7%

Source: Based on HEGIS and Census Data *Percentages may not add because of rounding.

NELLIE MAE'S PROGRAMS SUPPORT ACCESS TO HIGHER EDUCATION

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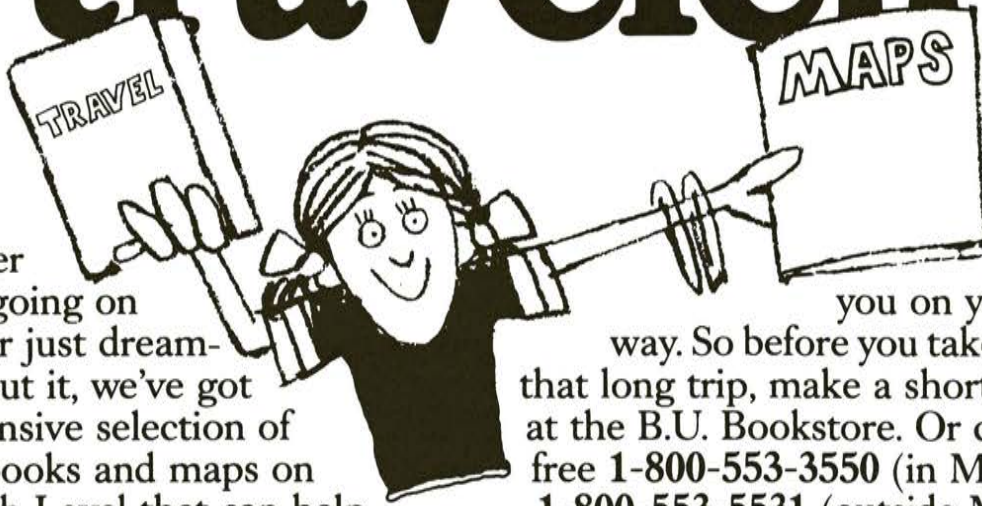
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**TABLE 4: LEADING COUNTRIES OF ORIGIN OF FOREIGN STUDENTS, 1954-55/1984-85
(REPORTED AS RANK AND PERCENTAGE OF TOTAL)**

	1954-55	1964-65	1974-75	1984-85
Rounded Yearly Total	34,000	82,000	155,000	342,000
Country				
Taiwan	2 (7.5%)	3 (8.3%)	3 (6.6%)	1 (6.6%)
Malaysia	—	—	—	2 (6.3%)
Nigeria	—	15 (1.7%)	6 (4.7%)	3 (6.3%)
Iran	9 (2.9%)	4 (4.5%)	1 (8.9%)	4 (5.4%)
Korea	8 (3.5%)	7 (3.2%)	10 (2.2%)	5 (4.8%)
Canada	1 (13.6%)	1 (11.3%)	5 (5.5%)	6 (4.5%)
India	3 (4.9%)	2 (8.3%)	4 (6.2%)	7 (4.3%)
Japan	4 (4.6%)	5 (4.1%)	8 (3.8%)	8 (3.8%)
Venezuela	10 (2.6%)	—	13 (1.7%)	9 (3.0%)
Hong Kong	—	6 (4.0%)	2 (7.2%)	10 (3.0%)

Source: Institute of International Education, *Open Doors* for years indicated. NEBHE Analysis, March 1986

continued from page 26

ported amount for financial aid and administrative expenses. In addition, the academic year cost-of-living expenditures of foreign students in 1984-85 (assuming

One hopes that foreign students return to their home countries with a view of the U.S. and its system of higher education as something more than a storehouse of hardware, software and technique with a variety of business and military applications.

minimal expenditures of \$5,805 per student per academic year) is estimated by IIE to be:

Expenses	
CT	\$22.5 million
MA	95.0 million
RI	8.0 million
ME	2.2 million
NH	5.5 million
VT	3.2 million
Total	\$136.4 million

It is clear that foreign students do make a substantial annual contribution (over \$300 million) to the region's economy.

Although the data do not and probably cannot prove the extent of their indirect impact on the region, foreign students undoubtedly have a substantial cultural and educational impact on many, if not most, of their host institutions and communities. This is probably the case even though the average foreign student enrollment is only 2.7 percent of total enrollment in the U.S. and 3.0 percent of New England enrollment. Other countries, particularly European countries, are accustomed to larger percentages of international students, with Switzerland, France, Austria, Greece, Sweden, the United Kingdom, Belgium and West Germany having percentages ranging from 17.6 percent down to 5.1 percent.

But the U.S. figure of 2.7 percent is double what it was thirty years ago and still growing.

As more and more of the Fortune 500 companies have become huge multinationals with annual budgets exceeding those of the national governments of many nations, the very practical need for better understanding of foreign languages and cultures is increasingly apparent. Alas, the world's understanding of us would seem to be growing much more rapidly than our understanding of it. According to UNESCO figures, in 1984 some 23,838 Americans were formally enrolled in universities of the 45 leading importing countries (UNESCO, *Statistical Year Book*, 1984). UNESCO estimates that the total number of U.S. citizens studying abroad may approach 60,000. But even a figure of 60,000 is less than 20 percent of the foreign students studying here. Over 80 percent of the

TABLE 5: NEBHE ESTIMATE OF 1984-85 INCOME FROM TUITION AND FEES FROM FOREIGN STUDENTS (IN 000s)*

	Public Institutions	Independent Institutions	Total
CT	\$ 5,143	\$ 24,642	\$ 29,785
MA	13,734	119,745	133,479
RI	1,980	8,307	10,287
ME	914	1,620	2,534
NH	657	7,218	7,875
VT	635	6,345	6,980
NE	\$23,063	\$167,877	\$190,940

*Based on overall estimate of \$4,500/year for out-of-state students at public colleges and universities in 1984-85 and \$9,000/year for students at independent colleges and universities.

NEBHE Analysis, April 1986

exported Americans were studying in Western Europe. Obviously, there are good, sound, if sometimes elitist, academic reasons for this. An understanding of the history, culture and language of most Third World countries, however, has escaped most of us. We are the poorer for it, if not actually at political and economic risk. But all this is another story to be told at another time. Meanwhile, congratulations to those institutions in New England that have opened their doors yet wider.

(Massachusetts exceeds the standard) fail to attend college who might otherwise do so. If 60 percent of that number, the current New England rate, attended in-state public institutions, this would mean an increase of 38,000 public FTE (full-time equivalent) students."

Before we rush off to enroll those 38,000 students, we need to see whom we are missing and determine how to respond.

The Halstead article is juxtaposed with a painful reminder from NEBHE President John C. Hoy about prospective declines in enrollment due to demographic changes. Together, these articles suggest that if only New England could enroll students as well as California does, the demographic decline could be offset, more students could be served, and the regional economy would be stronger as a result.

One could quibble with Halstead's figures—his use for example of enrollments per thousand population, which ignores differences among states in their demographic profiles. Instead, let's re-examine his conclusion and sharpen his implied recommendations.

New England high school graduates do represent a slightly higher fraction of its 18-year-old population than

is true of other parts of the country—75.4 percent vs. 55.1 percent for California and 64.8 percent for the nation as a whole (Table 1).

Comparing post-secondary enrollments to the 18-to-24-year-old cohort is more problematic (Table 2). Halstead pointed out that total post-secondary enrollments in California are higher than in New England—52.8 percent vs. 48.7 percent. The U.S. as a whole, however, only reaches 41.7 percent. New England's performance looks a little better than it really is because more students come here to study than go out of the region. California's figure of 52.8 percent, surprising in view of its 55.1 percent high-school completion rate, is only understandable when one remembers the numbers of over-24 students in their community college network.

A closer examination reveals striking differences between California and New England in their enrollment patterns. California has an enormously wide base of community colleges, enrolling 32.9 percent of the college-age population. Their educational pyramid narrows sharply, with 12.2 percent in comprehensive and general baccalaureate institutions, 5.9 percent in doctorate-granting schools. Contrast that pattern with New England. Here, only 12.1 percent are served by a growing but young two-year college network. However, 20.2

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percent are in four-year colleges and 11.9 percent in universities. The strength of the private sector also stands out in sharp relief, enrolling about half the New England total, and more than half at the four-year college and university levels.

In general, I agree with Halstead's thesis that New England could aspire to enroll more students, broadening its educational services and strengthening its knowledge-based economy. If his figures dramatize the situation, mine tend to underestimate it.

How should New England respond? The guiding criteria should be access and quality. Four actions, taken together, should help if they are undertaken as a regional program:

- Broaden access to higher education by expanding the public community college network. In northern New England, this means creating a system of two-year public colleges; in southern New England, it means broadening the base by providing additional resources to fully mature existing community colleges.
- Strengthen the transfer role of public and private four-year colleges to serve the larger numbers of students emerging from an expanded community college system. Here, regional transfer possibilities could be important.
- Support the quality of private higher education and its service to the region in two ways: provide financial aid programs that allow student choice among diverse institutions; recognize the independent sector's essential role in meeting the region's need for specialized professional and graduate programs.
- Enhance the quality and visibility of our public system by vigorously supporting the development of a regional public flagship campus—a New England Berkeley—that will stand in the first ranks of America's research universities. Achieving this will require finding ways for the states to contribute capital as well as sponsor students, and support basic research and centers of excellence as well as educational costs.

These actions should be supplemented by incentives to both public and private institutions to enroll underserved populations, and to collaborate on programs best done regionally rather than state-by-state.

Can we afford this? Yes. As Halstead points out, the New England fiscal commitment to higher education, though improving, remains well below national standards. The strategy described here would be a remarkably cost-effective means of improving access and quality. Indeed, with a resurgent economy which depends upon the contributions of our colleges and universities, we cannot afford to miss this opportunity.

The logistics and the politics of these proposals are formidably difficult. It is only by thinking regionally, rather than locally, however, that we can respond constructively to Halstead's challenge. ■

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THE FUTURE OF CAMPUS COMPUTERIZATION:

Humanists and Social Scientists May Hold the Key

by William O. Beeman

*Associate Professor, Anthropology, and
Associate Director for Program Analysis,
Institute For Research Information and Scholarship, Brown University*



J.D. SLOAN/UNIVERSITY OF LOWELL PHOTO



J.D. SLOAN/UNIVERSITY OF LOWELL PHOTO

The widespread promotion of computer use on American college campuses may someday be hailed as the most important technological innovation in scholarship since the invention of pencil and paper. It may eventually be denounced as one of the most extravagant fads ever perpetuated on higher education.

The decision rests on whether computer applications can be constructed which are useful and important for academic disciplines outside of the laboratory sciences and engineering—principally the humanities and the social sciences.

But there is a catch. Most educators agree that if computers are to be a worthwhile investment for the social sciences and humanities, they must prove that they can facilitate learning in ways unachievable using traditional educational technology: lectures, books, paper and pencil exercises, chalk and blackboard illustrations, films and videotapes, slides and overhead projections. The earliest educational materials developed for the computer had very little to recommend them over traditional techniques. Most were simple mechanized drill-and-practice, justified at least partly through the questionable premise that the computer itself was a novel device which would keep students occupied longer than paper and pencil exercises.

Teaching materials aside, research applications provided by the computer for the non-hard-science disciplines have been disappointing. For practical purposes, researchers have found only three applications which have regular use for the humanities and social sciences: word-processors, data-bases, and spreadsheets, the third being a mathematical application.

This is not to imply that word-processing and data-base use are trivial applications in the social sciences and humanities. Scholars in these disciplines are adamant that word processing has increased scholarly productivity tremendously, particularly by reducing the amount of time necessary for revision and rewriting. Data bases have been used for a variety of purposes, from analysis of large samples of qualitative data to the maintenance of bibliographies and informal records. Nevertheless, computer scientists and programmers have been disturbed because they know that the computer can potentially do so much more. They also know

that many educators have been oversold on the potential of the computer, and will begin to become disillusioned if dramatic new applications are not forthcoming within the next few years.

To improve this condition of underutilization, a number of cutting-edge institutions throughout the United States, including several in New England and the Northeast, are engaged in fervent efforts to provide innovative tools for computer use. It is an open question whether these tools will be successful enough, and achieve wide enough adaptation, to convince scholars and administrators that the computing game is really worth the candle in the long run.

From Famine to Feast

Computers have been present on college campuses for decades, but they were traditionally used for high-level scientific applications—number crunching—in complex experimentation involving enormous amounts of cross-tabulated data, or in mathematical modeling of physical processes in fields such as fluid dynamics and materials science. Until the mid-1970s, most computing was carried out with punch-cards, which were “read” into large central computers, calculated in “batches” sometimes overnight. The results were printed clumsily by hard-to-read line printers on outsized paper.

Many college administrators discouraged the use of computers for anything but research applications, believing any other use to be frivolous. Early computer “hackers” delighted in generating playful computer illustrations of *Peanuts* characters, calendars and Gothic-letter banners in a primitive form of computer graphics.

Interactive computing pioneered at Dartmouth College in the 1960s was perhaps the first advance in computing on the road to making potential research applications in the humanities and social sciences practical. By allowing many users to communicate directly with the mainframe computer simultaneously through “time-sharing,” interactive computing made it possible for the central computing facilities in an educational facility to be shared by persons throughout the campus. “Time-sharing” systems allowed the use of keyboards as input devices and cathode-ray tubes as display devices, eliminating the need for punchcards.

Despite these new developments, college administrators were still uncomfortable at the thought of humanists and social scientists using the computer as a “glorified typewriter,” and resisted committing funds for developments of computing outside of scientific applications.

This was a somewhat shortsighted view. Whereas data for the “hard sciences” are largely numerical, the

NERComP OFFERS HANDS-ON WORKSHOP & APPLICATIONS COLLABORATIVE

Faced with a declining applicant pool, uncertain funding and increasing competition for students, college and university administrators need flexible, responsive information management systems to form their strategic choices for enrollment management and financial planning.

In answer to their needs, the New England Regional Computing Program (NERComP) will hold a workshop, “Enrollment Management and Financial Planning: Fourth-Generation Strategies for Application Development on the IBM/PC,” at Bryant College, Smithfield, Rhode Island, from July 28 to August 1. Participants will be introduced to specific enrollment management and financial planning applications, and a strategy to prototype and develop applications rapidly, using fourth-generation software on the IBM/PC.

The unique workshop is designed to serve administrative users (admissions and financial aid officers, registrars, deans and business officers) and applications developers (institutional researchers, computer-services staff and planning officers). Minimal competency

required for attendance is prior use of a terminal or personal computer.

Through demonstrations, lectures and hands-on experience, participants will learn how to use and develop enrollment management and financial planning applications through integrated use of fourth-generation software products on the IBM/PC. The application development strategy presented in the workshop uses Lotus 1-2-3, dBASE III, SPSS/PC, ABC, MultiMate and Graphwriter. ADDS III, an application development system created in the Office of Planning and Institutional Research at the University of Hartford, will be demonstrated to show how fourth-generation software can be integrated into a unified decision-support system.

Enrollment management applications to be presented in the workshop include:

- Environmental Assessment
- Market Analysis
- Student Flow Models
- Admissions Statistics
- Enrollment Forecasting

- Prediction of Yield
- Academic Prediction
- Applicant Surveys
- Student Retention Studies
- Direct Mail Applications

Financial planning models presented in the workshops demonstrate advanced uses of Lotus 1-2-3 macros, to build integrated models for:

- Enrollment Forecasting
- Student Credit Hour Analysis
- Institutional Pricing
- Student Financial Aid
- Faculty and Staff Salaries
- Income Forecasting
- Expenditure Forecasting
- Building Scenario Screens
- Integration of Graphics

Dr. Robert H. Glover, Director of Planning and Institutional Research at the University of Hartford, and staff from his office will act as faculty for the five-day workshop. At the University of Hartford, Glover implemented a fourth-generation strategy for building decision-support systems for enrollment management and financial planning. Previously he served as a consultant on higher education management, as Vice President of the National Laboratory for Higher Education, as Research Associate of the College Board and as an admissions officer and associate registrar.

For further information, please see the *Connection* “Calendar.” ■

humanities data consist almost entirely of narrative, textual and graphic materials. The social sciences, while using some statistical data, also rely heavily on text and qualitative data. Ignoring the needs of these scholarly communities in the development of computer facilities was to overlook the serious intellectual problem of how best to produce and manipulate non-quantitative materials.

With the development of the micro-computer in the late 1970s, a dramatic reversal in campus attitudes took place. Suddenly, computers were everywhere. As a "bandwagon" effect began to take hold, college administrators felt they needed to computerize their campuses or risk obsolescence in the academic world. Students at several universities were required to own computers, and large gifts of equipment from IBM, Apple, Digital Equipment Corporation and other vendors were met by equally large commitments of support on campus. Much of the planning for this development was absent. Administrators were operating on faith that somehow computers would justify themselves as teaching and research tools, and that whatever their costs they constituted a "better way" of academic life.

Scholars in the humanities and social sciences are adamant that word processing has increased scholarly productivity tremendously, particularly by reducing the amount of time necessary for revision and rewriting.

Now, more sober times have set in. College administrators are beginning to realize that maintenance costs for computing equipment represent a considerable ongoing expense. For the laboratory sciences and engineering, these costs can usually be met through grants and contracts, but very little money is available in the social sciences and humanities for the purchase or maintenance of equipment.

Thus, it is rapidly becoming clear that if computers are to be a permanent feature of academic life, they must justify themselves in educational and research terms in those social science and humanities fields for which no external support is likely ever to arise. Two broad areas of computer research have thus far shown great promise in eventually getting "non-hard scientists" beyond the word-processing phase in their use of computers. The first consists of sophisticated new methods for structuring and manipulating texts and narrative materials. The second is the sophisticated use of graphics in teaching and research.

The Manipulation of Text and Narrative

An important demonstration of the utility of computing for the humanities was carried out by Brown University computer scientist Andries van Dam in 1975 and 1976. In conjunction with several instructors at Brown, van Dam sought to develop text-based tools for the

teaching of several non-laboratory courses using the mainframe computer. Van Dam's base concept for the presentation and manipulation of textual data was "hypertext," a word coined by Theodore Nelson, the social scientist and computer visionary. Van Dam's implementation was called FRESS (File Retrieval and Editing System).

FRESS as a hypertext system went a step beyond linear entry and editing of text. It assumed that many different pieces of text would be stored in a system at one time, and interrelated to each other using a series of mechanized "links." The concept is not unfamiliar to scholars (a footnote is a rough-and-ready example of linkage between two separate but related pieces of text), but hypertext extended far beyond this, allowing texts to be integrated through many levels of linkage. Imagine, for example, a copy of *Oliver Twist* where, at the touch of a button, documents dealing with Dickens' life, economic conditions in London and literary allusions in the novel could all be accessed while reading the text.

Hypertext also assumes interactive capacity on the part of users, allowing them to add their own links and textual materials to the corpus of interrelated documents. In one of the 1975 prototype courses, a course in poetry writing, Brown students and faculty were able to take a basic manuscript and perform such annotations electronically, through a series of easily activated links. They could insert a marker at any point in a text document, which became the source, and link that selection to any other destination point in the same or any other document. This facility allowed all students in the class immediate access to all of the poetry and all of the critiques and annotations of the poetry being produced in the course. It was theoretically possible for every student to read and comment on the work of every other student. Moreover, all students could see all comments other students had made. Paper transfer and exchange of the same material would have been a logistic nightmare.

The newest version of hypertext, now dubbed Intermedia, has been developed by a team of researchers led by Norman Meyrowitz of the Institute for Research in Information and Scholarship at Brown, under funding from the Annenberg/CPB project. Intermedia takes the notion of hypertext several steps further, allowing graphics, timelines and animation sequences, among other things, to be linked to text. One experimental version of Intermedia allows for integration of text with images on a videodisk player. Texts of Shakespeare's plays are keyed to videodisk productions of Shakespeare, allowing a reader to call up any given scene of, say, *Romeo and Juliet*, and then see the scene enacted on a television monitor alongside the computer.

The Intermedia system will be tested at Brown over the next two years in several experimental pilot courses running on IBM's powerful new workstation, the IBM PC-RT. The first will be an English literature survey course taught by Professor George Landow. Professor Landow views the use of Intermedia as a potentially important tool not just for developing insights into English literature, but for the development

of critical thinking. He wrote recently concerning his use of Intermedia:

"We must be equally concerned with providing the student with ways to think about the materials. Rather than using directories or lists that would have made the software a book-on-a-computer-screen, we have designed it so as to continually present the student with

A number of cutting-edge institutions throughout the United States, including several in New England, are engaged in fervent efforts to provide innovative tools for computer use.

direct experience in making decisions that focus on his or her ability to apply large amounts of different kinds of information to any fact or event.

"In essence, Intermedia attempts to provide students with a means of making crucial intellectual connections that would be so cumbersome as to prove impossible by more orthodox means. The designers inadvertently demonstrated the superiority of the Intermedia concept when they made printouts of the material that would later appear on-line. They discovered that the materials were so unwieldy as to be unusable in standard book-form."

Use of Graphics

Brown's Intermedia program incorporates the manipulation of non-textual as well as textual materials, and van Dam and his colleagues have carried out extensive research programs for the use of graphics in several instructional fields. Graphic illustrations are more than single aids to understanding or pleasant accompaniments to text. They often constitute the only practical way to deal with core educational concepts. They are also powerful aids to developing intuition in all fields of learning, as well as powerful aids to research in their own right.

Brown is not alone in its concern with graphics. Other New England educational institutions have been concerned with this problem as well. Dartmouth College has been a continual pioneer in its development of computer facilities. John G. Kemeny, one of the developers of the BASIC programming language, was president of Dartmouth in the 1960s. Dartmouth students learned BASIC from the beginning of their education, and were well-established as programmers long before many students at other institutions had ever laid hands on a computer.

Dartmouth remains a major force in educational computing, still using a strong mainframe computing environment, although these days Macintosh Computers are beginning to dominate the campus. Last year, Dartmouth "wired" all of its dormitories, allowing the students to "plug-in" their Macintoshes to the University mainframe, or use them as stand-alone personal computers.

One of the strengths of the Macintosh is the ease with which it produces graphic images. Faculty at Dartmouth have worked to take the best advantage of that capability in developing computer-based educational materials. Under grants from the Sloane Group, the Koch Foundation and the Pew Memorial Trust, Dartmouth faculty members have formed teams consisting of a professor and a programmer to create the new programs. Many of these programs take full advantage of Macintosh graphics capability. Thus far, prototype courseware has been developed to illustrate concepts in chemistry, philosophy and music.

