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Speeches

Graduate School of Biomedical Science Chamber of Commerce Breakfast Feb. 21, 2006

Robert A. Kennedy, president, University of Maine

Thank you for the kind invitation to join you here this morning. As a resident of this area and one with a keen interest in our community's future, I appreciate the Chamber of Commerce and all that it does, under Candy Guerrette's outstanding leadership. I know many—if not most—chamber members, and I can not tell you how much I value the work of this group. I also believe it to be critical for the chamber and the University of Maine to work together – and I welcome continued collaboration.

At the University of Maine, we really feel like we are an important part of the greater community, and I hope you agree. We have 11,500 students and about 2,500 employees; on any given day, when you include our visitors, that can be a community of about 15,000 people. We generate nearly \$700 million in annual economic output. Importantly, we bring in millions of dollars from outside Maine – through research grants and out-of-state tuition.

Some of you were at my installation last September where I used the phrase "new model" for a land-grant university for the first time. And by that phrase, I mean a university with many partnerships and collaborations that is infused within its community and state more than ever before. UMaine is an example of this new model, and that is why our relationship is so important.

We recently conducted an little exercise to determine how large UMaine is—from an infrastructure standpoint, looking at habitable space and utilities—in the context of other communities in Maine. We looked at our property, and the number of people who are part of the university, and we developed a formula that tells us that UMaine is about the same size as Gardiner, Belfast or Houlton – pretty sizeable communities by Maine standards.

Beyond that, I believe that our most important impact is particularly significant in ways that have real meaning. A university like ours contributes to a community in terms of educational opportunities, business connections, culture and entertainment. We are fortunate to be surrounded by municipalities with which we have great relationships, and we look forward to continued progress in developing ways we can benefit each other.

We got some good news in January, when the University of Maine System Board of Trustees granted formal approval to our Graduate School of Biomedical Science (GSBS for short). We worked for more than a year to put the pieces in place for this initiative, which I believe has the potential to help transform Maine's economy and become one of our most significant statewide assets.

When I presented it to the trustees, I began my comments by saying that the Graduate School of Biomedical Science “is not just another academic program...” And by that I meant, indeed, that it is an academic program, but it is so much more than that.

It will also create research and graduate education opportunities – right here in Maine – that have previously been impossible. It will be a lure for biomedical and biotechnology companies considering locating in Maine; it will be an asset to help recruit professionals to this area—a byproduct which has been confirmed by talking with some of you; and finally, we believe it will be instrumental for researching cures for health problems and diseases which occur in Maine in disproportionate numbers compared to other areas of the county—thus reducing long term healthcare costs to the state’s taxpayers.

The Graduate School of Biomedical Science is a UMaine program, but it involves partners around Maine. Also participating are the Jackson Lab in Bar Harbor, the Mount Desert Island Biological Laboratory, Maine Medical Center Research Institute, the University of Southern Maine and the University of New England College of Osteopathic Medicine.

Closer to home, Eastern Maine Healthcare System is also a part of GSBS—who, along with the Jackson Laboratory—are collaborating with us on the Maine Institute for Human Genetics and Health. The MIHGH is located in Brewer, where we are currently hiring faculty for this new venture.

The GSBS is a virtual research and education collaboration that draws on the strengths of the state’s entire biomedical enterprise, which in many ways, is world renowned. And its centerpiece—at its core—is the university’s unique graduate education program.

In November, voters approved \$1 million for infrastructure for the GSBS, and the state will provide additional funding to support students. Each of the institutions is also contributing funds.

These partnerships exemplify that new model for a land-grant university. We are reaching out to other great Maine institutions and forming partnerships that allow us to pool resources and maximize efficiency. (While I am talking mostly about R&D this morning, the recent HUD COPC grant with the city of Bangor is another example of such a partnership characteristic of this “new model”.)

Each member of the GSBS has unique strengths – and together we create an impressive biomedical research force. Altogether, we will have some 80 faculty members – which will rival the largest programs of this kind in the country.

To be sure, we will face some challenges related to distance, but we’ve got the infrastructure in place to use technology to overcome many of those issues. There is great enthusiasm among all of the partners, and we will officially begin the program this fall. Our faculty members are currently reviewing the first student applications—I received an update yesterday—and we anticipate an outstanding group of students to be part of the program.

One of the unique aspects of the GSBS—in addition to the partnering arrangement and its focus on biomedical programs—is that it concentrates on graduate education and recruiting the very best graduate students from around the country to Maine. Right now, our average graduate stipend is about \$12,500, whereas the national average might be closer to \$18,000-\$20,000, reaching \$30,000 or more in some areas.

In some instances it comes down to money, and despite our wonderful

faculty, we can't compete when that's the case. The GSBS is founded on offering competitive graduate stipends and attracting the best students possible—from wherever they might come—to UMaine. And there is evidence that this approach is working.

As a practical matter, we have students in the program already. Our Ph.D. program in functional genomics is already in operation, and some of those students will become part of the GSBS.

By the way, functional genomics is the "practical" expression of a cell's DNA. We hear a lot about sequencing DNA but that doesn't tell you what it does—that's the purpose of functional genomics.

In the context of the functional genomics Ph. D. program, we have approximately 25 students in the program and some 18-20 are in Bar Harbor, or in Portland or Scarborough! And we have three UMaine faculty "stationed" at TJL in Bar Harbor. That's the nature of this "new model" and the GSBS.