One program under development, called Atlas, illustrates the importance of graphic representation for generating intellectual insight. In Atlas, students are able to take a base map and superimpose "overlays" showing railroads, rivers, physical or political features. For example, a map of twentieth-century cities in France could be superimposed over a map showing Roman Empire trade routes, allowing a scholar to compare and determine the interrelationship between the two. In the past, such comparisons were impractical without the expenditure of a great deal of time and labor.

At the Massachusetts Institute of Technology one

Imagine a copy of Oliver Twist where, at the touch of a button, documents dealing with Dickens' life, economic conditions in London and literary allusions in the novel could all be accessed while reading the text.

finds an extensive program for the development of new computer-based educational materials: Project Athena, which has begun to produce extensive graphics-oriented programs for use in a wide spectrum of courses from engineering to foreign language. Professor Edwin Taylor of the MIT Physics Department is currently using a program he developed under Project Athena which illustrates basic concepts in the theory of relativity, using animation and graphics. Another program under development at MIT uses graphic and videodisk images for the teaching of foreign languages. One of the components of the extensive program, also sponsored through the Annenberg/CPB project, is a "conversation stimulator" called LINGO (Language Instruction through Graphics Operations). Using this program, a student will be able to translate words in a foreign language into graphic images on the screen.

Obstacles Remain

There is still much to be done before any of these applications will be widely used in research or in the classroom. The course and research materials mentioned above, though potentially exciting, are all in prototype form. Indeed, the number of actual new materials being used in any classroom is still very small.

continued on page 55

RESHAPING

THE COMING OF

by Dan Dimancescu, Partner, Technology and Strategy Group

The 1980s might be called "America's R&D Consortia Years." Industry/university research collaboratives have proliferated, driven by international competition. Numbering a mere dozen or so four years ago, there are now fifty or more, and many others are in the works. Some have European members, but most deliberately exclude Japanese firms. In this they project a sense of tension, even fear.

Universities, State Governments Set New Agendas

A major shift of attitudes has occurred within our universities. Many, including the most prestigious, now actively seek relationships with industry that go far beyond fundraising or simple contractual, one-to-one relationships. In part, this reflects a new agenda at the federal level, as funding for R&D is cut back and new sources are tapped. But something more vital is at work when one considers the number of companies involved in particular consortia. Stanford's Center for Integrated Systems, founded in 1980, has 20 member companies buying in at \$750,000 over a period of three years. Rutgers' Ceramics Center boasts 31 members, Carnegie-Mellon's Robotics Center, 28; and the Microelectronics and Computer Technology Corporation, loosely affiliated with the University of Texas in Austin and Texas

A&M, has 21. The Rensselaer Polytechnic Institute has 90 partners in a complex of consortia within consortia. Some of its largest members are New England-based firms such as Digital Equipment Corporation and the Norton Company.

The Polymer Science Research Institute at the University of Massachusetts/Amherst is making headlines. It has 18 member companies, including Monsanto and U.S. Steel, and receives substantial state and federal funding. The Massachusetts Institute of Technology is, of course, a veteran player in this game. Without doubt, big business is invading the university, and some are wondering whether scaling our ivory towers should be allowed.

Dr. Terry Loucks is vice president of corporate technology at the Norton Company, a rapidly changing, old-line abrasives manufacturer in Worcester, Massachusetts. "After Sputnik and Apollo, a post-war peak," he says, "we saw the demise of strong central corporate R&D labs. They were dropped as overly-expensive technology resources and stopped communicating with universities. But when new technologies offered new solutions, where were we to turn? To government labs? Previously they hadn't cooperated. So it was back to the academics, and amazingly, we found they hadn't given up. They were still quite strong. Maybe things weren't always in the right piles. But people began to restructure academia so that it could deal with the national economic threat more effectively."

Digital Equipment Corporation and IBM initially jockeyed one another for the opportunity to "help" MIT. Both eventually combined to form the Athena Program and are now giving money, equipment and personnel to the tune of \$50 million to MIT alone. For DEC, which is only 1/10th the size of IBM, this is just one of approximately 20 university ventures in which it participates, not just to sell equipment or influence future buyers. Its goal is innovation—developing new products and processes—and access to the rarest commodity of all: the brainpower of talented people.

Not surprisingly, at least a dozen state governments have also undergone a change of attitude. New York state, for example, has a well-funded and well-executed strategy for creating high-tech industry-university centers of advanced technology (CATs). So do New Jersey,



ACADEME: R&D CONSORTIA

Michigan, Indiana, and Pennsylvania, among others. North Carolina's initiative, sparked some 25 years ago, is a successful, often-cited model that many wish to emulate. It links five academic institutions and seven companies around a common research facility, the Microelectronics Center of North Carolina.

Paradoxically, some regions, like New England or the West Coast, have less well-developed government programs. Some would say they were slow to the mark because they had a head start on everyone else, much of it fueled early on by heavy investments of federal defense dollars and later by home-grown venture capital. Some states, like Illinois, have been surprisingly slow to act. One thing is clear, however: most state governments are aware of the job-creating, tax-base enhancing potential of the industry-university consortia, and have jumped on the bandwagon.

In New Hampshire, Senator Warren Rudman helped bring major federal funding to engineering programs at the University of New Hampshire and Dartmouth College. In Connecticut, the Governor's High-Technology Advisory Council has supported programs like Yale's Science Park or the complementary University of Connecticut's burgeoning ConnTech Park on campus-owned land at Storrs. In Massachusetts, the governor's office started in late 1985 to promote a network of Centers of Excellence in diverse technologies, including biomedicine in Worcester, marine sciences in southeastern Massachusetts, and photovoltaics at Logan Airport and the University of Lowell.

What's taking shape is a broad picture of institutions that are shifting their ground and setting new agendas. University of Massachusetts/Amherst Chancellor Joseph Duffey, in his 1985 annual report, reaffirmed the University's mission: "The challenge to our economy is clear, and the University of Massachusetts/Amherst has a role to play in it. As our national economy becomes more dependent upon new technologies and knowledge-based industries, the importance of the University in (the

partnership of government, education and business) must increase."

More Stanfords, Fewer Yales

Not all universities have responded to the change, nor do they need to. One of the strengths of the American educational system is its diversity. We can gamble on different combinations of liberal arts, industrial programs and government research, and discover by trial and error, as well as by intelligent choice, what works and what doesn't.

But what was a "push" of knowledge out of basic research labs on campuses into the mainstream after World War II now looks increasingly like a "pull" exerted in a specific direction by companies involved in R&D relationships. "When I was at Stanford," says Frank Newman, now president of the Education Commission of the States, "I was struck by the fact that we were always prepared to discuss issues of technology, whereas Berkeley—the state university—would never do that. Now Berkeley's changing a lot of that. At Stanford, more departments are willing to get in and actually talk with industry. Yale is like the old Berkeley—staunchly sticking to liberal arts with a disdain for applied technology. On the horizon, I think that there will be more Stanfords and fewer Yales. In ten years, where there are ten to twelve Stanfords and 100 Yales today, there will be 70 to 80 Stanfords and the rest of them Yales." This trend has profound implications for the national economy.

What's behind the move towards "more Stanfords, fewer Yales"? What drives the marriage between industry and universities? Or the new *troika*, if the state or federal government plays a role, as is usually the case? Part of it is the subtleties between the "pull" vs. the "push" of technology.

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During the postwar period, the advent of large pure research universities gave credence to the whole notion of ideas being pushed into the marketplace by researchers working in laboratories heavily funded by federal dollars. But in recent years, a new view prevails: ideas must be "pulled" out of the university in response to the immediate and definable needs of the marketplace. Under fire is the apparent luxury of sustaining costly pure-research labs, achieving dubious results. Another view is that of a documented dearth of commercially viable ideas emerging from long-standing space programs (NASA) or atomic energy (Atomic Energy Commission). Perhaps the main reason for this intellectual aridity is the startling reality of the relentless foreign economic challenge. Our overseas competitors are winning more and more economic ground.

Technology has always been a source of strength for the American economy. Even when Japan's Ministry of International Trade and Industry (MITI) declared as recently as 1980 the nation's goal of becoming the world's leading innovator and technological power, few Americans took notice. In 1982, we were still running a healthy trade surplus with Japan, not so much in autos and other manufactured products as in agriculture and high-tech products. By 1984, the numbers for high tech had dramatically reversed—partly the result of a strengthened dollar making imports cheaper. That year, figures showed Japan exporting over five times as much technology to the U.S. as we sold to it. In overall world trade, U.S. high-technology exports fell from a massive \$8 billion surplus in 1980 to an alarming \$8 billion deficit in 1984. Semiconductors fell from positive \$500 million to minus \$3 billion during the same period. By 1985, our overall deficit with Japan in all trade was \$50 billion, or about a third of the total national trade deficit.

While global competition may have sparked the creation of consortia, it also created its own dilemma: knowledge, like money or grain, is interchangeable. It ignores barriers and travels swiftly from country to country. But if internationally far-flung companies are one reason that technology moves across national boundaries so quickly, so is the very openness of American university admission policies—a feature that should not be changed. But that accessibility permits large numbers of foreign students, many on leave from corporations, to be enrolled. In engineering Ph.D. programs, there are more foreign than American students. Though we profit from new talent coming to the U.S. and potentially staying on, there is also the competitive disadvantage we risk when students return home with the latest technological

R&D consortia are a litmus test of our economy's health. Though experimental, they point to deeper changes at work in the economy and among our institutions.

knowhow. Some observers believe that foreign competitors, especially the Japanese, have tapped our "free"

resources long enough.

Perhaps that is why generally open attitudes toward knowledge-flow within consortia change abruptly when it comes to Japan. Most consortia members resent Japanese participation; none of those we studied had Japanese members. There was a pervasive feeling that the Japanese strategy was simply to watch and wait for the published research of American industry/university consortia. James Koontz, President of Kingsbury Machine Tool Company in Keene, New Hampshire, chairs a national committee to create a National Center for Manufacturing Science with a hefty \$500 million endowment. One of its primary goals is to give "U.S.-only" member firms a head start on foreign competitors by funding university-based researchers and allowing them to see the results before anyone else.

There has been a major shift of attitudes within our universities. Many, including the most prestigious, now actively seek relationships with industry that go far beyond fund-raising or simple contractual, one-to-one relationships.

"We won't even talk to Japanese companies," says Chris Le Maistre of RPI's Center for Manufacturing Productivity. "They listen and observe but never give anything in return. I know Mitsubishi would give us a million dollars, but so far we've refused." But knowledge and know-how do not follow a formal path, and the dilemma of beating the Japanese—or others—to the punch may remain unresolved despite the closed-membership ground rule of most consortia. For the present, the issue is one of pace rather than possession. Just staying ahead may be the best the new alliance can offer.

Will They Last?

These new consortia are still experimental. They all agree on the need to move ideas more rapidly into the economic mainstream. But no one can predict how long they will last, whether they are a phenomenon we will see expand and multiply, or whether in a decade or two they will disappear.

To date, their combined annual research budgets do not exceed \$300 million, if one excludes the likes of Bellcore and its near-billion-dollar pooled budget. Such sums look small when viewed against an annual national R&D expenditure, public and private, of close to \$117 billion. The significance lies in the availability of experimental money, or money "at the margin." These collaborations, allowed by less restrictive antitrust laws, range in size from under \$1 million to over \$100 million; but for the most part they are considerably larger than their earlier counterparts. They are usually in the \$5 to \$50 million range, and focus on knowledge-intensive technologies such as information technology, semiconduc-

tors, robotics, telecommunications, optics, medical or agricultural biotechnologies, or advanced materials like ceramics and polymers. Frequently, they take on the state or federal government as a partner, and occasionally look to foundations as primary funders.

The Microelectronics Center of North Carolina is an example. Housed in a sleek-looking complex, the consortium coordinates the work of 150 faculty and staff and about 200 university-based associates who concentrate on sub-micron microelectronic technologies backed by over \$80 million in mostly public capital investments. Part of them helped finance a state-of-the-art silicon semiconductor fabrication laboratory. "There's a cooperative dialogue going on here with government and universities," says James Dykes, vice president and general manager of G.E.'s semiconductor division, "which none of us had ever seen before." Indeed, the MCNC has far exceeded the expectations of everyone involved in its creation. Originally conceived as a regional research center, it is now a world leader in the field.

Take RPI's Center for Industrial Innovation. It coordinates and encompasses three separate RPI centers: the Center for Manufacturing Productivity (CMP), the Center for Interactive Computer Graphics (CICG), and the Integrated Electronics Center (IEC). Each center qualifies as a major industry-university consortium. The CIG alone has 38 industrial partners, and is considered the top graphics

laboratory in the world.

CICG started up in 1978, CMP in 1979, and IEC in 1980. According to Graham Jones, director of the New York State Science and Technology Foundation, "it was the high tech/Japan thing that got them going." The three centers were combined into one unit in 1982, with the award of an interest-free loan from New York State of \$30 million, matched by another \$30 million from Rensselaer, to construct a building that integrates the work of all three centers.

One RPI facility, the Center for Manufacturing Productivity and Technology Transfer, houses—as described by Associate Director Bob Messler—"a consortium within a consortium within still another consortium." That is, the CMP is an integral part of the larger three-center consortium. Within the CMP is the Computer Integrated Manufacturing (CIM) program. Messler explains: "We have two types of activities: projects and programs. Projects are short, six- to 15-month contract research deals signed with individual companies to produce a specific product. There are 16 companies with 18 contracts at about \$150,000 each; for example, NA Philips, Timex, Allied Technologies, Cincinnati Milacron, Boeing, Fairchild, CM, Schlumberger, and Hughes Aircraft."

There are also "programs" like CIM, which is a consortium within the CMP. CIM is funded for three years

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NONTRADITIONAL STUDENTS:

A PROVEN REGIONAL MODEL AT SMITH COLLEGE

by Mary T. Callahan

Adelaide, a 51-year-old mother of six, makes a weekly commute from her home on Cape Cod to Northampton, Massachusetts, where she is majoring in English at Smith College.

Marianne, a high school drop-out in her late thirties and mother of two teenage children, is also at Smith, pursuing her undergraduate degree.

Susan, now a marketing coordinator, was a welfare mother before graduating from Smith at the age of 38. Adelaide, Marianne, and Susan all came to Smith—

America's largest private college for women—through the Ada Comstock Scholars Program, which is designed for students who do not fit the typical undergraduate mold. The Smith initiative is just one example of a growing number of opportunities for non-traditional-age students being offered at private colleges throughout New England.

This year statistics reveal that over one third of the 12.4 million students enrolled in college degree programs are over 25. Other studies project that by 1990 over half of the college students in the United States will be older than the traditional 17-to-22 age range. Historically, "older" students have enrolled in state universities or community colleges. But the combination of demographic changes and an increased interest in undergraduate liberal education among older students has prompted private colleges to establish bachelor-degree programs for non-traditional age students.

Evidence of this trend can be seen in last fall's formation of a consortium among twelve selective New England liberal arts institutions offering such programs: the "Consortium for the Education of Non-Traditional Students in Degree Programs," (CENTS), whose members are Amherst College, Bates College, Brandeis University, Brown University, Connecticut College, Middlebury College, Mount Holyoke College, Smith College, Trinity College, Tufts University, Wellesley College and Wheaton College.

According to Eleanor B. Rothman, director of Smith's Comstock Program and founder of CENTS, "As the number of programs for older students increases, organizations such as CENTS are needed to establish a forum for discussion of issues of specific interest to those who work with re-entry students, and to provide a basis for research and planning."

Smith College has been a leader in the development of programs for the non-traditional student. As early as 1968, a number of women beyond traditional college age returned to Smith to complete educations they had abandoned earlier, usually in favor of marriage. In response to their needs, "The Mature Women's Program" was formed. Flexible scheduling allowed women to spend two-and-a-half times the usual number of semesters to complete their degrees. The program was not widely publicized, but between 1968 and 1975, 33 women entered Smith under its auspices. In 1974, the program was briefly renamed "The Continuing Education Degree Program."

In 1975, responding to increased interest by older women, Smith College created the Ada Comstock Scholars Program, which set neither age nor time limits on its participants. The program was designed for women whose education had been interrupted, allowing them as much time as needed to complete their degrees. The new program was named for Ada Comstock, an 1897 Smith graduate who became a Smith dean, and later served as the first full-time president of Radcliffe College.

The development of the Comstock Program and its continuing impact on the entire Smith community offers

insight into how an older college population will affect traditional academic institutions. "Programs such as this," Rothman points out, "demonstrate that liberal education creates highly significant opportunities for learning later in life. One can only speculate about the reasons for the acceleration of inquiries from women over the age of 22 that occurred ten years ago: the women's movement, the growth of community colleges, the advancing age of 'baby boom' children. Whatever the reason, Smith in retrospect reacted very creatively."

In many respects, women in the Comstock Program and their younger classmates are treated similarly. They must take the same courses and participate in the same extracurricular activities; some even live in campus dormitories. Almost all the women who enter the program have at least some college experience; the admissions criteria are comparable to those for traditional-age students. The program has an extraordinarily low withdrawal rate: of those who first matriculated as Comstock Scholars, an impressive 94.5 percent have graduated or are still enrolled.

These Programs Benefit Everyone

The crucial difference between the Comstock Scholars (who range in age this year from 20 to 67, with a majority of 52 percent aged 30 to 40) and their 17-to-22-year-old counterparts is that they may take as long as needed to accumulate the credits necessary for graduation. Most students in the program take two or three courses each semester, instead of the usual four. The women are given unlimited time in deference to their other responsibilities, which usually include children, husbands, jobs, and homes. This year, 27 percent of the Comstock undergraduates are married women with children; another 35 percent are single parents. Serving only 35 students in 1975, the program has grown dramatically. There are 280 undergraduate Ada Comstock Scholars today, comprising over ten percent of the Smith student body. A total of two hundred and sixty-three Comstock Scholars have graduated.

One reason for the program's growth and the interest it continues to attract is that *everyone* involved benefits—traditional students, faculty members, the women themselves, and society in general. "An older person's viewpoint can have a refreshing effect on a class," Rothman says. "Faculty members have learned to listen with as much fascination as their traditional students when an 'Ada' shares her memories of the Depression, the McCarthy era, or World War II."

Says senior Paula O'Loughlin, "Ada Comstock Scholars have brought a different perspective to the classes I've had. They offer different insights, they appreciate learning a lot more, and they always come up with the next question."

Former nontraditional students are committed to the growth they experienced and the opportunities their education continues to provide. Gilda Palano, a 1984 graduate who is now a political aide, writes, "I spent four years at Smith because two courses a semester was all I could handle while juggling family commitments. Despite the extra student loans I had to assume, I don't regret the time or the money. It was four years of incredible growth—academic, psychological, social, and personal."

From Welfare to Well-Being

At Smith, Ada Comstock Scholars are eligible to receive financial aid on a need basis, as are other Smith students, and on the average their need is greater. As a result, perhaps, of this greater determination, Ada Comstock Scholars are frequently outstanding students, earning honors at roughly twice the rate of their younger classmates.

For some in the program, a Smith education is the key not only to intellectual growth, but to removing themselves from public assistance programs. Rothman estimates that eight to nine percent of the women presently in the program are welfare mothers.

In 1979, the Charles Stewart Mott Foundation awarded

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Smith \$750,000 to conduct a six-year pilot program for the education of women who qualified for Aid to Families with Dependent Children (AFDC). The Mott Foundation grant has since been exhausted, but the program has impressively raised almost \$800,000 to continue what is now called the "adjunct program," for women whose needs cannot be met by the college's traditional financial aid program. "The driving philosophy of the adjunct program is a pragmatic one; that is, an educated woman is more likely to be able to remove herself from public assistance than an uneducated one," says Rothman. Of the Comstock Program's alumnae, 35 were subsidized by the Mott Foundation. Two Mott-funded women and six others in the "adjunct program" are among the 30 Comstock Scholars who graduated in May.

For the past six years, Robert Coles, professor of psychiatry and medical humanities at Harvard, has been conducting a study of the program and its Mott-funded component. He remarks, "There is no question that the funding of some students by the Mott Foundation has succeeded in its obvious (and important) intent: it enabled a number of women on welfare (receiving AFDC) to attend Smith College, graduate from it, go on to further educational training and/or to full employment—to further break free decisively from the welfare system."

In reducing the number of welfare recipients and

building an educated and more productive workforce, the Ada Comstock Scholars Program benefits the world outside Smith. As of October, 1985, among the 263 Ada Comstock alumnae were three physicians, eight attorneys, many government employees and at least 20 employees of social service agencies, community organizations and hospitals. In addition, over 40 former Comstock Scholars work in corporations, publishing houses, insurance companies or newspapers, and more than 30 alumnae are involved in some field of education; at least three are self-employed. "Many alumnae remain in Western Massachusetts, where they are making significant contributions to the intellectual, cultural and entrepreneurial activity of the region," Rothman adds.

The success of the Ada Comstock Program and the proliferation of others like it will shape the future of New England higher education. "The result of the program," Coles points out, "has been any number of not unimportant ripples set in motion: women with relatively restricted employment possibilities are now better off economically, and feeling far more useful and productive at work and at home." Not least, about 25 percent of the 'Adas', as opposed to 20 to 25 percent of traditional-aged Smith students, pursue graduate programs. The program sparks dramatic changes in the lives of most Ada Comstock Scholars, and it is likely that the "Adas" will transform not only Smith College but the outside world as well. ■

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by seven corporations (IBM, DEC, Alcoa, General Electric, Kodak, Norton, and United Technologies) at \$7 million. CIM means the full integration of CAD (Computer Aided Design) with CAE (Computer Aided Engineering) with CAT (Computer Aided Testing) with CAM (Computer Aided Manufacturing) with business planning. The RPI school of management is a participant in the CIM consortium. Projects are organized by workteams: a project manager, faculty, industry engineers and students. Digital Equipment Corporation's vice president Ron Cadieux considers CIM "the finest program of its kind in the country."

R&D consortia are a litmus test of our economy's health. Though experimental, they point to deeper changes at work in the economy and among our institutions. "How would you have felt at the end of World War II when the Office of Naval Research had just done such an amazing job and the NSF had just been set up?" asks John Linvill, co-director of Stanford's CIS. "How would this influence the role of graduate education in the United States in the 60s? You would have been pretty pessimistic. Yet it happened in spite of itself. In my opinion, these consortia are still experimental and they must succeed on their own turf. However, if we do not exert in ten years the same level of influence on the way industry and education perform in both technology and organization, then we've missed our opportunity."

We shouldn't forget that it was Justin Morrill, a Vermonter, who helped establish the foundation of America's first industrial revolution. Which brings up the question of whether the time is ripe for another revolution in education equivalent to that of the 1860s, when the Morrill Act created the Land Grant College System.

We know how difficult it is to achieve such a change in thinking. "Nearly the entire community opposed the Morrill Act," says Frank Newman, former president of the University of Rhode Island, a land-grant university. "But the Morrill Act transformed the universities. We eventually became research universities as a result of the Morrill Act. Yet the effort was nearly subverted. Brown University in Rhode Island and Yale in Connecticut became land-grant institutions. They soon lost that status because they tried to subvert it, as did many other private colleges. Only two private ones are left: MIT and Cornell. Basically, new institutions were created and we subverted the university process."

Today's consortia are qualitatively different from their predecessors. They may herald a broadly-based institutional shift towards a bottom line of refocusing our national energies on generating wealth. ■

This article is excerpted from The New Alliance: America's R&D Consortia by Dan Dimancescu and James Botkin (Ballinger Publishing Company), to be published in September 1986. The study for the book, which compares fourteen new R&D consortia, was funded with the support of the Carnegie Corporation of New York.

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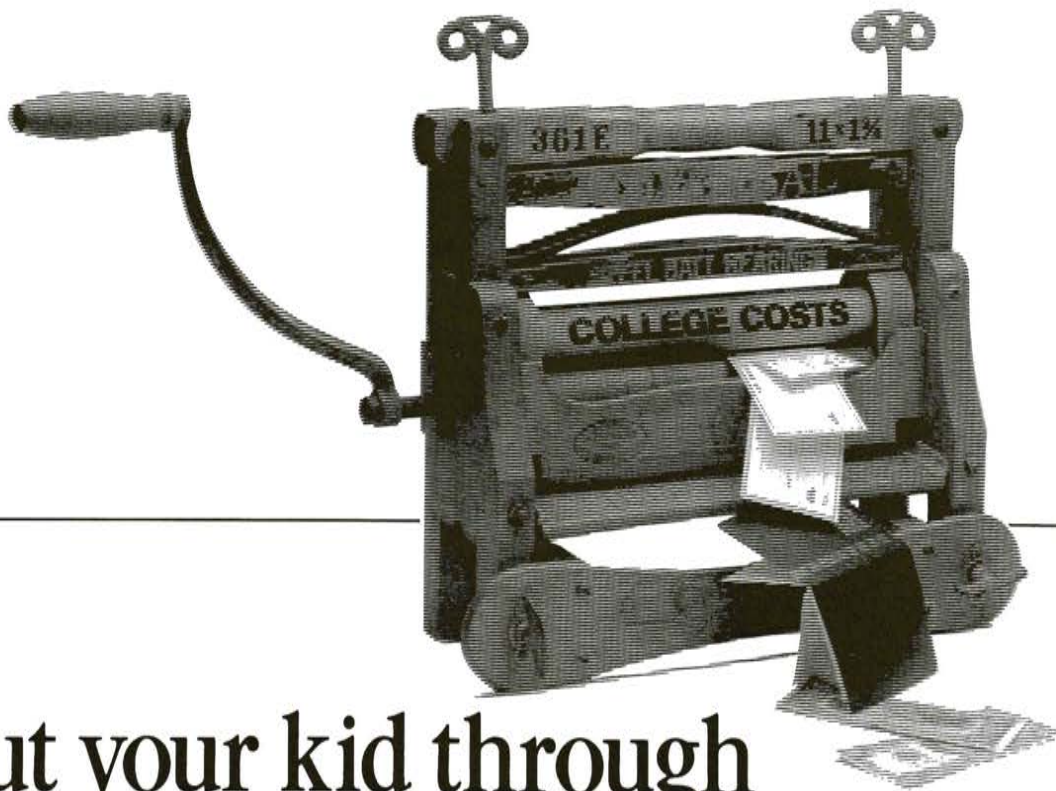
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the pool of educational funds, both public and private, and to form a broad coalition for investing in human capital; this coalition should include the New England Board of Higher Education. The third step is to bring home to our elected leaders the message that they cannot allow a serious budget deficit to become—as Congressman John Porter of Illinois recently warned—an exercise in “fiscal child abuse.”

McLaughlin: Long-term solutions to financial aid limitations must be found in leveraging the institution's credit capacity to provide attractive and affordable loan packages. The alternative is to lose qualified students or sacrifice programs which contribute to the academic excellence of the institution in order to afford increased scholarship funds. Neither option is appealing.

Trachtenberg: One thing is certain: the system that emerges at the other end of the tumultuous process we are now engaged in will bear little resemblance to the one we have today. The change will be overpowering—until we get used to it, as I'm sure we will.

Johnson: There are no obvious solutions to these problems. Here in Maine, the university system has recently been allotted \$15 million to improve and upgrade the system. But this is just a down payment. It took a major effort, and it will take little pressure off students' pocketbooks. But the basic problem of offering education within the grasp of students from a relatively poor state remains. We are stressing private giving as one answer, and have found that companies and others who have not traditionally given to public institutions are now altering that practice.

Keohane: The real resolution to the dilemma of sustaining a high level of academic excellence at a time of rising costs lies in belt-tightening. We must not underestimate the need to look at all aspects of a budget to determine the most productive and appropriate use of resources in both the long and short run.

Emerson: It is an essential responsibility of state and federal government to invest in educating the next generation, at advanced as well as the elementary and high school levels. The demographics pointing to a rising number of retired persons in relation to the number of people in the work force are clear evidence of the importance of assuring that every individual be as productive as possible in society. It is also imperative that the entire business community understand the implications of the extraordinary changes we have seen in society with respect to family life patterns, especially women in the work force, and the implications for our aging. If we are to address the needs of the next generation and beyond, our economic, political and educational institutions must forge new and creative links and partnerships. ■

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by Michael J. Bennett
Washington Editor

GAMESMANSHIP REPLACES FERVOR IN HIGHER-EDUCATION ACT REAUTHORIZATION

"A billion here, a billion there; after a while you get into real money." That's what a weary, unfailingly sardonic Senate minority leader, Everett Dirksen, said a generation ago while trying to stem the floodtide of Great Society Legislation.

Twenty years later, reauthorization of the Higher Education Act of 1965, probably the most significant—and popular—of all the bills passed in that period of optimism, is proceeding behind a camouflage of less-than-real, if not entirely phony, money. And maybe that's the way it should be in an era marked by cynicism about the ability of the federal government to do good—without doing too well itself.

Fervent appeals to idealism and invocations of the historic success of the Morrill Land-Grant Act and the original GI Bill of Rights no longer sway votes in Washington. A former teacher no longer resides in the White House; we have a president with a different set of priorities. Fortunately, or unfortunately, those priorities have not included a thorough overhaul of the Higher Education Act. Because of this, reauthorization probably won't change any fundamental provisions in the act but could cut funding to crippling levels. Avoiding that contingency, Senate and House

leaders have agreed, will take crafty gamesmanship rather than lofty appeals, and a price will be paid, if only in those less-than-real dollars.

The less-than-real money is a form of little-understood Congressional scrip called authorization dollars, which, though literally worthless, can be used to play more games than were ever imagined by the high rollers on Wall Street or Las Vegas. Authorization dollars, effectively used, can be multiplied, subdivided and raised to the nth power to satisfy almost any political purpose.

Republicans and Democrats in Congress are keenly aware that the political purposes served by the Higher-Education Act go far beyond helping students attend college. They also encompass the financial interests of lenders, parents, and academic institutions. And those considerations place most members in direct conflict with the highest priority of the Reagan administration: cutting spending even beyond the reductions imposed by Gramm-Rudman to avoid a tax increase. While the sweeping overhaul of the federal tax code, conceived by Sen. William Bradley (D-NJ), shepherded by Sen. Robert Packwood (R-OR), chairman of the Senate Finance Committee, and endorsed by the Presi-

dent, goes a long way toward reconciling the interests, they are still there and still in conflict.

Consequently, the President's proposed budget for fiscal 1987, which begins October 1 and ends September 30, 1987, calls for cutting an overall 26 percent out of the entire Higher Education Act. Even the highly popular Pell Grant Program (named after Rhode Island Senator Claiborne Pell and designed to help college students from the nation's neediest families) won't be spared. The President's budget calls for an additional \$180 million to be cut out of the Pell Program, which already faces a \$154.2 million Gramm-Rudman reduction. That amounts to an overall ten percent reduction in the student assistance program. In 1985, \$3.6 billion was actually appropriated, which provided awards to 2.8 million students.

In sharp contrast, the education committees of the House and Senate, unanimously and from both sides of the aisle, raised the amounts authorized for Pell Grants substantially, up 29 percent in the Senate version to \$4.4 billion and up 36 percent in the House to \$4.7 billion.

That makes many conservatives, not to mention some "thoughtful members of the education lobby," unhappy.

FEDERAL STUDENT LOANS AND GRANTS (TITLE IV)	1986 Base Authorization:	1987 Senate Authorization:	Plus, Minus, Percentage:	1987 House Authorization:	Plus, Minus, Percentage
Pell Grants	\$3,586,546,000	\$4,444,000,000	(+29%) +\$969,454,000	\$4,783,000,000	(+36%) +\$1,296,494,000
Supplemental Educational Opportunity Grants	\$ 725,000,000	\$ 433,000,000	(-42%) -\$292,000,000	\$ 500,000,000	(-33%) -\$ 250,000,000
State Student Incentive Grant	\$ 250,000,000	\$ 76,000,000	(-74%) -\$184,000,000	\$ 100,000,000	(-60%) -\$ 150,000,000
Student Support Services (TRIO) or disadvantaged	\$ 490,000,000	\$ 188,000,000	(-64%) -\$312,000,000	\$ 400,000,000	(-19%) -\$ 90,000,000
Migrant (HEP & Camp Programs)	\$ 18,000,000	\$ 7,800,000	(-50%) -\$ 10,000,000	\$ 12,000,000	(-47%) -\$ 8,000,000
College Work Study Program	\$ 830,000,000	\$ 622,000,000	(-29%) -\$208,000,000	\$ 700,000,000	(-15%) -\$ 130,000,000
National Direct Student Loan Programs (Perkins)	\$ 653,000,000	\$ 228,000,000	(-69%) -\$445,000,000	\$ 328,000,000	(-31%) -\$ 225,000,000
Guaranteed Student Loan Program	\$3,727,000,000 (Cost in '86; Entitlement)				

Computed for Committee on Education and Labor by Congressional Budget Office

according to Denis P. Doyle and Terry W. Hartle, resident fellows at the American Enterprise Institute in Washington. Writing in the February issue of *The Atlantic*, they argue that education lobbyists "know the student-aid system is being abused—as evidenced, for example, by the high default costs of student loans. They know that the system, which comprises a half-dozen major programs and a handful of smaller ones, is far too complex for many students and their parents to understand. And they know that Washington's key objective over the past two decades—helping the financially needy to obtain the benefits of post-secondary education—is being compromised as the government seeks to aid students from middle-class families. Among educators this is an open secret. But the price of doing something about it is one no one is willing to pay."

And, in fact, even the increased amounts available through Pell Grants won't go very far toward meeting the needs of the truly needy, not when families with income levels pegged at \$30,000—after state and federal taxes—can qualify. A pretax income of \$42,000 to \$45,000 hardly rates as riches, but could be stretched to accommodate education expenses for one or two children.

The \$2,100-a-year currently available under Pell Grants—requiring no repayment—is obviously much more needed by families with incomes under \$15,000. But the only preference the Senate version offers those under-\$15,000 families is a "simplified application form," while relatively affluent families will be afforded grant levels of \$2,400 in 1987, \$2,600 in 1988, \$2,800 in 1989, \$3,000 in 1990 and \$3,200 in 1991 in legislation being considered at a time when inflation is leveling off.

Education Department Lacks Leadership

Unfortunately, the Reagan administration, while eagerly accepting credit for reducing inflation, hasn't offered Congress much guidance in dealing with the impact on education. The first efforts of Education Secretary William J. Bennett to introduce some reforms in the system, according to Doyle and Hartle, were: "poorly conceived, clumsily drafted, and shortsighted in the extreme; they went nowhere on Capitol Hill." Doyle is even more caustic about the Education Department's efforts since then; phrases like "height of irresponsibility" and "cavalier indifference" pepper his conversation.

Republicans seem to agree with him.



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They are perhaps even more critical than Democrats of the Education Department's lack of leadership. The Education Department didn't even present Congress with written comments on the Senate and House authorization measures until April 7, according to an aide to U.S. Representative James M. Jeffords (R-VT), the ranking minority member of the House Labor and Education Committee. That obviously wasn't much help to the House members who reported a bill out of committee in November, or to the senators whose bill was reported in March.

"As the old saying goes, 'If you want to be in on the landings, you have to be in on the takeoffs,'" says Beth Buehlmann, an aide to Representative Jeffords. "You can't be an effective player if you don't participate in the process."

The major moves in the process, the strategic game plan decisions, were made by April. The Senate bill unanimously reported out of the Committee on Labor and Human Resources—signed by New England delegation members Senator Pell, Senator Edward M. Kennedy (D-MA), Senator Christopher J. Dodd (D-CT), Senator John F. Kerry (D-MA), Senator Robert T. Stafford (R-VT) and Senator Lowell P. Weicker, Jr. (R-CT)—eliminated all funding for three categorical programs, adult and continuing education, construction, reconstruction and renovation of academic facilities, and community partnerships and economic development. In addition, cuts ranging from 29 to 74 percent were mandated for student aid programs such as college work-study and state student-incentive grants.

The committee members, including conservative stalwarts Senator Strom Thurmond (R-SC), Senator Orrin Hatch (R-UT), and Senator Malcolm Wallop (R-WY), circulated a "Dear Colleague" letter among fellow senators, trying to collect as much support as possible before the committee report came to a floor vote. It was a high-stakes gamble, seeming to cut \$2 billion out of an overall \$9-billion budget in hopes that many of the cuts would be restored in conference with the House. The House version kept funds available for the three categorical programs eliminated in the Senate version—adult education, academic facilities and program development—and reduced the student aid programs considerably less than did the Senate.

The American Council on Education (ACE) endorsed the strategy, recognizing, in the words of Charles B. Saunders, Jr., ACE vice president for governmental

relations, that "none of the actual appropriations are below the authorization levels." The strategy could backfire despite the leading role Representative Jeffords and others can be expected to play in conferences attempting to reconcile the Senate and House versions of the reauthorization measure. "If we say we

Unfortunately, the Reagan administration, while eagerly accepting credit for reducing inflation, hasn't offered Congress much guidance in dealing with the impact on education.

need less," says Ann Shackleton, coordinator of the New England Congressional Caucus, "then we may get progressively less in future."

The Best Time for Reform

Such future reductions may turn out to be erratic slashes, Doyle and Hartle warn in their *Atlantic* article: a student-aid system that isn't overhauled could become "an increasingly attractive target for budget-cutters in the White House and on Capitol Hill....The danger in letting the budget process drive student-aid policy is that budget-cutting is a blunt instrument. Tough decisions do get made, but not all tough decisions are wise ones. The best time for reform is during reauthorization when policymakers have the chance to take a long, careful look before making any moves."

Facts seemed to get in the way of predictions, however, when the Senate on April 23 approved, 60-38, an amendment that would hike fiscal 1987 education spending \$1.2 billion beyond the \$17.7 billion mark proposed by the Senate Budget Committee in March. The only dissenters in the New England delegation were New Hampshire Senators Gordon J. Humphrey and Warren Rudman, both Republicans. "That's enough to restore the Gramm-Rudman cuts made in March and still leave enough to allow for future inflation," according to Saunders.

The vote followed a lobbying blitz of Senators by 55 college presidents orchestrated by ACE, and may encourage the House to raise the ante even more. But, as Saunders conceded, resolutions—no matter how dramatic and encouraging they may be to interest groups—are ultimately meaningless. The final votes on appropriations are all that

really count, although Doyle and Hartle are certainly correct in saying the authorization process provides a far better forum for reform.

But that assumes a need for reform, and Thomas Wolanin, staff director of the House Subcommittee on Post-secondary Education, insists Congress has done just that. "There's no need for a major overhaul," he says, "because the act works and everyone is basically satisfied with it." Where there are problems, notably with the Guaranteed Student Loan Program methodology and its "needs test," which was a particular target of Doyle and Hartle, Congress has moved to correct the abuses, Wolanin says.

Under the House bill, the "give"—

Fervent appeals to idealism and invocations of the historic success of the Morrill Land-Grant Act and the original GI Bill of Rights no longer sway votes in Washington.

Doyle and Hartle's phrase—in that methodology, which was designed for families with after-tax incomes of \$30,000 to \$70,000, will be taken in. The methodology assumed a family had no assets—no stocks, bonds or savings. "That was one of those cases of Republicans being generous and open-

handed again," Wolanin commented. Senator Dirksen would probably have admired the style, if not the content, of the remark.

After all the game-playing is over, the reauthorized act will, one hopes, retain some of the vision of its original author, President Lyndon B. Johnson, a master of Congressional maneuver and guile, who could nonetheless say of education, with an almost innocent fervor:

"Nothing matters more to the future of our country; not military preparedness—for armed might is worthless if we lack the brainpower to build a world of peace; not our productive economy—for we cannot sustain growth without trained manpower; not our democratic system of government—for freedom is fragile if citizens are ignorant."

Vermont's Lone Congressman Ambles to the Rescue of Higher Education

James M. "Jim" Jeffords, a maverick Republican from the "Northern Kingdom," chooses his words carefully but can be eloquent on subjects he cares about deeply.

One of those subjects is education, and as the ranking minority member of the House Education and Labor Committee, his words will count in efforts to restore many of the cuts needed to get a reauthorized Higher Education Act through the Senate. His position guarantees a seat on the joint House-Senate committee set up to reconcile the differences between the two measures and to come up with a bill agreeable to both chambers. The only other member of the New England delegation likely to be seconded to the joint committee is John McKernan (R-ME). McKernan's influence, however, won't be nearly as great because of his relative lack of seniority—four years as opposed to Jefford's ten—and because of his demanding campaign for the Republican gubernatorial nomination in Maine. Chester Atkins (D-MA) is a highly effective first-term congressman without seniority.

Jeffords, a tall, lanky Vermont native—his father, Olin, was chief justice of the Vermont Supreme Court—is seen as cut from the same timber as the state's quintessential Yankee senator, George Aiken.

One of five U.S. congressmen elected at large because there are only enough people in the state for one member (the other four are from Delaware, North and South Dakota and Wyoming), Jeffords has a reputa-

tion for being informed, thoughtful and accessible. He is a former attorney general from the Pine Tree State, who, in proper Vermont tradition, held a number of local positions ranging from zoning board commissioner to fire department trustee before running statewide for Congress. He is a graduate of Yale University and Harvard Law School, and has the distinction of being a U.S. Naval Reserve captain from the only New England state without an ocean coastline.

The authoritative *Almanac of American Politics* calls Jeffords "a Republican



Representative James M. Jeffords (R-VT)

with one of the most liberal voting records in his party. Even in 1981, when the Republicans were voting in lockstep with the Reagan economic policies, Jeffords was dissenting occasionally, as often as any Republican." By 1982, Jim Jeffords had become a pretty vocal critic of Reagan budget cuts, particularly where education was the target.

The *Almanac* continues: "Now, after

less than ten years in Congress, he is the ranking Republican on Education and Labor and second ranking on Agriculture. This is evidence of how quickly Republican ranks have been augmented and of the Republicans' deference to the principle of seniority, since Jeffords is not the kind of person they would have elected to these positions 'ab initio'.

"Education and Labor is increasingly a demoralized committee, as it tries to prevent the dismantling of old programs rather than plan the construction of new ones. Jeffords helps to ensure that its Republicans will not always take their cues from the Heritage Foundation."

And he can afford to do so without worrying about the electoral consequences. He passed up opportunities to run for senator in 1980 and governor in 1984, and would be a strong Senate candidate in 1986. "But his House seat is so safe and his seniority so impressive, he might very well choose to stay where he is," the *Almanac* concludes.

It also gives the Vermont congressman a chance to play a role Ronald Reagan might have jumped at when his acting was reserved for the silver screen—even though he doesn't get a chance to wear a white hat or ride a horse. His lines are as consistent as those of his Senate counterpart, Vermont Republican Robert Stafford, who has served as chairman of the Senate Subcommittee on Education, Arts and Humanities of the Full Committee on Labor and Human Resources. For education in general and higher education in particular, the people of Vermont have wisely given the nation two of their very best. —M.J.B.

UPDATE: BIOTECH IN NEW ENGLAND

Corporations throughout the Bay State have banded together to form the Massachusetts Biotechnology Council. The Council, says President Marc E. Goldberg (manager, business development, Genetics Institute, Inc. in Cambridge), will work to establish a strong working relationship with state and local leaders, and represent the interests of one of the state's leading growth industries.

Council members include Biogen Inc., of Cambridge; BioTechnical International, Inc., of Cambridge; Collaborative Research, Inc., of Lexington; Damon Biotech, Inc., of Needham; Genetics Institute, Inc., of Cambridge; Genzyme Corporation of Boston; Integrated Genetics, Inc., of Framingham; Millipore Corporation of Bedford; New England Biolabs, Inc., of Beverly; Repligen Corporation of Cambridge; and W.R. Grace & Co. Research Division of Lexington. The Council is affiliated with the Industrial Biotechnology Association, a coalition of 49 U.S. and international companies engaged in commercial biotechnology. Damon and Biogen are both represented on the NEBHE Commission on Academic Health Centers and the Economy of New England.

Biotechnology, broadly defined as the use of living organisms to make commercial products, dates back centuries to the use of such substances as yeast in making beer and bread. Our "new" bio-

technology started with the discovery of DNA, accelerating in the early 1970s with the genetic engineering of cells by scientists.

The first commercial products of the new biotechnology—drugs to fight disease and new diagnostic techniques for use in the detection of disease—are being marketed now by New England biotech corporations. Early regional prominence in biomedical applications is not surprising, given the preeminence of academic health centers in New England and the magnitude of medical research done here. Expected soon are products for use in plant and animal agriculture.

—JoAnn Moody

A closer link between the Massachusetts Institute of Technology and Massachusetts General Hospital was established recently with the appointment of a ranking professor and scientist at MIT as chief of MGH's department of biomedical engineering. The arrival of Dr. Ernest G. Cravalho coincided with his appointment as the first Edward Hood Taplin Professor of Medical Engineering in the Harvard-MIT Division of Health Sciences and Technology.

The professorship honors the memory of a brother of New England industrialist John Taplin. Taplin also created a foundation which supports research being conducted in the MGH Biomed-

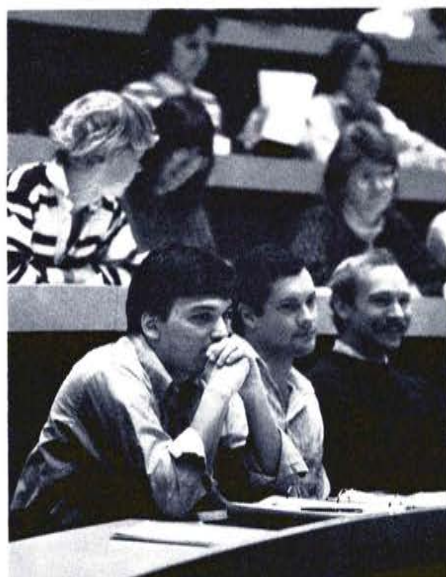
ical Engineering Department.

Cravalho will head a department numbering some 45 specialists, including researchers, engineers, designers, technicians and clinical fellows. He will share equal status with other MGH service chiefs and serve on the hospital's medical policy-making General Executive Committee. He will continue to serve as associate director for biomedical engineering in H.S.T.

Cravalho holds B.S., M.S. and Ph.D. degrees in Mechanical Engineering from the University of California at Berkeley, and has been on the MIT faculty for the past 20 years. A member of the Institute of Medicine in the National Academy of Sciences, he serves on the scientific advisory boards of several foundations and corporations. He has written extensively on the application of the engineering sciences to problems in medicine.

Cravalho has gained particular recognition for his research on the application of low temperatures to biological materials for purposes of long-term preservation. He directed development of the first programmable cryomicroscope now used in laboratories worldwide. Most recently, his interest has focused on the cryopreservation and transplantation of mammalian embryos and ova.

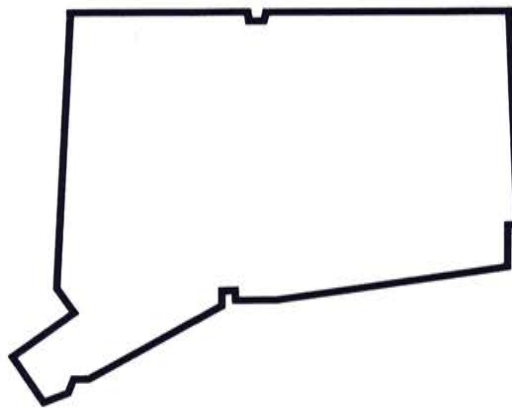
—John C. MacLean



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Moreover, the development costs for new computer-based classroom materials is extremely high—in the hundreds of thousands of dollars in labor costs for a single course. General-purpose tools such as Brown's Intermedia will bring the costs down dramatically by allowing new users to develop materials on the system without the need for high-cost programmers, but the overall commitment of time and energy is still considerable at this stage.

As resources become scarce, the funds for development will be concentrated in a narrow range of institutions. In addition to Brown, MIT and Dartmouth, there are only a handful of other "leading-edge" institutions conducting active research into new applications in the social sciences and humanities, principally Carnegie-Mellon University and Stanford. This makes much less likely the prospect of developing excellent tools quickly.

More disturbing for faculty is the discovery that

the time they devote to developing computer-based materials yields them few professional rewards. Young faculty members most enthusiastic about developing new computer applications find that they get little credit for their efforts when it comes to tenure reviews in their disciplines. Older faculty members find that their colleagues think that they are engaged in recreational activity when working with the computer.

Students are providing the computer-development impetus at most New England colleges, as well as the programming talent for the applications envisioned by their instructors. Incoming freshmen throughout New England in 1986 will have had nearly 100 percent exposure to computers before entering college, and will expect them to be part of the learning environment. It is likely that computer use in the social sciences and humanities may find its ultimate shape and form not through discoveries made by designers and faculty planning committees, but by students testing the capacity of machines in their everyday academic work. ■

How Do Independent Colleges Benefit the Massachusetts Economy? With Economic Power

Independent colleges and universities in Massachusetts generate a remarkable \$3.5-billion yearly impact on the state's economy, according to a recent study commissioned by the Association of Independent Colleges and Universities in Massachusetts (AICUM).

More than five percent of all jobs in Massachusetts are attributable to independent higher education. Of the 155,668 jobs created by independent colleges, 56 percent are directly in the education sector and 44 percent are indirectly generated in such sectors as retail trade, transportation, manufacturing, and service industries.

"Independent colleges and universities are not only an important employer, but an important economic spending base for jobs and income in many other key sectors of the economy," says Lynn Ware, author of the study, who serves as economist at the Boston College Social Welfare Research Institute which carried out the study.

AICUM President Frank Tredinnick saltily commented, "This latest study should once and for all reveal that Massachusetts would look much like Arkansas if our great state did not have the economic benefit provided by independent higher education."

The research also revealed that Massachusetts independent colleges and universities make significant contributions to the state's economy because of their ability to attract out-of-state students and keep Massachusetts students here in New England to pursue their degrees. By retaining Massachusetts students, the colleges generate about \$1.5 billion and more than 66,000 jobs for the state. This calculation is based on the number of students surveyed who said they would leave Massachusetts to attend college in another state if they were not attending their present Massachusetts-based independent college.

In addition, direct spending associated solely with part-time students enrolled at independent colleges in Massachusetts accounts for another \$202 million in gross state product and income. Continuing education generates another 8,500 jobs in Massachusetts, according to the study.

William J. Holmes, chairman of AICUM and president of Simmons College, says, "The study shows that independent colleges and universities in Massachusetts make impres-

sive contributions to the economic well-being of the state at the same time that they make more widely known educational and cultural contributions. A clear understanding of all these contributions will enable us to use our unique educational resources to the best advantage of Massachusetts and its students."

The Social Welfare Research Institute based its study on 1984-85 surveys of AICUM member institutions and their students. Institutions provided data about student enrollments, employees, research funds, and expenditures for payrolls, operating expenses, and capital projects. There are 84 independent colleges and universities in Massachusetts, of which 60 are AICUM members.

The Institute used its own "multi-regional policy impact simulation model" to calculate the total direct plus indirect economic impact created by the independent colleges' spending base of \$3.5 billion. The \$3.5 billion base is the total of student spending (\$2,318.5 million), institutional capital spending (\$247.1 million), institutional research spending (\$791.3 million) and out-of-state visitor spending (\$103.5 million).

Copies of the report are available from the Association of Independent Colleges and Universities in Massachusetts, 11 Beacon Street, Boston, Massachusetts, 02108, 617 742-5147.

—Wendy Deans

LEGAL EDUCATION

by Thomas C. Fischer

Project Director, Commission on Law & the Economy of New England

THOMAS P. SALMON TO HEAD NEW ENGLAND COMMISSION ON LAW AND THE ECONOMY

Former Vermont Governor Thomas P. Salmon, chairman of the Vermont Higher Education Planning Commission and a Bellows Falls attorney, has been appointed chairman of the New England Board of Higher Education (NEBHE) Commission on Legal Education and Practice and the Economy of New England. The appointment of Salmon and other regional leaders, drawn from law, higher education, business and public service, was announced April 4 by NEBHE President John C. Hoy at a Commission planning session held at NEBHE's offices in downtown Boston.

"NEBHE is charging the Commission with undertaking a study of how New England's 13 law schools, their graduates and the legal community impact the economy of the region," Hoy said. "That means the New England economy in the broadest sense, not only business. Thom Salmon is decidedly the caliber of chairman the Commission requires."

In his mission statement to Commission members, Salmon opined that the general public, including lawyers and legal educators, has insufficient knowledge of New England's current and future legal needs and would be hard-pressed to answer a variety of difficult questions. Do we have enough lawyers, or too many? Do they have the right professional skills and attitudes to serve the needs of a rapidly growing, increasingly sophisticated knowledge-intensive regional economy? Are New England's law firms competitive with firms outside the region? And is this the best time to consider regional as opposed to state-by-state planning for the funding, training and licensing of lawyers and delivery of legal services?

In addition to addressing such nettlesome questions, the Commission will focus on:

- Data that indicate what persons apply to the region's law schools, where they come from, and where and what they practice following graduation.
- The economic effect of aggregate tuitions, regional and non-regional gifts

and grants, and the "multiplier effect" of these resources on the region's economy.

- The current supply of lawyers and the sectors of the economy using them.
- Whether there exists among college graduates a misperception about the need for lawyers, the range of services they provide and the alternate careers they pursue.
- Whether law schools concentrate too much on training students in traditional adversarial skills instead of the less time-consuming and less costly techniques of alternate dispute resolution.

"Frankly," says Salmon, "I believe the most important concern of our Commission will be trying to influence the legal profession to meet increasingly complex regional legal needs more efficiently and cost-effectively. We live in a fast-moving, rapidly changing knowledge-based economy that needs resourceful lawyers, skilled in resolving disputes and advancing industrial and societal goals. Lawyers may be contributing to the economic paralysis that many suggest faces our region and country. However, properly informed and prop-

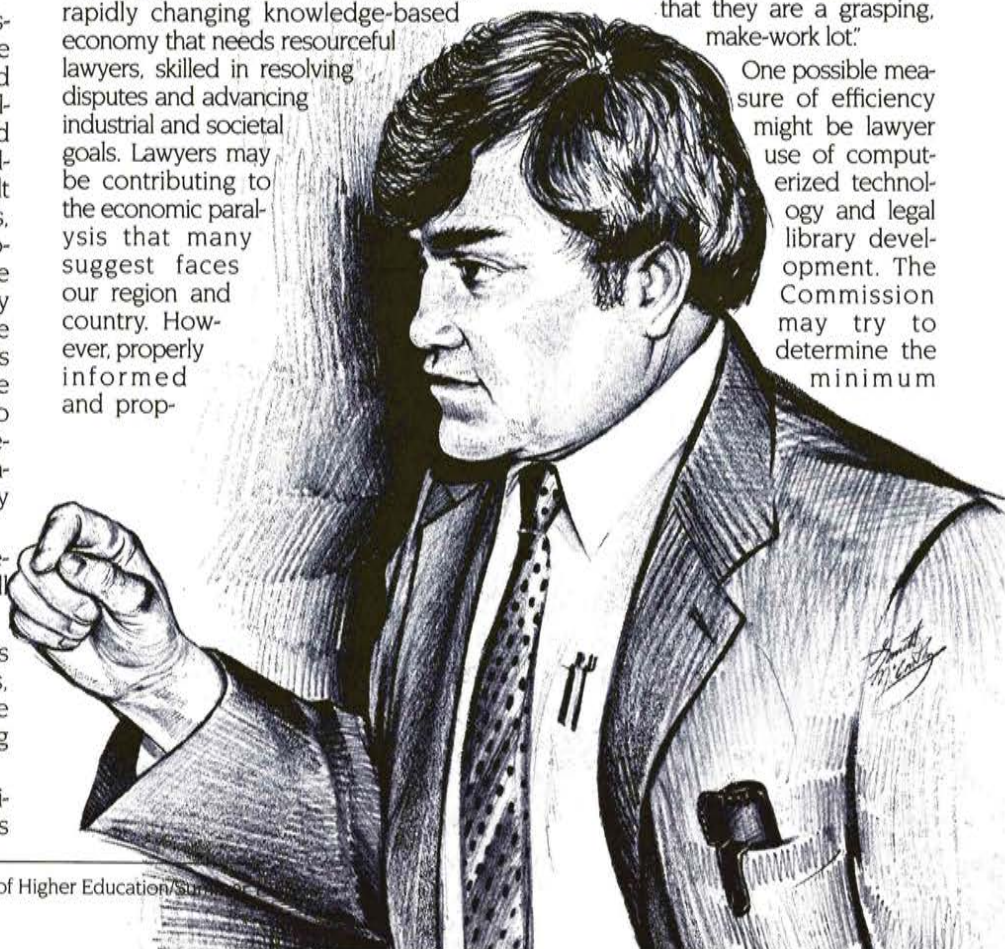
erly motivated, lawyers can be a powerful societal force.

"The Commission must analyze inefficiencies and come to grips with excesses in the legal system. We'll also be looking into such questions as whether legal services are overpriced, whether lawyers and law firms perform redundant, costly, unproductive labor, and the relationship of such issues to legal education. If that's what's happening, no wonder so many public corporations opt for inside legal departments over law firms."

To better understand the connection between skills learned in law school and the ways lawyers use them in practice, the Commission will look closely at law school courses in light of the region's future legal needs. It will also recommend ways in which the law schools, law firms and bar organizations—through, for example, changes in recruitment and continuing legal education—can better meet the region's needs.

"It isn't just technical skills lawyers must have," said Salmon. "The Commission is deeply concerned about ethical behavior. We will try to find out the degree to which inadequate instruction in ethics and failure to punish unprofessional conduct may have contributed to the problems of the profession. We should not dismiss lightly public perceptions that there is a 'glut' of lawyers, or that they are a grasping, make-work lot."

One possible measure of efficiency might be lawyer use of computerized technology and legal library development. The Commission may try to determine the minimum



by JoAnn Moody

Director, Administration and Contracts, NEBHE

Thomas P. Salmon, Esq.

Attorney Thomas P. Salmon, former governor of Vermont and now partner in a New England-wide law firm, has been committed to the resurgence of our region's economy for the past three decades. As a New Englander, he understands the wisdom of Benjamin Franklin's dictum: "We must all hang together, or most assuredly we will all hang separately."

During the post-oil-embargo recession of the mid 1970s, Salmon chaired both the New England Governors' Conference and the New England Regional Commission. He recalls New England's hard times of a decade ago: "Fiscal austerity led to the creative development of ways and means to make do in a difficult period. That belt-tightening era helped lay the foundations for the dynamic economic renaissance the region now enjoys."

New England's leadership position is fueled, Salmon believes, by a significant group of well-educated corporate and government opinion makers—and a broad spectrum of skilled working people—who have forged creative links between the region's research universities and business community. Like Massachusetts, the region as a whole has benefitted from a greater understanding of how the two sectors can undertake joint ventures.

Last year, Salmon was appointed by Vermont Governor Madeleine M. Kunin to chair Vermont's Higher Education Planning Commission, whose charge it is to improve both communication and collaboration among state government, business and the public and private

campuses in his state. The Commission is currently completing a detailed inventory of the programs Vermont's colleges and universities provide. They plan to evaluate how well programs are utilized by Vermont corporations and whether they meet future state priorities.

Salmon says he was "born at a young age" in Cleveland, Ohio, of New England parents, and "destined to become a Vermonter, although I didn't know it at the time." Soon after his birth, the family moved to Stow, Massachusetts, where Salmon was raised. Educated at Boston College and the Boston College Law School, he obtained an LLM in Taxation from New York University Law School, and decided to settle in Vermont. Salmon became town counsel for Rockingham at age 27, a judge at 30 and a four-term legislator, rising to the position of House minority leader. He was elected governor of Vermont in 1972 and re-elected in 1974.

"Leaving public office has actually quickened my interest in New England-wide issues," Salmon states. His actions have confirmed this regional commitment. Salmon is founder and senior partner of an innovative regional law firm, The New England Partnership, which has offices in Vermont, Maine, Massachusetts, Rhode Island, and Washington, D.C. The former governor serves as chairman of the board of the Green Mountain Power Corporation, the state's second largest investor-owned utility, and is a member of the board of the First Vermont Financial Corporation and the First Vermont Bank. President Jimmy Carter ap-

pointed him to the Board of Directors of the United States Railway Association.

Salmon still finds time to serve on the Board of Directors of the New England Council, acts as advisor to the National Trust for Historic Preservation, and chairs, since 1981, the Vermont Judicial Conduct Board. In his spare moments he pursues his love of sports by cheering on the Red Sox and the Patriots. He made it to the Super Bowl and the Kentucky Derby this spring during mud season.

Appointed NEBHE Legal Commission Chair

Salmon has been appointed to chair the NEBHE Commission on Legal Education and Practice, which is studying the economics and dynamics of legal education and the future of the profession in New England. Asked about the Commission, Salmon commented, "New England should set a national standard and take the lead in resolving the liability crisis."

Salmon expresses his hope that colleagues on the NEBHE commission will join him in calling for particular attention to improved methods of negotiation and various means of efficient dispute resolution. "Slugging it out in the courtroom is an expensive, time-consuming and often over-used method of resolving disputes. Effective, informal methods must be found to replace over-reliance on litigation in this country," he says. Although Salmon believes in finding alternatives, he admits that trial by jury is intoxicating for him—in his words, "the closest thing to theatre in my profession."

The many virtues of New England are another compelling theme for this "country lawyer." His legal, civic and business responsibilities may take him across the United States and abroad, but his heart remains in Rockingham, Vermont, near the Connecticut River and the New Hampshire border. "New England's compactness, stunning geographic diversity, and cultural and educational richness appeal to me in every season," he says. "Our impressive resurgence reveals the remarkable power of our people—workers and managers alike—to place us once again in a position of national economic leadership."

continued from page 56

level of information access required to guarantee fairness and justice to those who use the legal system.

Preliminary planning for the Commission's work has been developing over the past nine months, aided by a grant, from the Law School Admission Council (LSAC), which supervises and administers the standard examination for admission to law schools. The Commission's efforts complement a LSAC-funded

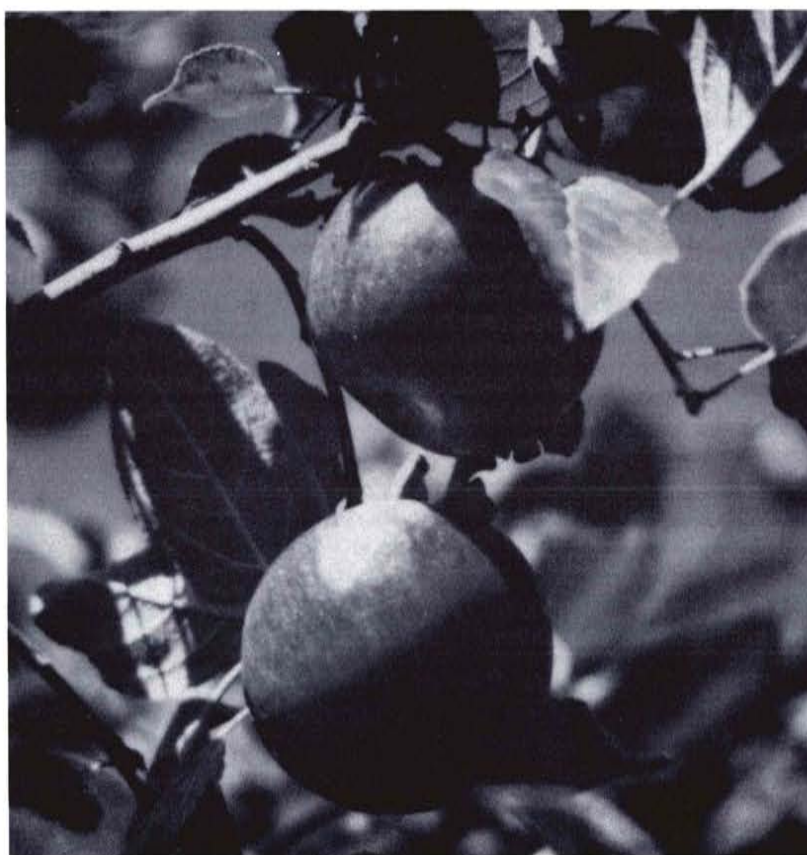
study conducted at Harvard Law School on lawyer mobility and job satisfaction. The LSAC believes that if the New England study demonstrates potential for a regional response to legal planning, other regions will use the NEBHE project as a model.

The Commission's findings and recommendations will be circulated among leaders in business, government, education and the professions. The study will probably require at least eighteen months, and should be released in the fall of 1987. ■

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RSP UPDATE

by Charlotte Stratton

For the twentieth consecutive year, enrollment in the New England Regional Student Program (RSP) has continued to climb. A total of 5,155 students participated in the program during the 1985-86 academic year, up 3.20 percent from 1984-85. Each RSP student saved an average of \$1,959 in tuition in 1985-86, with total estimated tuition savings throughout the region exceeding \$10 million for the first time in the program's thirty-year history.

Established in 1957, the RSP enables residents of the region to attend out-of-state public colleges and universities in New England at a reduced tuition rate, for certain degree programs not available in their own state's public institutions. The program serves both undergraduate and graduate students, encompassing nearly 1,200 degree programs at 83 public campuses throughout Vermont, New Hampshire, Maine, Connecticut, Rhode Island, and Massachusetts.

Legislative leaders throughout the region have indicated renewed commitment to the program. Representative John Tucker, speaker of the New Hampshire House of Representatives and NEBHE vice chairman, says, "The RSP is the foremost example of efficient interstate cooperation in New England—cooperation that directly benefits students, families, and the region's economy." Rhode Island House Speaker Matthew Smith points out that he is "continually impressed that all our public campuses share the hard work and the resulting benefits of expanding cooperation."

The 1985-86 distribution of RSP students by type of institution revealed minor changes when compared with 1984-85: 39 percent attended two-year colleges and institutes; 16 percent attended state colleges (up two percent from 1984-85); and 45 percent were enrolled in state universities (down two percent from 1984-85). Graduate students accounted for 16 percent of total RSP enrollment in 1985-86, and 31 percent of total RSP university enrollment.

The overall program utilization rate rose to 67 percent in 1985-86, with RSP students enrolled in 808 of the 1,194 available degree programs offered by New England's public community and

technical colleges and state colleges and universities.

The process of determining eligible degree programs for the 1987-88 academic year began with the annual "Apple Book" meetings, conducted by NEBHE in May. Representatives of all participating institutions and state systems gathered to discuss new program offerings and amendments to current offerings. At this time, decisions were made regarding the comparability of degree programs from state to state and admission of new degree programs into the RSP. A complete list of available programs will be published in the undergraduate and graduate catalogs of the Regional Student Program (the "Apple Books") for region-wide distribution in October.

Community College of Rhode Island Director of Admissions Sol Solomon, in addition to his role as a member of the RSP Advisory Council, has participated in the "Apple Book" meetings for more than a decade. He is convinced his time is well spent: "Having been active in the RSP for eleven years, I have reviewed the value of the program and its effect on thousands of participants, not only entering the Community College of Rhode Island, but transferring from CCRI upon graduation to other four-year programs available to them through the RSP," he said. "Being a part of the process of reviewing the programs each year, and creating new opportunities for New England students at the same time, has made me very aware of the RSP as it influences not only my institution, but other participating institutions and students as well."

Gary Fallis, director of admissions at Castleton State College in Vermont, acts as Regional Student Program representative for his institution and has been involved in the RSP for several years. For Fallis, the annual meeting illustrates the necessity of cooperation and collaboration that forms the backbone of the program. "The meeting provides all of us with the opportunity to gather and re-examine the Regional Student Program, query our fellow representatives, and work together in a candid and collegial environment to broaden opportunities for New England residents and ease

access to unique and specialized programs of study," he remarked. Fallis added that the annual meeting is really a "summation of the dialogue that is ongoing throughout the year between all public campus representatives and NEBHE as we work to expand and refine the RSP."

Copies of all Regional Student Program publications are available free-of-charge throughout the year from NEBHE's Regional Student Program Office, 45 Temple Place, Boston, MA 02111. ■

New England NSF Fellowships

This spring the National Science Foundation announced the award of fellowships for graduate study in the natural and social sciences, mathematics and engineering. Of the 505 fellows selected, 108, or 20.3 percent did their undergraduate work at New England institutions. Harvard University led with 38; the Massachusetts Institute of Technology took second place with 20; and Yale University was third, with 19.

A total of 132 or 26.1 percent of all NSF fellows are destined to pursue graduate work at a New England university. Of these, 72 will study at MIT and 46 at Harvard. A remarkable 203 of the 505 selected, or 40.1 percent, either graduated from or will do their graduate work at a New England institution.

The four New England institutions with the highest number of former undergraduates receiving NSF fellowships also had record numbers of women recipients. Of Harvard's 38 award winners, 17 or 44.7 percent were women; of MIT's 20, nine or 45 percent were women; of Yale's 19, eight or 42.1 percent were women; and of Brown's eight, four or 50 percent were women. Among New England institutions with incoming graduate students who were NSF award-winners, 43 of 132, or 32.5 percent, were women.

—Michael Genovese

by Ellin Anderson

WORCESTER:

HIGHER EDUCATION FACES THE FUTURE

With characteristic modesty, Worcester, Massachusetts, has emerged as the college town of the future. The city's higher-education community—Assumption College, Becker Junior College, Central New England College, Clark University, College of the Holy Cross, Quinsigamond Community College, the University of Massachusetts Medical School, Worcester Polytechnic Institute and Worcester State College—is more closely wedded to urban economic and cultural life here than in any other New England city. It's high time that Worcester's vigorous higher education/industry partnerships were brought to light.

"The partnership is real, it works, but the story has not been told," says Jon Strauss, the new president of the Worcester Polytechnic Institute. "Worcester tends to hide its light under a bushel basket. Higher education has a shared responsibility to focus attention on the new dynamics of a superb city."

Central New England College of Technology, for instance, is well attuned to the needs of local industry. "At Central

New England College, no new program can be added unless there is need on the part of an employer," says President Edward P. Mattar, III. "We are married to area industry and will initiate no new program without its support. Our governing board and adjunct faculty are predominantly drawn from local industry, and rely on area task forces in all disciplines. We pay careful heed to the recommendations of our task forces; in particular, a directive to invest in \$1 million worth of a particular type of computer equipment, so that students will be better suited to the needs of the job market when they graduate."

It is hoped that by the year 2000, the growth and development of high technology—particularly microelectronics, fiber optics and biotechnology—will give Worcester-area industry national prominence. Several factors prefigure this possibility. Land adjacent to Route 128 is running short, forcing a westward shift in the expansion of Massachusetts' high-tech industries. The center of gravity for high tech installations has moved west from Boston, with the Interstate 495 belt

providing room and accessibility; Route 146 is slated as the next major area for R&D park development. Already, the central Massachusetts economy, most notably that of the communities along Interstate 495 (including Westborough, Southborough and Northborough), is experiencing significant economic impact; Central New England College of Technology has chosen Westborough as a site for its sister campus in response to this trend.

"There's no question that many companies are moving out to the central part of the state. They're looking to the Worcester Polytechnic Institute for R&D and as an educational resource," says Ron Baird, WPI's director of corporate relations. In an effort to work in cooperation with the business community, WPI runs several industrial research centers that are fully sponsored by corporate members. An industrial advisory board advises departments in all matters, particularly where the curriculum relates to industry.

At WPI, interaction with the non-academic community is extended through



Edward P. Mattar III, President, Central New England College of Technology: "No one can teach here with just a Ph.D.—they have to have practical experience in their chosen field."



John C. Strauss, President, Worcester Polytechnic Institute: "With ten institutions, we're really a college town, with all the accompanying intellectual ferment."



GEORGE SIMIAN/UNIVERSITY OF MASSACHUSETTS MEDICAL CENTER PHOTO.



Philip D. Vairo, President, Worcester State College: "In partnership with the city, the Commonwealth and the region, Worcester State College prepares its students for leadership in business, the professions and community service."

student involvement. Director of Public Relations Roger Perry explains, "Every WPI student completes a major project before graduation, in which the role of technology in society is applied. It is aimed at giving broader insight into how technology fits into the community, be it in local industry, social services or government." Projects exemplifying public/private partnerships have been undertaken with such entities as the Worcester Juvenile Court ("Techniques of Forensic Technology"), Worcester Vocational Technical High School ("Teaching Logic Circuits") and Worcester State Hospital ("Depression and Chemical Therapy").

Governor Michael S. Dukakis has said, "All of Massachusetts and New England should know more about the accomplishments of this city in building partnership programs. Worcester has become a national model of urban revival, with higher education as the key element." The presence of the city's educational and research institutions, particularly the University of Massachusetts Medical School, was a strong factor in the Governor's choice of Worcester as the site for a "Center for Excellence in Biotechnology."

The state university's medical school, located next door to the proposed Biotechnology Research Park, is currently in the top 20 percent of the nation's medical schools in funded research. WPI, also

a member of the Park's research and development group, took a leadership role in founding the New England Biotechnology Association, a forum for academic institutions active in that field; the Institute also offers one of the nation's only specialized biotechnology and chemical engineering programs. Other resources include the internationally-recognized Worcester Foundation for Experimental Biology, six leading teaching hospitals, and the Tufts University School of Veterinary Medicine.

The Park will contain an incubation center for small, growing businesses; an innovation center with conference facilities; a biotechnology information clearinghouse and library, a technology center to encourage the development of instrumentation; office and laboratory facilities; and a fermentation scale-up facility to serve park tenants on a leased time-sharing basis.

The Worcester Business Development Corporation, Worcester's primary economic development organization, together with local and state government, is actively working to attract biotechnology and biomedical industries to the Park. Says Dr. Robert E. Tranquada, chancellor and dean of UMMS, "Our vision is that the Biotech Park will provide as many as three or four thousand new jobs, thus very substantially adding to the economy of the region. Equally

important, it will bring in a whole new industry."

Worcester State College has both in-house and on-site contract programs to serve the varied educational needs of Worcester-area businesses. Firms currently sending their employees to Worcester State for courses and non-credited workshops include the Norton Company, Wyman Gordon, State Mutual Life Assurance, the Paul Revere Insurance Company and Digital Corporation. Worcester State also travels to local corporations to provide on-site training in "anything and everything to help a person get an undergraduate degree," according to Cindy Talbert, director of corporate relations. Worcester State also provides instruction in word processing to employees of local temporary agencies, including Suburban Temps of Westborough and the Ward Management Company. Companies choose the college as an educational source, Talbert says, for its moderate tuition, flexible payment and class schedules, high-quality curriculum, service, counseling and accessibility.

In conjunction with Wang Laboratories, the college provides on-site training for a certificate in Instructional Communications Technology. There are also certificate programs in data processing, accounting, management supervision,



Reverend John E. Brooks, President, College of the Holy Cross: "The Worcester populace has an opportunity to enjoy and benefit from the excellent educational resources, cultural programs and recreational facilities associated with our institutions."



Dr. Robert E. Tranquada, Chancellor and Dean, University of Massachusetts Medical School: "Certainly, higher education in Worcester is one of if not the largest industry in the city, so its economic impact is substantial."



Lloyd H. Van Buskirk, President, Becker Junior College/Worcester Campus: "Besides the obvious economic impact of the number of workers we employ, Becker involves itself with the Worcester community through its students, who undertake internships in community projects, with handicapped children, senior citizens and the mentally ill."



Joseph H. Hagan, President, Assumption College: "We provide many resources and benefits which can be used and enjoyed by a substantial cross-section of the community."

training and development/human resource development, and small business management; the college is actively involved in helping establish small businesses. According to a recent article in the *Chronicle of Higher Education* on linkages between small businesses and universities, state political leaders and manpower experts agree that small businesses, and policies that encourage them, are a key to economic growth because they create jobs at a much higher rate than do larger businesses. From October 1982 to October 1984, the number of jobs in small businesses jumped by 11.4 percent, compared to a 5.3 percent increase for large businesses.

Clark University President Richard P. Traina's vision for his institution includes support for area businesses and schools, for such projects as the Worcester Biotech Park and Worcester Area Systems for Affordable Health Care; and for maintaining such opportunities for community residents as small business development services. "There is an exceptional applied research experience and capacity at Clark, which could be called upon more often by the community," he says. "In Massachusetts the economy is strong and dynamic; the strategy for economic development is enlightened and far-sighted, intentionally

making good use of the resources of research universities."

Clark seeks to counteract some of the problems that have plagued the city of Worcester over the years: few jobs, failures of small businesses, and lack of housing. Clark is one contributor to the current one-percent housing vacancy rate: 25 percent of its students reside in the city. To amend the situation, Clark is encouraging investment in housing development and improvement, having purchased for renovation an entire city block between Hawthorne and Downing Streets.

The nine Worcester colleges, plus Anna Maria College in nearby Paxton, also have a collective impact on their community through the Worcester Consortium for Higher Education. "We are proud that in addition to making significant educational and cultural contributions to the citizens of Worcester, the colleges and universities also contribute to the well-being of the local economy," says John W. Ryan, executive director of the Consortium. "They enroll 18,000 full-time and 13,000 part-time students, while employing almost 8,800 people. In terms of wages and salaries, as well as institutional purchases and student and visitor spending, this direct impact plays a significant role in keeping Worcester's economy healthy. Almost \$1 billion

annually is generated through college, student and visitor spending."

Among the Consortium's services is performing labor market studies for the Job Partnership Training Act programs. Says Ryan, "We identify the types of industries as well as demographics, determining where the jobs are and where they will be in the future, and whether we will have the type of labor force to meet that challenge."

Since the early seventies, the Consortium has been a statewide sponsor of the federally-funded "Educational Opportunity Centers" located in Worcester, Boston, Lynn, New Bedford, Springfield and Pittsfield. Serving over 6,000 people per year, the centers supply a wide range of educational access services to out-of-school adults: financial aid, application assistance, career counseling and career testing. The Consortium also sponsors a tuition waiver program, available to both public and private secondary schools, in which teachers can take one course free of charge at any college and in any area of study.

The Worcester Area Chamber of Commerce spotlighted the role post-secondary education will play in the city's future economic development with the release of their May 1985 report, "Focus on the Future: Year 2000." The report com-



Richard P. Traina, President, Clark University: "There is no question that Clark is of the city, not merely located in the city. Clark is right in the heart of things."



Clifford S. Peterson, President, Quinsigamond Community College: "Higher education is one reason Worcester is booming, and in that, Worcester is a microcosm of what's happening in the Commonwealth."

prised the findings of a task force drawn from Worcester education, business, and state and city government, which examined the strengths and weaknesses of the Greater Worcester community in terms of economic development, education, regionalism and quality of life. Task force participants included President Philip D. Vairo, Worcester State College (project chair); President Edward P. Mattar III, Central New England College of Technology; Dr. Peter Gil, dean, Clark University School of Management; the Reverend John E. Brooks, president, College of the Holy Cross; and Joseph W. Hagan, president, Assumption College.

Recently, Hagan had this to say about Worcester higher education: "The ten colleges and universities located in Worcester make a very significant contribution to the economic and cultural life of our community. We employ a good number of people in a variety of occupations, we purchase large numbers of goods and services locally, our students spend money for clothing, supplies, and entertainment, and we attract other enterprises and activities which are revenue-producing for the area. The various campuses offer many cultural, educational and recreational opportunities for our citizens and unquestionably affect the cultural and intellectual tone of the community in a very positive way."

Father Brooks also praises the Worcester Consortium for Higher Education: "Given the variety of its ten member institutions, and the cooperative spirit with which they complement one another,

the Consortium represents a significant educational, cultural, and economic force in the city of Worcester. The Worcester populace has an opportunity to enjoy and benefit from exceptional educational resources, cultural programs, and recreational facilities because of our institutions."

The "Focus on the Future" task force made recommendations as to how higher education could best carry out a mission in keeping with Worcester's future. These included: establishing cooperative ventures with high schools, colleges and public/private agencies; increasing ties between the schools, the colleges and the world of work; helping schools and colleges focus on the anticipated educational and economic skills needed for a productive and self-fulfilling life, taking into account the resources of the marketplace; seeking the assistance of the private sector to develop curriculum; and encouraging scientific and technical personnel to actively expand their already impressive career-guidance efforts.

While committed to improvement and innovation, the Worcester higher-education community may already possess the strongest business-education partnership in New England. "This city represents the prototype of what business and higher education can do together," says State Senator and NEBHE Vice Chairman Gerard D'Amico. "Worcester is going to show the world what we intend to accomplish here in New England." ■

Those Hot Colleges On The Climb: UMass/Boston

(The following is reprinted with the permission of *Time* magazine.)

The University of Massachusetts at Boston has a campus dug out of a harborside dump site and faces ferocious competition for students and faculty; some 55 other nearby colleges and universities, most of them private and including Harvard and M.I.T., tend to gobble up any good academic body.

UMass has wisely not tried to go head-to-head with its established neighbors but has carved out a unique mission, which Chancellor Robert A. Corrigan describes as taking "the land-grant concept of service, research and teaching, and bringing it to the urban area...to be a force in the community." The school cashed in on its location by establishing an impressive environmental sciences program and will soon open an urban harbors institute. Its John W. McCormack Institute of Public Affairs has worked with local govern-

ment to develop programs in housing, juvenile justice and industrial finance. Some 60 percent of the special programs in Boston's public schools are sponsored by UMass/Boston.

The faculty of 500 boasts more Harvard Ph.D.s than any other Massachusetts school except Harvard. Teachers are drawn to UMass by the research opportunities, salaries (\$48,000 for a full professor) and the 12,500 highly motivated students, whose average age is 27. Says Senior Bob Carlson, 24: "Students here are hustlers. They're concerned about the community...they want things for their families."

UMass is far from perfect: some lab facilities are crowded, as are many classrooms, and the school has none of the usual collegial amenities for the all-commuter student body or staff. McCormack's director, Edmund Beard, admits that UMass "has all the problems of a new kid on the block and then some." But, he adds, "It's well on the way to making a name for itself, and it's the greatest educational bargain (next year's in-state tuition: \$1,296) in New England." ■

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THE REGION

by Melvin H. Bernstein
Senior Fellow, NEBHE

EDUCATING THE LAWMAKERS

When the New England Board of Higher Education's program of legislative policy briefings began in 1983, following the release of *A Threat to Excellence* (1982) and *A Nation at Risk* (1983), the United States was slowly emerging from the worst recession since World War II. The states were still reeling from runaway costs and revenues, pared down by sputtering economies and federal cutbacks. Twenty-three states cut spending for higher education in 1982, and by 1983, 39 had cut college and university expenditures.

Three years later, the picture has changed dramatically. The United States is sustaining the fourth year of an economic recovery that is one of the longest in modern times, and may be getting its second wind. Interest in education as a vital national resource revived in 1983; this year 35 states have made it a top priority. Higher education has joined its scientific and technological assets in partnership with the resources of industry and state government, forging the greatest peacetime collaborative ever directed at economic development.

As NEBHE completes the first phase of an innovative program for legislators in mid-1986, new concepts have emerged to enhance university partnerships. They now include such concerns as emphasizing the connection of joint economic development projects to particular state resources and needs, and not promising too much too soon.

The Long View

Taking the long view instead of attempting quick fixes was the position State Senator Robert J. McKenna of Rhode Island took in 1984 when he spoke of "the need to have New England's public policymakers fully understand the long-term importance of the investment legislators make through yearly tax support of higher education." Recently, at the national level, Terry Sanford, president emeritus of Duke University and former governor of North Carolina, warned that "even when you have a great university, you can't build an image as a good industry location overnight." Sanford strongly stresses the importance of the

long-term commitment of state leaders.

NEBHE's three-year educate-the-lawmakers project began in 1983, with a grant from the United States Department of Education's Fund for the Improvement of Post-Secondary Education (FIPSE). The premise of the project is that higher education is now—and will remain—the critical resource of New England's knowledge-intensive economy. During the balance of the 20th century the knowledge industries, with higher education at their center, are the driving force for state, regional and national economic growth. Over half of all American workers now collect, organize or disseminate information, and that number continues to grow.

Higher education has joined its scientific and technological assets in partnership with the resources of industry and state government, forging the greatest peacetime collaborative ever directed at economic development.

The purpose of the project is to provide state legislators with economic and financial data, trends, and concepts concerning the strong relationship between New England's higher education system and the performance of its economy. In an article written in 1981, later appearing in the *Educational Record* (Winter, 1982), John C. Hoy, President of NEBHE, said the challenges of the 1980s for the regional economy require that New England strengthen its system of higher education as it has never done before, and draw on the resources of colleges and universities to contribute to economic development. "Such a partnership would have much to teach educators and government officials in other areas of the United States," he wrote.

The need to focus on the information requirements of state legislators is twofold. First, there is the reduced federal financial support for the states, and the

ever-increasing role states play in financing higher education. Most of the money that funds higher education comes from government, with states now providing nearly two-thirds of that total; it is the state legislatures which appropriate the resources for higher education. Between 1969-70 and 1984 the federal contribution to higher education fell from 24 percent to 9 percent, and is still dropping.

Secondly, there are 1,323 legislators in the New England states. At least one-third of legislative seats turn over every two years; most legislators serve only part time, receiving as little as \$5 a day in Rhode Island and \$100 per year in New Hampshire. The men and women who serve our region as lawmakers have a huge workload, scant staff support and little time to study in depth many of the issues before them, particularly on a subject as specialized as higher education has become.

Informed Decisions

NEBHE's legislative briefings and publications have provided legislators with the policy analysis and comparative regional perspective lawmakers welcome in making informed decisions about financing higher education and developing human capital in their state. Briefings have now been held in all six state capitals. The basic message given at the briefings was this: "Here is where you rank, according to these indicators, among your sister states in New England. This is where you rank nationally. Compare the public investment in higher education per capita with your investment for other public services. Consider where you get the best return on public revenues invested. Is the present situation acceptable? If not, what are your goals, and why? Those are the policy questions to be addressed." Carolyn Morwick, executive director of the Caucus of New England State Legislatures (which jointly sponsored the project with NEBHE), comments: "As a result of the three-year process, the economics of higher education have become more understandable and appreciated by legislators."

An overriding consideration of the project is that what legislators want and

need most is informed policy analysis/synthesis and bottom-line conclusions. This has been borne out by both national studies and the evaluations of project participants.

A 1984 attitude survey provided a baseline of information on what New England legislators know and want to know about higher education and economic development. The survey's key findings showed that the legislators want:

- Better information from higher education; for example, on tuition, contracts and grants;
- Better communication with higher education;
- State-level "High-Technology Morrill Acts" to strengthen science, engineering and technology;
- Regional coordination for job re-training;
- Annual data from colleges about their contributions to economic development, and student proficiency.

In the legislative briefings and related publications mailed directly to legislators, four issues stand out.

First: regional and national comparisons of funding for higher education institutions and state student aid. Vermont awards the most scholarship dollars per capita, Maine the fewest. In percentage improvement in state appropriations for higher education during the past two years, Massachusetts has jumped to fourth place nationally and Maine finishes fifth.

Second: the question of whether the state has a highly educated workforce, well-prepared for the demands of a knowledge-intensive economy. Of all the New England states, Connecticut has the greatest proportion of college graduates in its workforce and is third nationally, behind Colorado and Alaska. Maine has the fewest, at a level below the national average.

Third: the level of high-tech employment in the state. Four of the New England states, led by Connecticut and Massachusetts, rank well above the national average. Both Rhode Island and Maine rank below it.

Fourth: the presentation of a regional approach to broadening academic offerings, and reducing tuition costs for citizens crossing state boundaries for their public higher education.

Evaluations of the legislative briefings by participating legislators reveal the following:

- Eight out of ten legislators think the

briefings should be held on an annual basis.

- Nine out of ten believe the policy briefing was a helpful learning experience.
- Ninety-six percent believe a comparative New England perspective is "helpful" or "very helpful."

The men and women who serve our region as lawmakers have a huge workload, scant staff support and little time to study in depth many of the issues before them, particularly on a subject as specialized as higher education has become.

Direct comments from the legislators show that they were impressed with the quality of the programs, appreciated the candor and objectivity of information presented, and considered the initiative a model to be repeated and expanded in the future. Typical comments were "very informative;" "I like getting everyone in the room at the same time and exchanging ideas;" "It's an improvement on the routine discussion and tired agenda of our standing committees;" and, "Let's have a follow-up session to review progress in meeting the needs identified."

Not least among the benefits of the legislative briefings was providing a unique forum for legislators to gain information, perspective and ideas not ordinarily available to them. The site of the last briefing of the series, held in February, was Augusta, Maine, where the legislature is presently undertaking a comprehensive review of the system-wide leadership and structure of the University of Maine. At this meeting, legislators said they would be more supportive of the system if they had a better idea of what goes on in higher-education circles.

"The only time I ever see anybody from the University is when they come before the Appropriations Committee or when nominations for the Board of Trustees come to us for approval," said Representative James R. Handy, a member of the Joint Standing Committee on Education (D-Lewiston). Said Senate Minority Leader Thomas Perkins (R-Blue Hill), "If we gave an industry the appropriation we give the university and then saw as little of that industry as

we do of them, it would be amazing." These views were shared by many legislators in attendance. A clear consensus emerged at the meeting: that the central office of the University of Maine should improve communication with the legislature and the public if the needs of Maine's economy are to be met.

In commenting on the value of the legislative project, Speaker of the New Hampshire House of Representatives John Tucker said, "We would be far behind other regions without the insight gained from these briefings and NEBHE's consistent efforts over the past eight years." The regional Legislative Advisory Council has confirmed this view by recommending that the program be continued on a biennial basis.

A New Journal Aimed at Vermonters: Vermont Affairs

The Community College of Vermont will begin publishing a new bi-annual journal as it celebrates its fifteenth anniversary. *Vermont Affairs* will focus attention on public policy issues confronting the Green Mountain State, featuring articles by public officials, educators, farmers and business people. The journal is believed to be the first community college publication of its kind in New England.

Editor David Buchdahl calls *Vermont Affairs* "a kind of town meeting in print, a forum where all points of view can be expressed and debated, a place to learn more about the public issues and ideas that matter to all of us."

Stories in the first issue, due in July, include an exploration of farm policies by Senator Patrick Leahy; the ski industry, by Killington Corporation President Preston Smith, the future of the Republican Party in Vermont, by Lieutenant Governor Peter Smith, and the question of regulating utilities, by Louis McCarren, chair of Vermont's Public Service Board.

Vermont Affairs draws its editorial advisory board from publishing, academia and government. Governor Madeleine M. Kunin welcomed the advent of the new publication, saying, "I have long felt the need for a Vermont journal that would publish analytical, reflective and in-depth articles on Vermont issues and events, to complement our high-quality and thorough daily newspaper coverage. I look forward to reading the first issue with the hope that many more are to come."

At right, Governor Michael S. Dukakis; Former NEBHE Chairman Maurice Saval; Thomas P. Salmon. Below, Bryant College President William T. O'Hara.



Above, Tufts President and NEBHE Chairman Jean Mayer; Commissioner Eleanor M. McMahon.



Maurice Saval; Bennett Katz.

NEBHE Executive Committee 30th Anniversary Presentation.



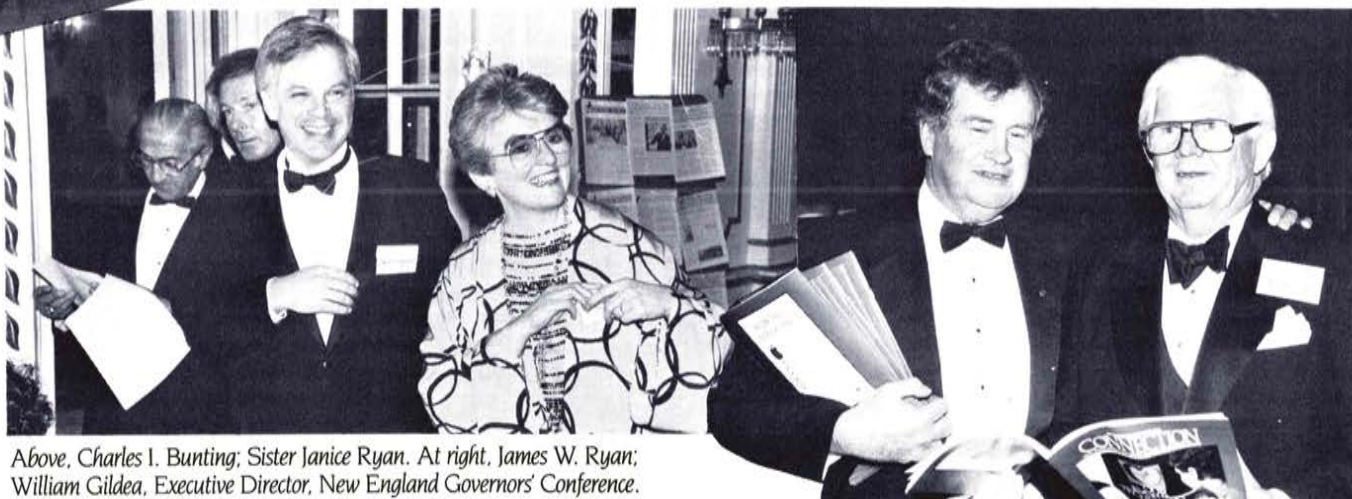
30 Years of Service

The 30th Anniversary of the New England Board of Higher Education was celebrated at the Copley Plaza Hotel in Boston March 6th. It was an occasion for honoring old friends, meeting new colleagues and celebrating three decades of service to higher education and state government in New England.

NEBHE Chairman Jean Mayer and President John C. Hoy saluted New England governors Edmund Muskie of Maine, Abraham Ribicoff of Connecti-

cut, Christian Herter of Massachusetts, Dennis Roberts of Rhode Island, Lane Dwinell of New Hampshire and Joseph Johnson of Vermont, whose diligence and foresight prompted Congress to authorize the Higher Education Compact in 1955.

New England's colleges and universities have provided the educated men and women who brought about the region's vigorous economic resurgence. That in itself is reason to celebrate.



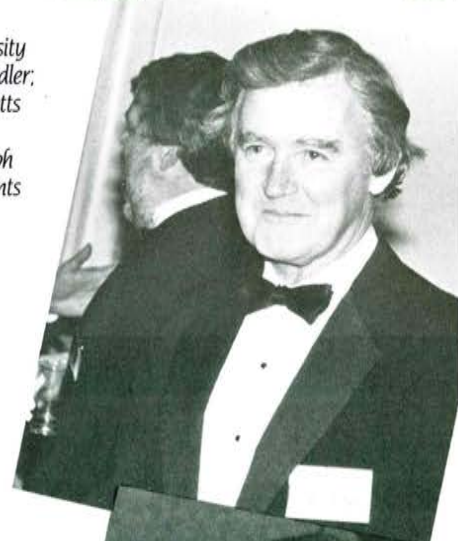
Above, Charles I. Bunting; Sister Janice Ryan. At right, James W. Ryan; William Gildea, Executive Director, New England Governors' Conference.



At left, Chancellor Joseph Duffy; Rob Trowbridge, Yankee Publishing, Inc.; Marie Hoy, Director of Development, Notre Dame Academy. At right, Vice Chancellor Janet Robinson, Board of Regents of Higher Education.



At left, Professor Ernest Lynton; Brandeis University President Evelyn E. Handler; University of Massachusetts President David Knapp. At right, Chancellor Joseph Finnegan, Board of Regents of Higher Education.



Donna Humphrey, NEBHE; Brian Donnelly, President, Fisher Junior College.

Right, Anne D. Moran, Executive Director, The University of Cape Town Fund, Inc.



Photos by J.D. Sloan



Above, NEBHE President John C. Hoy; Chairman Mayer; Governor Dukakis. At right, James M. Howell, Senior Vice President, Bank of Boston.



P E O P L E

Friend of Higher Education Robert H. Kroepsch Dead at 73

Robert H. Kroepsch, who helped establish the New England Board of Higher Education, died February 27 in Boulder, Colorado at age 73. Born in Cambridge, Massachusetts in 1912, Kroepsch graduated from Bates College and received M.Ed. and Ph.D. degrees from Harvard University. He was registrar and dean of administration at the University of Vermont from 1946 to 1956, and later served a four-year term as the first executive director of NEBHE.

NEBHE President John C. Hoy commented, "Bob Kroepsch had been a friend of NEBHE from the beginning. He had a profound capacity to get states and their colleges and universities to work together."

In 1960, Kroepsch was named executive director of the Western Interstate Commission for Higher Education (WICHE) in Boulder, a post he held until his retirement in 1976. The author of numerous articles in professional journals and encyclopedias, Kroepsch was a popular graduation speaker who once gave three commencement addresses in one day. He was a member of the American Council on Education, the American Association of Higher Education and the board of governors of *Change* Magazine.

Sven Groennings, Former FIPSE Director, Joins NEBHE as Senior Fellow

Sven Groennings, former director of the U.S. Department of Education's Fund for the Improvement of Post-secondary Education (FIPSE), has been appointed senior fellow of the New England Board of Higher Education.

Groennings is visiting professor of higher education at the University of Georgia's Institute of Higher Education. Before directing FIPSE, he served for four years as aide to the present chairman of the U.S. Senate Subcommittee on Education, Arts and the Humanities, Senator Robert T. Stafford (R-VT). During the 1980 reauthorization of the Higher Education Act, he was the principal Senate staff author of Title VI, International Education Programs.

Groennings served in the State Depart-

ment from 1970 to 1977 as director of the Policy Planning Staff of the Bureau of European Affairs and in the Bureau of Educational and Cultural Affairs, which was responsible for the world-wide Fulbright Scholars Program. He served three years on the National Advisory Council on Continuing Education. He also works in the field of international education, and lectures frequently on Scandinavia at the Foreign Service Institute. He has lectured in Europe for the U.S. Information Agency and at more than eighty colleges and universities in America.

Groennings is a graduate of the Fletcher School of Law and Diplomacy at Tufts University and has a Ph.D. in Political Science from Stanford. He has authored or edited three books: *The Study of Coalition Behavior* (1970), *Scandinavia in Social Science Literature* (1970), and *To Be a Congressman: The Promise and the Power* (1973).

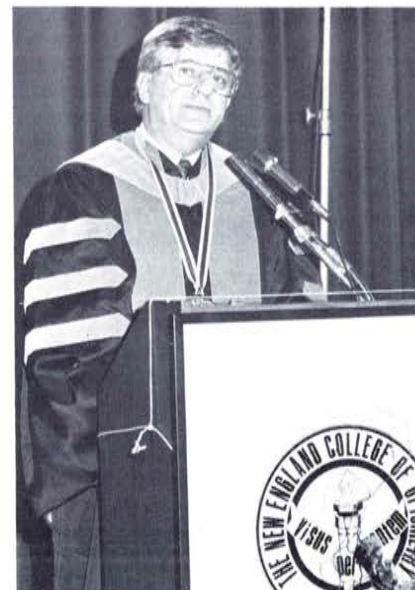


DeVaughn

STEPS UP... TO PRESIDENT

Dr. Booker T. DeVaughn, Jr. was inaugurated in April as president of Northwestern Connecticut Community College in Winsted. Presidential Search Committee Chair Eaton E. Smith commented, "The trustees are most impressed with Dr. DeVaughn's commitment to the community college philosophy. He has shown a strong dedication to leadership and a sensitivity to the needs of students." DeVaughn was previously dean of academic affairs at Rox-

bury Community College in Boston, where he has also served as dean of continuing education. Before that, DeVaughn held a variety of administrative positions at Boston State College. He holds an Ed.D. in Adult and Continuing Education Administration from Boston University and an M.Ed. from Boston State College. DeVaughn succeeds Dr. Regina M. Duffy, who retired last year.



Dupuis

Sylvio L. Dupuis, O.D., was inaugurated this spring as president of the New England College of Optometry, Boston, the nation's oldest college of optometry. Dupuis was most recently commissioner of the New Hampshire Department of Health and Welfare. He has also served as mayor of Manchester, New Hampshire. As a practicing optometrist for 14 years, Dupuis was awarded the Distinguished Service Award of the New England Council of Optometrists and the Distinguished Practitioner Award of the National Academy of Practice in Optometry. He holds honorary degrees from Saint Anselm College and Notre Dame College, both in New Hampshire. Dupuis attended Saint Anselm College and received B.S. and O.D. degrees from the Illinois College of Optometry in Chicago.

The woman who helped establish Lyndon State College as a state-certified four-year college devoted to the education of teachers has been named president emerita by the College's Board of Trustees. Rita Bole, who graduated in 1913 from what was then the Lyndon Normal School, came back to serve as Lyndon's president from

1927 to 1955. She is responsible for establishing the College at its current Vail Manor, Vermont site, as well as expanding the curriculum to include courses in English literature, psychology, language arts and the philosophy of education. Bole received a B.A. from Middlebury College and an M.A. from Columbia Teachers' College. Her 28-year tenure as president of Lyndon State is the longest in the history of the College.

Michael J. Hooker, president of Bennington College since 1982, will leave his post at the end of the month to become chancellor of the University of Maryland's Baltimore County Campus. "It's an opportunity I can't ignore, professionally and personally," he says.

In announcing his decision, Hooker said that he would not have considered the move unless he had "ensured the financial stability of the College, while sustaining the special qualities of its educational program," the goal he set for himself on becoming president. John Williams II, chairman of the Board of Trustees, credited Bennington's eighth president with raising over \$6.25 million while at the College, increasing total gift support by 80 percent, and refinancing a debt using long-term tax-exempt bonds.

Hooker, noted worldwide for his work in medical ethics, began his academic career teaching philosophy at Harvard University. Later, he served as dean of undergraduate and graduate studies at Johns Hopkins University.



Bonaparte

...TO PROVOST

Dr. T.H. Bonaparte, vice president of corporate and international programs at Pace University, has been named provost and vice president of academic affairs at Bentley College, Waltham, Massachusetts. Bonaparte is a former Fulbright-Hays senior scholar and an internationally-known lecturer and writer. "We're delighted that such a qualified and forward-looking person as Dr. Bonaparte is coming to Bentley.

The College will benefit greatly from his knowledge and expertise," says College President Dr. Gregory H. Adamian. A graduate of St. John's University, Bonaparte received a Ph.D. from New York University. He succeeds **Dr. John T. Nichol**, under whose tenure Bentley became the eighth largest undergraduate business college in the nation.

...TO VICE PRESIDENT

Dr. Thomas F. Wall has been named vice president of Chamberlayne Junior College,

Boston, Massachusetts. Wall comes to Chamberlayne from Emmanuel College, also in Boston, where he was a tenured full professor and served as chairman of the Philosophy Department for eight years. Among his other positions were chairman of the faculty senate, assistant to the dean, and faculty representative to the Board of Trustees. Wall's previous affiliations were with the State University of New York at Cortland, and Boston College, where he received his Ph.D. He is a graduate of the College of the Holy Cross.

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EMMANUEL COLLEGE

Keith J. Waterbrook, who has been affiliated with the University of Massachusetts Medical Center since 1980, has been named UMMC's vice chancellor and hospital director. He will oversee the planning and direction of the university hospital and its 2,600 employees.

Waterbrook was previously executive director of the University of Massachusetts Medical School's Group Practice Plan, with responsibility for a faculty practice of 250 physicians. Prior to that he was associate hospital director.

"Waterbrook's five years of experience here give us every assurance that he will provide strong and capable leadership to the Hospital and continue to keep us sensitive to the ever-changing external environment," Chancellor and Dean Robert E.



Waterbrook

Tranquada, M.D., said of the appointment.

Waterbrook received an M.A. from the University of Chicago and a Master of Health Services Administration from the University of Michigan. He succeeds Janice B. Wyatt, who left UMMC to become president and chief executive officer of the Leonard Morse Hospital and Health Care Corporation in Natick.

Joseph Phelan, former president of the Citizens Scholarship Foundation of Amer-



Tangney

ica, has been named the first vice president of alumni affairs and development at the University of New Hampshire, Durham. According to President Gordon Haaland, "The University combined its alumni and development programs to achieve greater efficiency and strengthen our efforts in both areas." Phelan, a 1961 graduate of UNH, has been affiliated with the Minnesota-based CSFA since 1967, serving as its chief executive officer for the past five years. He earned an M.A. at Morehead State University in Minnesota, and completed graduate course work at Plymouth State College, Plymouth, New Hampshire.

Two college administrators have been promoted to vice president at Bates College, Lewiston, Maine. Carl B. Straub, former dean of faculty, has been appointed vice president for academic affairs. Straub received undergraduate degrees from Colgate and Harvard Universities, as well as a Ph.D. from Harvard.

Gina Tangney has been appointed vice president for development and alumni relations. Tangney, former director of development at Bates, graduated from Sarah Lawrence College, Bronxville, New York, and received a M.Ed. from Harvard.

Get the Facts

continued page 87

Tufts University School of Veterinary Medicine

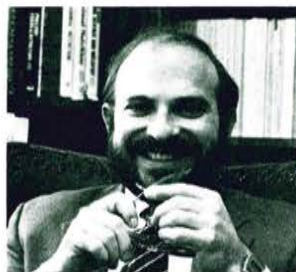
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Franklin M. Loew
Dean

A career in veterinary medicine offers men and women outstanding opportunities to serve animals, to advance comparative medical knowledge, and to contribute to a better society. Never before has animal life been of greater interest to our urbanized society or of greater importance to our agricultural community. Never before has mankind's obligation to serve animals been higher.

Tufts provides an exciting biomedical environment for the study of modern veterinary medicine. In interactions with the School of Medicine, School of Nutrition, and School of Dental Medicine, my colleagues and I are able to provide a scientific and technical environment unique in North America. The clinical settings provided by Tufts New England Veterinary Medical Center and our associated facilities combine both everyday practicality with the latest in high technologies. These facilities include the new Foster Hospital for Small Animals, the Hospital for Large Animals, The Amelia Peabody Pavilion, and the Wildlife Clinic in Grafton, South Shore Veterinary Associates near Cape Cod, Tufts' Laboratory at the Marine Biological Laboratories in Woods Hole, Tufts' Diagnostic Laboratory in Jamaica Plain, and the Ambulatory Clinic based at Woodstock, Connecticut.

Though relatively new, the Tufts School of Veterinary Medicine has studied other leading veterinary schools and has combined the best elements of these programs with the innovation necessary to create both a strongly academic and progressive program and a practical learning experience. And it has begun to engage in the serious public and professional dialectic which concerns animal issues today: animal welfare, ethical considerations, and the cultural role of animals in urban and rural environments.

Our veterinary school is an exciting and dynamic learning environment. The faculty, staff, and students are skilled and dedicated. We are all committed to the betterment of animals and to a human society which is, paradoxically, dependent upon animals, yet in control of their destiny.

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Dr. Richard L. Pattenau, associate vice president for academic affairs at the State University of New York/Binghamton, has been named academic vice president at Central Connecticut State University, New Britain. Pattenau's previous affiliations were with Drake University, Des Moines, Iowa, where he was dean of the College of Liberal Arts and professor of political science; Colorado State University; and the University of Colorado, where he was a national defense fellow. His appointment, effective July 1, follows a year-long nationwide search to fill the position vacated by Dr. H.B. Jestin.

Bennington College has appointed James W. Stevens vice president for finance and administration. A graduate of Dartmouth College, Stevens has held a variety of administrative positions at Mount Holyoke College since 1981. Prior to that, he was director of planning and comptroller at Dartmouth, and vice president for finance and treasurer of Knox College, Galesburg, Illinois.

Dr. Thomas H. Zarle, former vice president and dean of students at Bentley College, Waltham, Massachusetts, has been appointed vice president for institutional advancement there. Zarle will oversee the College's \$12.5 million capital campaign, as well as the development, public relations, alumni relations and conferencing and special events departments. Earlier, Zarle served as professor of psychology and associate director of the Psychological Services Center at Purdue University in Indiana. A graduate of Springfield College, Springfield, Massachusetts, Zarle did postgraduate work at Ohio, Harvard and Michigan State Universities.



Salacuse

...TO DEAN

In July, Jeswald W. Salacuse, dean of the School of Law at Southern Methodist University, Dallas, Texas, will assume the post of dean of the Fletcher School of Law and Diplomacy at Tufts University. "My interest is not just international law, but international business law, which is of increasing interest to the Fletcher School as it develops its international business relations program," Salacuse says. "It is here that I think I can make the greatest contribution." Salacuse was a regional specialist in law and development for the Ford Foundation in Sudan and Lebanon, and a visiting scholar at Harvard Law School in

the late 1970s. He succeeds Theodore L. Eliot who left the Fletcher School last May to become executive director of the Asia Foundation's Center for Asian American Affairs in San Francisco.



Vellaccio

Frank Vellaccio, associate professor of chemistry and a faculty member of the College of the Holy Cross for the past 12 years, has been named dean of the College. Vellaccio has served on Holy Cross's Committee on Educational Policy and the Committee on Tenure and Promotion. He earned a bachelor's degree from Fordham University and a Ph.D. from the Massachusetts Institute of Technology in 1974. Commenting on his appointment, Vellaccio called Holy Cross "a college dedicated to a value-oriented education that emphasizes a commitment to faith and the promotion of justice." Vellaccio succeeds the

Reverend Raymond A. Schroth, S.J.

Plymouth State College, Plymouth, New Hampshire, has announced the appointment of Dr. Wavell W. Fogleman as associate dean for academic affairs. Fogleman is associate professor of chemistry and chairman of the Department of Natural Science at the College. "Out of a group of excellent candidates, Dr. Fogleman was number one on paper and number one during the interviews," said search committee chair Dr. Manuel Marquez-Sterling. Before joining the Plymouth faculty in 1977, Fogleman taught at Old Dominion University, Norfolk, Virginia. Fogleman graduated from the University of North Carolina and received a Ph.D. from Tulane University. He also holds a master's degree in Public Health.

David D. Cuttino, former associate dean of admissions at Georgetown University, has been named dean of admissions at Tufts University. Prior to his 13-year affiliation with Georgetown, Cuttino was assistant director of admissions at Dickinson College, Carlisle, Pennsylvania. Cuttino holds undergraduate degrees from Indiana University and Princeton Theological Seminary. He succeeds Michael C. Behnke, who left Tufts last year to become director of admissions at M.I.T.

David F. Feeney has been promoted to dean of academic affairs at Bristol Community College, Fall River, Massachusetts. Feeney has been affiliated with BCC for 15 years, having served as chairman of the

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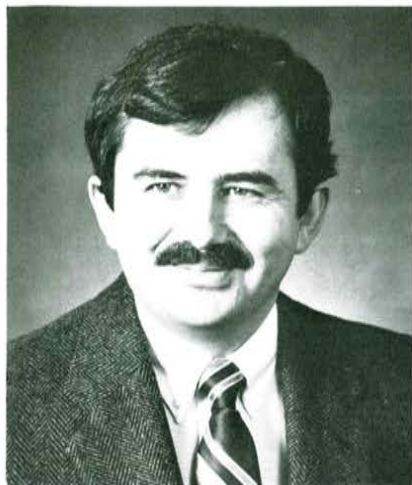
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Division of Behavioral and Social Sciences since 1980. He is currently pursuing a doctorate in education at the University of Massachusetts/Amherst. Feeney received an M.A. in Economics from Boston University and a B.A. from Assumption College, Worcester, Massachusetts.



Feeney

Carole Aldrich was chosen from a field of 156 candidates to become dean of the University of New Hampshire's Whittemore School of Business and Economics. She is former corporate director of strategic planning and business development at Geniographics Corporation, Syracuse, New York. "Aldrich has an unusual combination of business and academic experience, and I believe her understanding of both environments is important to the future of WSBE."



Aldrich

said University President Gordon Haaland. Aldrich, who assumes the position of dean July 15, holds B.A., M.A. and Ph.D. degrees from Carnegie-Mellon University.

Worcester Polytechnic Institute has announced the appointment of two deans. Janet Begin Richardson, former associate dean of students at WPI, has been promoted to dean of students. Before coming to WPI in 1980, Richardson was an administrator at Pennsylvania State University.

The appointment of William H. Taft as WPI's new dean of graduate studies marks



Taft

the expansion of the post from part-time to full-time. Taft, a geologist and environmental consultant, has been affiliated with the University of South Florida, Tampa where he was director of research and director of graduate studies. He later worked in industry, forming his own environmental consulting firm in 1983.



Ryder

...TO ASSOCIATION LEADERSHIP

Northeastern University President Kenneth G. Ryder has been elected chair of the Board of Directors of the National Association of Independent Colleges and Universities. NAICU is America's largest association of independent colleges, representing over 800 institutions. Ryder has served Northeastern for 37 years, as president since 1975.

Also elected to the 24-member NAICU Board was Brother Joachim Froehlich, president of Saint Anselm College, Manchester, New Hampshire.

Bowdoin College President A. LeRoy Greason has been reelected president of the New England Colleges Fund, which has raised over \$25 million for financial aid

scholarships and other educational programs since its founding 33 years ago. Also reelected to the Fund as first and second vice presidents were Radcliffe College President **Matina Horner** and Mount Holyoke College President **Elizabeth T. Kennan**. The Fund extends membership to independent, four-year liberal arts colleges granting at least 150 liberal arts degrees annually and maintaining an alumnae/alumni participation rate in annual giving of at least 30 percent. Currently, 29 colleges hold membership in the Fund.



Mayer

Dr. Jean Mayer, president of Tufts University, has been unanimously reelected chairman of the New England Board of Higher Education. He is now serving his second term as chairman of the Board.

Bryant College President William T. O'Hara has been reelected to a four-year term on the Presidents' Commission of the National Collegiate Athletic Association. He has also been elected a trustee of the Rhode Island Public Expenditure Council.

O'Hara is a charter member of NCAA and one of 44 college presidents on the NCAA Commission. Formed in 1984, the Commission was instrumental in establishing legislation that created new academic and financial reporting standards for colleges and their athletes in an attempt to rid schools of the stigma associated with illegal recruiting practices.

Established in 1932, the Rhode Island Public Expenditure Council is a nonpartisan, nonprofit citizens' group dedicated to advancing effective and economic government. RIPEC studies government operations, recommends policy in the public interest and informs citizens of key government economic issues.

O'Hara, president of Bryant since 1976, is an executive committee member and treasurer of the New England Board of Higher Education. He also serves on the Committee for the Association of American Law Schools and the Commission on Independent Colleges and Universities.

—Laurie Ortyl

C A M P U S

Campus Computerization: AT&T Responds With \$52 Million Nationally

Through its 1985 University Computer Donation Program, AT&T Information Systems has provided advanced technology for eleven New England institutions. Fitchburg State College of Massachusetts, Harvard University, the Massachusetts Institute of Technology, Wellesley College, Worcester Polytechnic Institute, Yale University, and the land-grant Universities of Connecticut, Maine, Massachusetts, New Hampshire and Vermont successfully submitted proposals to the telecommunications giant. Each was selected based on proven efforts to bring computer-aided research and curriculum to the scientific communities on campus; commitment to "campus of the future" technology; willingness on the part of faculty, students and administration to participate in the program; existing relationships with AT&T, Bell Laboratories, AT&T Technologies or AT&T Information Systems Laboratories; and commitment to the use of a UNIX-based operating system.

UNIX is a general-purpose, multi-user, interactive computer operating system originally developed by Bell Laboratories. It can handle multiple users and programs simultaneously and is applicable to a variety of different computers. Unique features include a hierarchical file system and a dozen different command languages.

Amount and type of equipment and dollar value vary among the institutions, depending upon specific applications. Donations included various configurations of the 3B2 super-minicomputer, the 3B5 minicomputer, the 3B2 super-microcomputer, 3B Net (local area network), and appropriate data terminals. In 1985, AT&T provided computer equipment with a fair market value of approximately \$52 million to 146 institutions nationwide.

Fitchburg State College is in the process of establishing the first fiber-optic based local area network (LAN) on a Massachusetts college campus, thanks to AT&T's gift. "We've always prided ourselves on being the most innovative of the state colleges," said FSC President Vincent J. Mara. "The LAN will provide the capacity for wider and more extensive use of computers in learning, including voice and video communication—especially important if we are to remain a leader in business, computer science and communications media, all of which require state-of-the-art technology."

Fiber-optic LANs allow personal com-



J.D. SLOAN PHOTO

Tufts University's historic two-way teleconference between the Arthur M. Sackler Center for

Health Communications, Boston, and scientists in Beijing, People's Republic of China.

puters, mainframes and other information systems to "talk" to one another using pulses of light rather than electricity. Light is guided through tiny glass filaments (fiber optics) as opposed to traditional copper wire. The Center will also use the LAN to improve administrative functions. In particular, Fitchburg's programs in graphics, robotics, computer science and communications/media will be affected.

The University of Massachusetts/Amherst has received equipment and related software valued at over \$500,000 through AT&T's program. The College of Engineering and the Department of Computer and Information Sciences plan to use the technology to support teaching and research activities, particularly programming, distributed processing and artificial intelligence.

"State-of-the-art computer technology is the key to helping the University sustain its competitive edge in the sciences and engineering," Duffey told a group of AT&T and University officials upon announcing the award. "AT&T's contribution will advance

the University's teaching and research in such cutting-edge disciplines as computer science and electrical engineering." Robert C. Babbitt, area vice president for AT&T Information Systems, commented, "AT&T is committed to furthering computer research on the nation's college campuses. With decreasing government participation in the funding of research and education in universities, more and more responsibility has fallen on private business. AT&T Information Systems has chosen to step up to this important task."

The AT&T Foundation sponsors several different types of support for higher education. Early this year the University of Rhode Island received a Manufacturing Technology Grant of \$100,000 for URI's robotics program and Advanced Manufacturing Institute. The gift will enable faculty and graduate students to continue work in electronics assembly, concentrating on providing a systematic method for estimating the cost of printed wiring board assemblies. Planned is a handbook on assembling PWBs, which will provide

designers with simple analysis procedures to identify appropriate assembly techniques and estimate assembly costs. AT&T currently employs a number of graduates of URI's engineering program, and has been involved with URI's Industrial Participation Program for the past five years.

New England Academic Entrepreneurship: Partnerships Accelerate

\$13.5 Million to Northeastern

Northeastern University's four-year struggle to win federal support to help fund the Northeastern University-Southwest Corridor Economic Development and High Technology Resource Center in Boston ended late in 1985, with the award of a major \$13.5-million grant. The action had been opposed by a consortium of large research universities, which argued that unilateral grants should not be awarded. Located on University-owned land adjacent to the Orange Line's Ruggles Station, the planned \$40-million resource center will provide support and information for high-tech professionals. Private funds will make up the difference between federal funds and the resource center's total cost. Mixed-income housing is planned for the same site.

James King, senior vice president for public affairs, says Northeastern is examining the possibility of acting as catalyst for a business incubation center, which would provide job opportunities for old and new area residents. "President Ryder is committed to sharing whatever prosperity comes to the neighborhood with its residents," he says. "This is a vital new partnership that will work in everyone's interest."

University System and Digital Link up New Hampshire

The University System of New Hampshire and Digital Equipment Corporation will create one of the most advanced integrated computer networks in higher education nationwide. The three-year agreement calls for a high-speed computer network to link the system's five locations—Durham, Keene, Manchester, Plymouth and Lee—and, according to Digital officials, will surpass in scope and sophistication similar systems at most other universities and colleges. It will also more than triple the University System's computing capabilities, making use of the state's extant police micro-wave radio system and telephone land lines.

"This is truly a partnership of higher education and high technology," said University of New Hampshire President Gordon Haaland at a news conference announcing the plan. "Both the University System and Digital stand to benefit enormously."

The agreement allows USNH to acquire up to \$16.2 million worth of Digital software and hardware at a reduced rate through 1988. In addition, USNH will provide Digital

with technical expertise in the application of computer networks for education and administration. Digital in turn will have access to any software and courseware developed at the University on the company's equipment. The system will also act as a demonstration site for Digital products.

Digital Vice President John Alexanderson commented, "As the eighth largest educator of engineering students in New England and the fifth largest supplier of new college recruits to Digital, the University has been part of a mutually beneficial relationship with Digital for many years. We are pleased to invite USNH to join such institutions as the Johns Hopkins University, the University of Pennsylvania and the University of Houston as a partner in our Campus-Wide Investment Program." With about 7,200 employees in New Hampshire, Digital is the Granite State's second largest employer.

"With a little imagination, I doubt there is a department, class or research project on campus that could not benefit from expanded computer access," said Albert Shar, executive director of computer services for UNH/USNH. "The administrative applications of the new system, especially with the almost instantaneous exchange of information between offices and campuses, potentially puts us on the road to being a paperless bureaucracy."

Digital's Campus-Wide Investment Program is one of the company's several investment programs for education and research that are part of its long-term, ongoing commitment to support computing in academic communities. The program reflects a mutual commitment between education and industry to create environments where students from many disciplines may access the latest computer technology, while faculty can simultaneously engage in academic research and administrators can use the most advanced office automation systems available.

UVM Medical Software Serves 60 U.S. Hospitals

The University of Vermont's Technical Services Program is marketing a computer software program it developed for hospitals, which is currently being used by more than 60 medical facilities.

The program, called the Hospital Engineering Management System, emphasizes preventive maintenance by giving the user a number of ways to manipulate information related to planning, scheduling, work orders, equipment inventory and reports. The system makes it especially easy for hospitals to keep track of maintenance and repair costs. Both building systems (plumbing, heating and the like) and health care machinery (x-ray machines, patient monitors, etc.) can be managed with the HEMS system.

The HEMS program was developed in 1983 with funds from the Kellogg Foundation. Four hospitals in Vermont use the system, which is sold through a

continued on page 80

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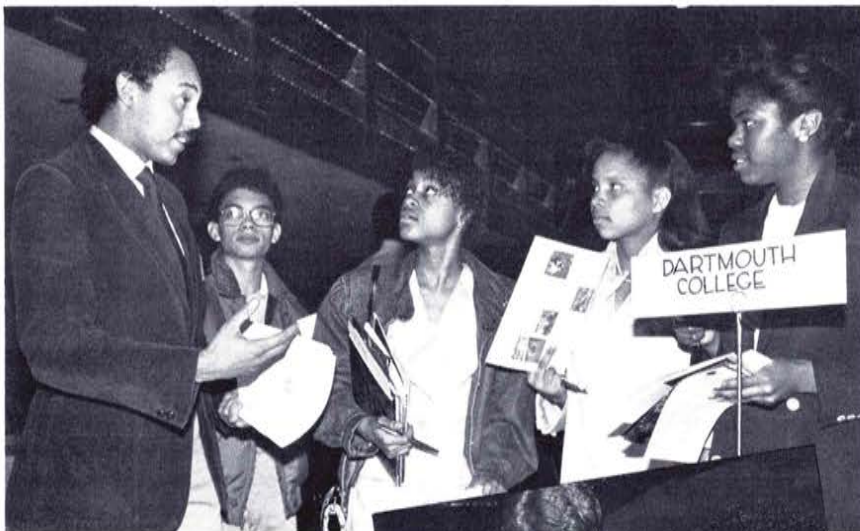
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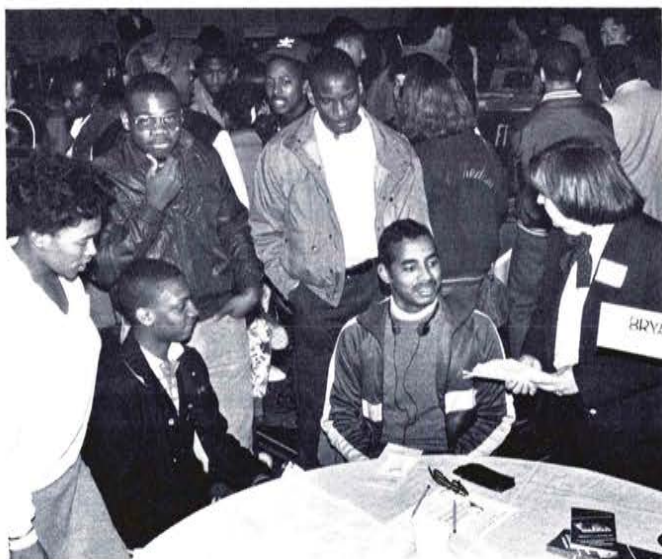
The National Scholarship Service and Fund for Negro Students (NSSFNS) hosted over 1,500 Boston area high school students at the Sheraton Boston Hotel during its annual Student-College Interview Session April 11th. Students were given the opportunity to meet with representatives of over fifty colleges and universities to discuss higher education, financial aid, and career plans after attending a mandatory orientation. A session for New Haven area students was held on April 16th. Photos by J.D. Sloan.



The National Scholarship Service and Fund for Negro Students (NSSFNS) brightened the prospects of high school juniors and seniors—especially minority and disadvantaged students—through the 1986 Northeastern Regional Student-College Interview Sessions. The sessions, held at the Sheraton Boston Hotel in Boston, Massachusetts on April 11 and the Park Plaza Hotel in New Haven, Connecticut on April 16, were also co-sponsored by the New England Board of Higher Education.

Two of eighteen such gatherings held across the United States, the sessions provided students with the opportunity to meet with college and university representatives to discuss admissions requirements, financial aid and career options. Participating students were also required to attend an orientation session providing them with general information on financial aid and the admissions process, prior to their meeting with individual college and university representatives.

Sam Johnson, director of SERO/NSSFNS in Atlanta, commented: "I think there was excellent participation at the Boston and New Haven events. Over 1,500 students attended the Boston session and more than 1,000 attended in





New Haven—a new record for participation. We were assisted by some very fine local planning groups who worked hard in getting word out to students and their parents. On the whole, the majority of students took the opportunity to speak to admissions counselors, learn about various colleges and universities and what they have to offer, and, most importantly, learn that it is possible and affordable for them to receive a college education."

Over fifty campus reps attended both sessions. To insure strong student attendance, planning committees in Boston (chaired by Ann Coles, director of the

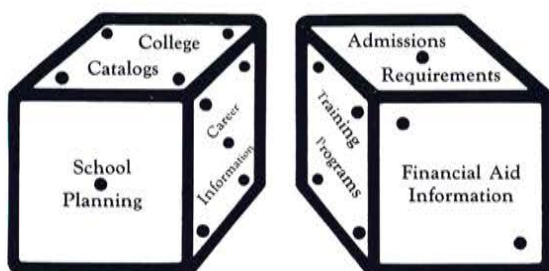
Higher Education Information Center at the Boston Public Library), and New Haven (chaired by Cynthia Beavers, supervisor of guidance and counseling at the New Haven Public Schools) were created to aid in publicizing the events in area schools, churches and resource centers.

Further information about the annual Student-College Interview Sessions and NSSFNS may be obtained by writing to SERO/National Scholarship Service and Fund for Negro Students, Inc., 965 Martin Luther King Jr. Drive NW, Atlanta, Georgia 30314.

—Charlotte Stratton



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continued from page 77

dozen distributors across the country. The software can be used with IBM personal computers and comparable equipment.

Project Director Jacob Levison says, "There is an expanding market for the software, and I expect sales to continue to grow. Because the menu-driven program is based on work orders, institutions are able to track their work on mechanical systems, determine the work that is pending, and record how the work has been done and what the labor and materials costs were."

Although the HEMS promotional literature claims this is the only software package developed specifically for hospital plant engineering, Levison says it is flexible enough to be used by other types of institutions. "In fact," he says, "the software is being used by at least one manufacturing company, which has substituted within the program its own equipment and maintenance information for the usual hospital information."

Partnerships for the Eighties: Higher Education and Economic Development

Dartmouth Hosts Corporate Incubator: A New Hampshire First

The Thayer School of Engineering at Dartmouth College will host New Hampshire's first incubator for start-up companies, as a way to encourage innovative research and help stimulate the economy with new products and jobs. The "Innovation Incubator" is a joint effort of the Thayer School and Roan Ventures, Inc., a management firm based in Manchester. It comes at a time of tremendous national growth in small business incubators being offered by local governments, nonprofit agencies, private companies and schools.

In exchange for an equity share in the companies, small business incubators offer work space and support services that may be too costly or otherwise unavailable for businesses in the early stages of development. Eventually the fledgling companies move out on their own. Thayer and Roan Ventures are particularly interested in proposals for information handling, telecommunications, equipment and delivery systems, health care and medical products services, and aerospace and defense systems.

Thayer will provide its incubator participants with work and conference space, computer and library resources, specialized laboratories and equipment, secretarial support, telephone and copying services and purchasing help. In addition, the incubator's Thayer School location, adjacent to the Amos Tuck School of Business Administration, will provide the rich resources of faculty experts.

"Dartmouth is the ideal setting for such a project," says Thayer School Dean Charles



UNH President Gordon A. Haaland (left) and Brazilian Ambassador Sergio Correa da Costa at announcement of Tinker grant furthering

studies between UNH and Federal University of Ceara, Brazil.

Hutchinson. "For many years, the Tuck and Thayer Schools have shared a common interest in entrepreneurship. With the excellent resources available here, we hope to encourage many prospective entrepreneurs to test out their ideas." The incubator will be under the aegis of the Thayer School's Cook Engineering Design Center, which serves as a liaison between industry and the school's faculty, students and programs.

Roan Ventures will handle the day-to-day management of the incubator as well as the initial screening of applicants. Roan Ventures' parent company, the Lotus Capital Corp., will serve as a potential source of venture capital for incubator participants.

The comprehensive set of services and support offered by the Innovation Incubator sets it apart from most other incubators in the country. Says Dick Ash, president of Lotus Capital Corp., "Most incubators are real estate deals. They are interested in getting tenants and collecting the rents. We're interested in seeing that people add something to the community." Although the arrangement is just being formalized, the Innovation Incubator has already attracted a number of inquiries. Final selection will be made by a committee of six representatives appointed by the Thayer School and Roan Ventures.

In return for the helping hand, both Thayer and Roan Ventures will receive a five percent equity interest in the new enterprises. In cases where Tuck School becomes actively involved in a company's development, it too will share in the equity interest. The new companies will also pay an annual fee while they are "in the incubator."

There are also educational benefits to be gleaned from the program. The presence of such start-up ventures in the midst of classrooms will encourage other students to think innovatively, says Carl Long, director of the Cook Design Center. "How do you innovate? How do you market? That should be an important part of engineering education."

University of Hartford: Focus on Productivity

A growing number of Connecticut's major companies—including the Stanley Works, Hamilton Standard, Emhart Corporation and the United Technologies Research Center—have agreed to affiliate with the new College of Engineering Applications Center at the University of Hartford.

"Benefits to the companies, to faculty and students from the Colleges of Engineering and Arts and Sciences and Ward Technical College, are expected to be substantial," says Raymond Krisst, director of the Center. Financially, the affiliates have agreed to pay a total of nearly \$400,000 to the Center over a period of five years.

According to Charles Lamb, director of productivity for Emhart: "Industries and universities have had many joint programs over the years in pure and applied research, but we have never focused so heavily on manufacturing before. One reason is that it is hard to understand the nature of manufacturing because it encompasses so many different disciplines and processes. More and more, manufacturing is becoming a science. Electronics, microprocessors and the computer age have brought industry into high technology, and there is a lot to be learned. We need better controls and we need to understand how to link the disciplines together."

The University of Hartford's Cooperative Education Program, under which students work in business firms while still in college, also continues to grow. Since last year, student placements have increased by almost 19 percent. A total of 202 student placements with 138 participating employers were recorded for the 1985-86 academic year. Currently, employers hiring the largest number of University Co-op students are IBM, Aetna Life & Casualty, General Electric, Connecticut General Life Insurance Company, The Hartford Insurance Group and United Technologies.

continued on page 83

Calendar

J U N E

20 National Association of Independent Schools Summer Leadership Workshops
Wellesley College
Wellesley, Massachusetts
June 20 - July 2
Inquiries: Selby Holmberg, NAIS (617) 723-6900

22 American Association of University Administrators Annual Meeting
Riverview Plaza Hotel
Mobile, Alabama
June 22-25
Inquiries: AAUA (205) 348-4767

Harvard Summer Institute on College Admissions
Harvard University
Cambridge, Massachusetts
June 22-28
Inquiries: J.R. Smith (617) 492-6482

J U L Y

1 National Education Association Annual Meeting
Kentucky Fair and Exposition Center

Louisville, Kentucky
July 1-6
Inquiries: NEA (202) 822-7785

14 Council for Advancement and Support of Education Annual Assembly
Convention Center
San Antonio, Texas
July 14-17
Inquiries: CASE (202) 328-5900

21 Society for Industrial and Applied Mathematics National Meeting
Boston Park Plaza Hotel
Boston, Massachusetts
July 21-25
Inquiries: SIAM (215) 564-2929

22 State Higher Education Executive Officers Annual Meeting
Hotel Intercontinental
San Diego, California
July 22-26
Inquiries: SHEEO (303) 830-3686

23 Education Commission of the States Annual Meeting
Intercontinental Hotel
San Diego, California
July 23-26
Inquiries: ECS (303) 830-3800

28 New England Regional Computing Program (NERComp) Workshop
Bryant College, Smithfield,

Rhode Island
July 28-August 1
Inquiries: Robert E. Gibbs, President, NERComp (617) 848-6494

30 International Business Schools Computer Users Group Annual Meeting
Bentley College
Waltham, Massachusetts
July 30-August 1
Inquiries: Paul J. Plourde, Bentley College (617) 891-2000

AUGUST

6 Northeast Association of Student Employment Administrators Annual Conference
Royal Sonesta Hotel
Cambridge, Massachusetts
August 6-8
Inquiries: Ellen McShane (802) 655-9602

11 Society for Industrial and Applied Mathematics Conference on Linear Algebra in Signals, Systems and Control
Boston Park Plaza Hotel
Boston, Massachusetts
August 12-14
Inquiries: SIAM (215) 564-2929

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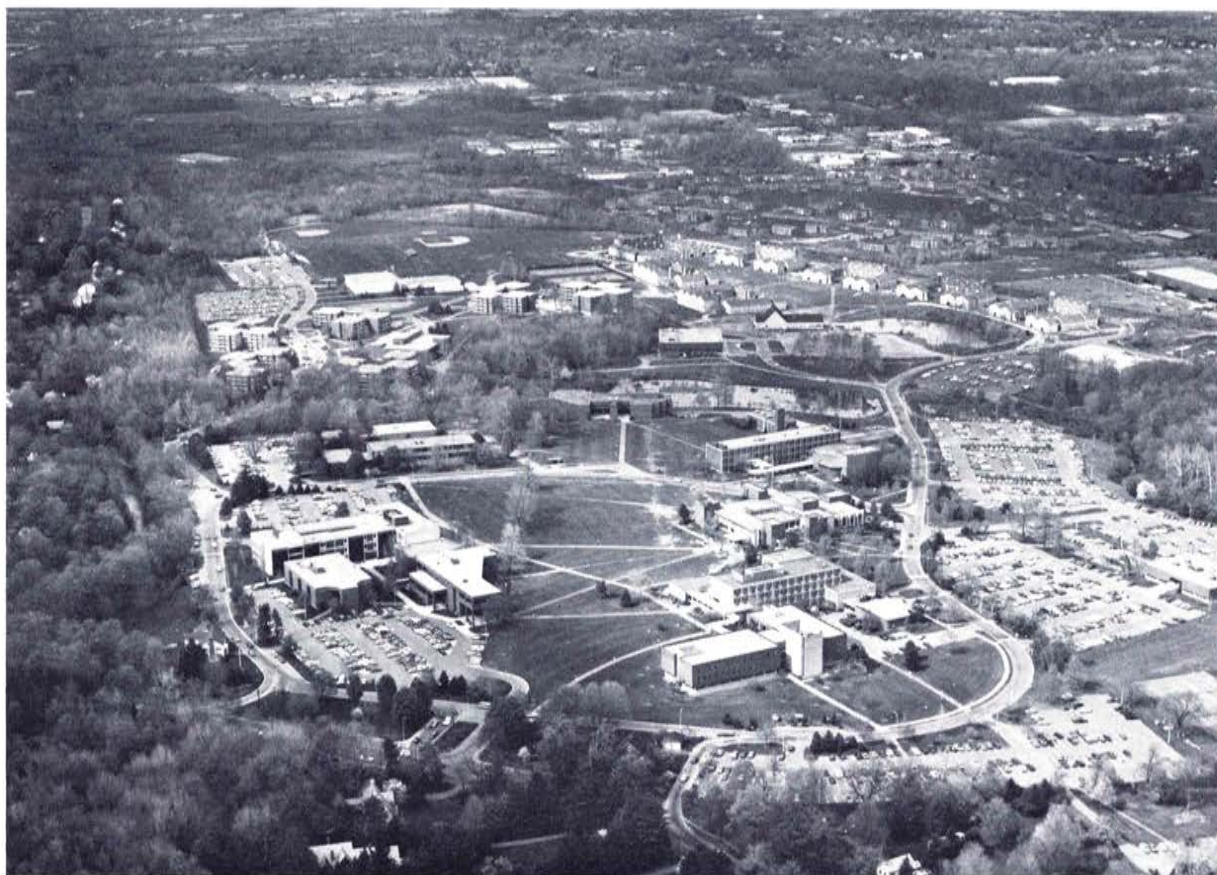
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- 215 acre campus
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- 70 undergraduate majors
- 47 graduate majors
- 3,900 full-time undergraduates, 336 full-time graduate students, 1,826 part-time undergraduates, 1,776 part-time graduate students for a total of 7,840
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Bryant College Examines Rhode Island's Future Economy

Bryant College continues to receive plaudits for a unique conference, "Rhode Island's Economy in the Year 2000: Getting from Here to There," held in January under the direction of Pat Norton, Sarkisian professor of business economics. The conference, open to the public, brought together some of the region's leading economic analysts, who examined the nature of the state's future economy, how businesses should prepare for it, and what role state lawmakers should play in making the transition.

Bill Jackson, a former entrepreneur who now presides over the Brown University Research Foundation, commented: "The university's role is going to increase over time. Knowledge is no longer something that can last a lifetime; it needs to be continuously renewed, particularly in the technical areas. The universities must stress that, and in turn this reeducation role can become an important part of regional economic development... Education has got to become a more important part of the industrial environment."

Louis Fazzano, director of the Department of Economic Development and Steve Seeche of the Rhode Island Technology Council spoke on "Rhode Island in the Information Age." Other speakers at the Bryant conference included, as part of the session on "Rhode Island as a Full Employment Economy," Benjamin Stevens of the Regional Science Institute, George Borts of Brown University's Economics Department, and Katherine Bradbury of the Federal Reserve Bank of Boston.

The International Connection

UNH: Brazil

A grant from the New York-based Tinker Foundation will strengthen marine research ties between the University of New Hampshire and the Laboratory of Marine Science at the Universidade Federal do Ceara in Brazil. Sergio Correa da Costa, Brazilian ambassador to the United States, visited UNH in February to confer with UNH administrators about the three-year grant, which enhances a partnership between the state of New Hampshire and the State of Ceara begun in 1968 by the Partners of the Americas Program.

According to Frank McCann of the UNH Center for International Perspectives, the grant will support exchange of graduate students, collaborative research, cultural training and the initial development of a national clearinghouse linking the marine science communities in the United States and Brazil.

A delegation from the UNH Marine Program traveled to Brazil to help their Brazilian hosts set up a project to study sediments in an equatorial estuary. Besides initiating a research program at UFC, the



Bryant College Campus.

UNH scientists discussed other aspects of the Tinker-funded program, which includes socio-cultural preparation for scientists who plan to visit their sister institution and to discuss other possible avenues of cooperative marine research between the two institutions.

According to Martha Muse, president of the Tinker Foundation, the collaborative research program "should become the prototype that others in the United States and Latin America may emulate in the future."

Tufts: Two-Way Link With China

Tufts University was the scene of a historic event in February: a live, two-way teleconference between Boston and Beijing, the first such link between the United States and the People's Republic of China. (One-way video had already been achieved with the transmission from the U.S. to China of this year's Superbowl and the last Olympic games.)

The precedent-setting teleconference between American and Chinese scientists was part of opening ceremonies for Tufts University's \$23-million Arthur M. Sackler Center for Health Communications, Boston. The event demonstrated how medical researchers will be able to communicate instantaneously, using the technological advances the Sackler Center will make possible.

Shown live on television stations in China and Mexico, the broadcast was recorded for the United States Information Agency so that portions of the program may be aired in Europe, South America and Africa.

USM: Russia

The University of Southern Maine was one of eleven institutions to receive 1985 QUILL awards from the Association of American Colleges (AAC), designed to further "liberal learning for global and scientific awareness."

According to Karen Erickson, director of the USM Program in International Studies, the QUILL monies will be used to support an undergraduate, interdepartmental major in international studies focusing on these areas: foreign policy analysis, foreign affairs management studies and regional studies in the Soviet, European and Latin American areas.

"For the first time," Erickson said, "USM will have resources for Russian language

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studies, and for two workshops on U.S./Soviet negotiations. We're off to a great start."

St. Michael's: Japan

There's more to learn from Japan than management techniques, as is reflected in a new effort linking St. Michael's College in Winooski, Vermont to the cultural life of that nation. The College received a grant from the Consortium for the Advancement of Private Higher Education, to support an intensive faculty and curriculum development program in Japanese culture.

Selected faculty members will participate in a program of study in the history, philosophy and language of Japan. St. Michael's extensive existing connections with Japan make such direct liaisons easier to carry out. The new program includes a Japanese language seminar for St. Michael's faculty planned for summer 1987, followed by a four-week program for faculty members in Japan in cooperation with the School of Comparative Culture at Sophia University in Tokyo.

University of Hartford: U.K.

A unique relationship between Hartford College of Oxford University and the University of Hartford will be inaugurated in the fall of 1987, with the Hartford-to-Hartford Scholarship Program. Modeled after the Rhodes and Marshall Scholarship programs, the new program will provide

a University of Hartford graduating senior an opportunity to study for two years at Oxford.

Each year, Hartford College will reserve one place in its incoming class for a University of Hartford graduate who will be admitted for matriculation with advanced standing to a program leading to a bachelor's degree from Hartford College. For those who receive full scholarships, the value will be approximately \$13,500 to \$15,500 a year. The minimal partial scholarship will be \$5,000. Graduates of Hartford College, which was founded in 1284, include poet John Donne, satirist Jonathan Swift and novelist Evelyn Waugh.

Keene State Abroad

New Hampshire's Keene State College continues to expand its international studies program in cooperation with 12 colleges overseas. Programs include direct exchanges involving the Colleges of Ripon and York St. John, Derbyshire College of Higher Education, Wolverhampton Polytechnic and the West London Institute of Higher Education, all in Great Britain.

Additional programs are being developed at the Institute of Irish Studies in Dublin, Ireland; Moray House College of Education in Edinburgh and the University of Aberdeen, both in Scotland; Queen Mary's College in London; the American University of Rome; and Franklin College in Lugano, Switzerland.

Keene State has a campus-wide commit-

ment to international education. Vice President for Academic Affairs Dr. Richard A. Gustafson, who chairs the Budget Committee of the 100-member College Consortium for International Studies, says Keene State's goal is "to promote global values and to increase opportunities for cross-cultural experiences both on and off the campus, by actively promoting and expanding the College's International Education Program. We want to encourage a compassionate, empathetic view of humankind."

Connecticut Names Centers of Excellence

To capitalize on the academic strengths of Connecticut public colleges and universities, the state Board of Governors for Higher Education plans to establish eight "Centers of Excellence" at an initial cost of \$1.5 million. The centers, planned for the University of Connecticut, the University of Connecticut Health Center, Southern Connecticut State University, Middlesex Community College, Central Connecticut State University, Quinebaug Community College and Greater New Haven State Technical College, will embrace a variety of fields. The institutions were chosen based on competitive proposals submitted to the Board in the fall of 1985. Proposals were judged on the basis of their linkage to their college's mission, their potential for attracting outside support, their relevance to state needs and their ability to achieve regional or national prominence.



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Higher Education Commissioner Norma Foreman Glasgow defines the Centers of Excellence as "distinctive areas of academic strength which, given an infusion of additional support, can elevate a program beyond good to excellent."

"The ultimate goals are to enhance the prominence of our colleges and increase their ability to attract private sector support. The special funds awarded to Centers of Excellence capitalize on strengths in programs of instruction, research and public service. Obviously, colleges stand to benefit as more scholars and students are attracted by their enhanced reputations. The entire state will be enriched as well, since each Center of Excellence must address a societal need, be it environmental health, neurological science, the art of composition or science instruction, to name just a few of the exciting areas in which Centers of Excellence are slated."

Full support for each Center of Excellence depends upon the General Assembly's action on the fiscal 1987 budget in the early summer of 1986. The Department of Higher Education had requested \$2.7 million in its proposed budget; the governor's budget contains \$1.5 million.

The eleven centers endorsed for fiscal 1987 funding were selected from proposals recommended by a special review committee, appointed by the Board. In all, the committee examined 20 proposals totaling \$3.2 million in requested funding. Proposals for the following centers have been approved by the Board:

At the **University of Connecticut**, a proposed Center in Biotechnology would use funds to establish core laboratories supporting existing Centers at the University, implementing interdisciplinary research and training in new areas of biotechnology. The Center in Environmental Health would comprise research, instruction, public service and community education programs addressing contemporary issues in environmental health. Also proposed for UConn is the expansion and development of the Connecticut Writing Project, whose goal is to improve writing instruction in the elementary and secondary schools. The additional funds would provide for the continued growth and maintenance of program quality.

At the **University of Connecticut Health Center**, funding for a Clinical Research Center would create research facilities for the use of faculty in various medical disciplines. The proposed Biomedical Imaging Sciences Center would promote the development and application of imaging technology in medicine and dentistry, for patient care, research and education. In addition, a four-phase plan has been proposed to establish a Center in Neurological Sciences. Requested funds would be applied to the creation of a hearing research center.

The objective of the proposed Institute for Science Instruction and Study at **Southern Connecticut State University** is to involve elementary and secondary school teachers in an intensive association with

Why The President's Proposed Student Aid Budget Failed

If adopted by Congress, President Reagan's fiscal year 1987 budget proposal would have cut Pell Grants, Supplemental Educational Opportunity Grants (SEOGs), college work-study programs, National Direct Student Loans (NDSLs) and State Student Incentive Grants (SSIGs) by more than \$106 million, or 38 percent of student aid in New England. More than one billion dollars and 2 million individual awards to needy students would have been eliminated.

The following chart illustrates the impact the President's budget would have had on each New England state's federal student aid program (excluding *Guaranteed Student Loans*). The first column shows fiscal 1986 appropriations for Pell Grants, SEOGs, College Work-Study programs, NDSLs and SSIGs. The American Council on Education provided estimates of the approximate losses states would suffer had the administration's budget been adopted.

STATES	Total '86 Appropriations	Total '87 Proposed Cuts
Connecticut	\$ 38,688,000	\$ 14,866,000
Maine	29,284,000	11,350,000
Massachusetts	143,903,000	54,907,000
New Hampshire	19,425,000	7,862,000
Rhode Island	25,752,000	9,461,000
Vermont	17,562,000	7,565,000
TOTAL:	\$274,614,000	\$106,011,000

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noted scientists, enabling them to acquire current scientific information and understand present trends in scientific thought. The Middlesex Community College proposal for Video Production Augmentation requests funds for modernizing the video production facilities of its nationally recognized telecommunications program.

Three additional Centers were approved when the Board met again in March: a Center for International Relations at **Central Connecticut State University**; a Center for English as a Second Language at **Quinebaug Community College**; and a Center for Telecommunications at **Greater New Haven State Technical College**.

—Ellin Anderson

CREF Retirement Incomes Up 35.5 Percent

Variable annuity incomes being paid by the College Retirement Equities Fund (CREF) to its 95,000 retired participants increased by 35.5 percent on May 1, according to James G. MacDonald, chairman and chief executive officer of CREF and its companion organization, Teachers Insurance and Annuity Association (TIAA).

There are 480 non-profit educational institutions in the six New England states that have TIAA-CREF retirement plans for their employees; 150 are colleges and universities, and 190 are independent schools. The remaining 140 are plans at other related non-profit educational institutions such as educational associations, libraries and research organizations.

CREF, the nation's first variable annuity fund and largest equity fund, currently has assets of \$22 billion invested in stocks of some 2,300 companies traded on domestic and foreign stock exchanges.

TIAA-CREF provides a nationwide pension system covering employees of 3,700 U.S. colleges and universities, independent schools and related nonprofit educational organizations. About 850,000 participants are now accumulating future annuity benefits through the TIAA-CREF pension system, and another 150,000 persons are receiving annuity income from TIAA-CREF. ■

Brandeis Hosts Program on Humanities and the Professions

Brandeis University, in Waltham, Massachusetts, has received national attention for a program that encourages leaders in the professions to explore together what it means to exercise power and authority in our society.

The Humanities and the Professions Program, the first of its kind in the nation, uses classic literary texts to address social and moral dilemmas confronting contemporary decision-makers.

According to Sanford M. Lottor, administrative director of the program, works by Shakespeare, Conrad, Camus and others "help participants gain a broad, reflective view of themselves and their roles, and explore ideas and feelings involved in their professional work."

The program is designed as a day-long seminar in which faculty members guide discussions that illuminate universal themes from literature as well as the participants' responses to them. Acting as discussion facilitators rather than lecturers, faculty encourage every "professional" member of the seminar to participate by personally addressing issues raised by the literature.

"In a very important sense, two texts are used: the literary work and the personal texts that come from the professional's own experience," Lottor said. "The texts are the windows which allow individuals to go into their heart of hearts in some cases."

The thirty faculty members guiding the program are drawn from a variety of New England colleges, including **Harvard University**, the **Massachusetts Institute of Technology**, **Mount Holyoke College**, the **University of Massachusetts/Amherst**, **Tufts University** and **Wellesley College**.

The Humanities and the Professions Program began in 1980 when Samuel E. Zoll, chief justice of the Massachusetts District Court System, asked Brandeis to design an

inspiring continuing education program for his judges, who, he said, were "overworked, understaffed, constantly faced difficult decisions, and had too little time for thoughtful decision-making."

Lottor's answer was a pilot program, "Doing Justice—Literary Texts, Humanistic Values, and the Work of the Community Courts."

The seminar received rave reviews from the judges. It became apparent, however, that the heart of the program was the way in which it allowed colleagues to exchange views about what it means to be a professional in today's society. Thus, the Humanities and the Professions Program was developed to serve a wide range of professionals including state legislators, corporate executives, physicians, journalists and educators.

"Judges discuss Herman Melville's *Billy Budd* and talk about the difference between law and justice. Executives see in *Othello* different leadership styles, and physicians understand the life and death struggles in Tolstoy's *The Death of Ivan Ilyich*," Lottor said.

To date, over 1,750 men and women have attended more than 90 one-day sessions in several states, including New York, New Jersey, Pennsylvania, Kentucky, Wisconsin and Minnesota.

The response of participants has been excellent, according to Lottor. One commented, "The texts provided a frame, a safe distancing device, yet, paradoxically, an opportunity for intimate exchange not usually available to strangers at a conference." Another said, "I came away knowing that I had experienced something very important in my life."

The Humanities and the Professions Program is funded by grants from the Massachusetts Foundation for the Humanities and Public Policy, Exxon Corporation, the National Endowment for the Humanities and the California Council for the Humanities. Brandeis University and program staff welcome inquiries from interested New England corporations and state and city governments.

—Laurie Ortyl

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Eighty Percent of New England Colleges Seek to Complete Targeted Fall Enrollment

There is good news for prospective students who seek enrollment this fall at a New England college. According to the 1986 survey of student vacancies by the New England Board of Higher Education (NEBHE) in May, there were more than 40,000 openings for qualified freshman and transfer students. And nearly all of the institutions with openings indicated that financial aid would be available for eligible students.

An unprecedented 99 percent (233 out of 234 colleges and universities polled) responded to the annual survey, conducted by NEBHE since 1960. Eighty percent of those institutions (187) reported vacancies this fall for freshmen and transfers. Ninety-six percent of those *open* institutions had financial aid available. The survey revealed at least 23,901 openings for freshmen, and at least 15,397 for students transferring into upper classes.

In releasing the results, NEBHE President John C. Hoy said: "The unprecedented number of openings is difficult news for the colleges, but good news for New England students who want to gain admission."

NEBHE Regional Student Program Director Charlotte Stratton commented, "The results signal a special opportunity for adults and young people to pursue higher education plans they have delayed in the past, especially non-traditional students seeking to enhance their education by completing degrees or exploring a new field of study to change their careers."

The 1986 survey revealed a significant forty-six percent increase in spaces available for freshman and transfer students compared with 1985. Of the 187 campuses reporting vacancies, freshman openings existed at forty-five New England institutions which reported vacancies without specifying the number of openings. Fifty-nine institutions reported transfer level openings without providing the exact number of

spaces. The New England states currently enroll 800,000 college students.

Forty-seven institutions, largely selective independent colleges and universities, reported *no* vacancies for fall 1986, compared with forty-five *closed* campuses in 1985.

Interestingly, while New England higher education is beginning to feel the effects of a demographic decline in the available pool of high school graduates, that decline appears to be having the greatest impact on public two-year institutions. More than seventy-two percent of the freshman openings were in the region's two-year colleges. Public institutions account for seventy-nine percent of all freshman vacancies, and the region's public two-year institutions reported sixty-four percent of all freshman vacancies.

A demographic decline in the available pool of high school graduates appears to be having the greatest impact on public two-year institutions.

The survey results elicited the following comments from New England legislative and educational leaders:

Jean Mayer, NEBHE chairman and president of Tufts University: "The anticipated decline in college enrollment has arrived. The leading fact is the openness of 187 public and independent colleges to those who are motivated to begin or complete a degree. The Massachusetts economy requires that those who are qualified take full advantage of the education and training opportunities which exist. It would be a great shame if students believed financial aid was not available."

Norma Foreman Glasgow, Connecticut commissioner of higher education: "We have a remarkable opportunity to reach out and encourage those who

have put off their advanced training to begin it this fall. Connecticut adults should be encouraged to participate, given the openings that now exist on many of our campuses. The educational requirements expected by our industries reinforce the need to take advantage of these vacancies."

Jane de Frees, NEBHE delegate and president of the Maine State Board of Education: "The survey reveals the unique opportunities available for young people and adults seeking to begin or complete the degree program of their choice here in Maine, or in any of the New England states."

New Hampshire Speaker of the House **John Tucker**, NEBHE vice chairman: "The vacancy survey is good news. Clearly, opportunity exists for those who have hesitated to pursue higher education. The New Hampshire economy needs more trained people. Places exist, and the colleges will be reaching out to potential students this summer."

William O'Hara, president of Bryant College and NEBHE Executive Committee member: "The NEBHE survey results are good news for Rhode Island residents seeking educational opportunity within our state or elsewhere in New England. We've been anticipating these openings for ten years. Now that they exist, let's create a new spirit of opportunity for those who really want education and training. Rhode Island's economy requires the best trained work force we can provide."

Senator **Florence Robillard**, NEBHE Vice-Chair: "The facts are: one, opportunity is greater than ever before; two, financial aid is available; and three, Vermont needs more trained people. Vermonters who have hesitated to pursue a college degree have a unique opportunity to do so."

Representative **Donald Chioffi**, NEBHE delegate from Vermont: "The vacancy survey reveals the best opportunity Vermont adults have had in twenty years to begin or complete unfinished degrees."

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