One such student is Karen Fancher, who's pursuing a UMaine Ph.D. Using the mouse as a model, Karen is making advances in work on the development of early diagnostic tools to detect breast cancer. This is exactly the type of work we're talking about – it's directly related to human health, and it involves combining resources from UMaine with those at Jackson Lab.

Karen Fancher, by the way, is a native of Plymouth, Maine. She graduated from Hartwick College in New York, then went to work at Jackson Lab. Karen saw the opportunity to advance her career and her life by enrolling in the functional genomics Ph. D. program, and now she is doing vitally important work.

I keep coming back to collaboration and there is another important reason for it.

The planning and development process involved in creating the GSBS has brought together scientists from all of our institutions. They come from backgrounds in embryonic stem cells to human disease, to neuroscience, to toxicology, to orthopedics to blood flow—and because of this—new collaborations and new research opportunities are being opened up.

In fact, toxicology is a good example. UMaine and USM have faculty members interested in that area. And the MDI Biological Lab has a toxicogenomics data base. All these resources – right here in Maine – are now being pooled for the advancement of teaching and science.

This format also serves to accelerate the process and lead more quickly to the advances that come from sharing ideas, expertise and experiences.

I'd like to add some thoughts about why this work is particularly important in Maine. We don't have a public medical school, as you know. But we do have more than our share of serious health issues. We need to do this work, and we have the intellectual resources—the most important resources—to do it in this state. The benefits will be significant, not only to our collective health and the health of others, but also to our economy.

With Eastern Maine Healthcare and the University of New England involved, we will be able to eventually move the research advances to a clinical setting. The phrase "bench to bedside" is often used to describe this approach, and it's the best kind of application for the kind of work we're aggressively developing.

We used to talk a lot about basic research and applied research. When we

discuss biomedical science, we now use the term “transitional research.” That is exactly the approach we want to take with GSBS – taking the idea and developing a way to deliver the related treatment effectively.

Now, how do we see this initiative influencing the economy? The answer to that question takes several forms.

First, it will allow scientists to compete—and we expect very effectively—for research funding. The National Institutes of Health is one of the primary research funding agencies in the U.S., but up until now we were disadvantaged because, we didn’t really have as many researchers as we’d like to have to compete for those funds. We will be hiring more in these areas.

We will also be able to compete because the top researchers from all of the institutions will work together to develop programs and develop creative proposals. This will bring real dollars – potentially in the tens of millions—into Maine, and, indisputably, these investments lead to new ideas, new technologies and economic development.

And there are residual effects, which are equally important. As we have seen in many areas of research – this type of work often breeds the development of new businesses – spinoffs. At UMaine, we have a very strong record in this area – we’ve been listed in the top ten in the U.S. for the number of spinoff businesses, per dollar of state research investment.

Since the state created the Maine Economic Improvement Fund (MEIF) in 1998—with a current investment at UMaine of \$10 million --UMaine has created 30 or more companies and holds more than 50 U.S. and foreign patents. That is far more intellectual property than all of the other research institutions in the state combined.

That creation of intellectual property—at the heart of the silicon valley in California, or the research triangle in North Carolina, or Sematech in Austin, or Route 128 in Boston—is the proverbial “economic engine” that brings jobs, businesses, economic development and wealth to a community. As we read about almost daily—or have read about in Tom Friedman’s “The World is Flat”—that is exactly what China, and India and Japan have discovered.

And that is why the state’s investment in UMaine is so critical. We are already doing this; we know how to develop new technologies, and commercialize them, and we have a record to prove it beyond anyone else in the state.

How’s this for a return? Our researchers have brought in \$5-6 in outside funding for every dollar of state investment. That’s a \$50-60 million return on every \$10 million invested. And there are 625 Maine people working in good jobs, created through MEIF investment.

That is testament to the state’s foresight in making this investment, and it also says good things about our researchers. On average, UMaine researchers bring in \$114,000 in research funding. That’s a higher average than our peers – a fact that makes me proud, but does not surprise me.

Just over a week ago, the Maine Sunday Telegram published an interesting column by Charles Lawton an economist who lives in southern Maine and has extensive experience in policy research.

He wrote about how economic development policy is related to promoting and supporting entrepreneurship. Mr. Lawton wrote that the path to a brighter future will be created by “people who can transform an idea into a

successful enterprise. Finding, attracting and developing human capital is the central challenge of Maine's economy as it moves into the 21st century."

I believe that the GSBS provides a structure, a framework, to do exactly that. In the end—from an economic development point of view—it is about maximizing that human capital, and finding ways to support those with the great ideas and the ability to transform them into economically viable concerns.

As much as we appreciate the state investment—and we think we have generated a return that exceeds even the most optimistic projections—we need to note that Maine is not alone in recognizing the value of research.

Other states are investing—most of them at a much higher rate than Maine; in fact, we are 50th in university research dollars invested per capita. While MEIF funding has remained essentially flat, other states are pulling away from us with large annual investments.

We're working with the Legislature and the governor's office and others to make the case that the time is right to make this funding a priority, and to take dramatic steps to move this state forward by investing in the power of the idea. There is no better investment the state can make, and we will depend on business and community leaders like you to help us make this case.

As a biochemist, I used to think in terms of events or reactions being "catalytic"—some small molecule that could lead to a huge chain of events. Growing up on the farm in Minnesota, we more than likely used the phrase "priming the pump". Whatever you call it, that describes the effect of a state's investment in their research universities. A modest investment will have the effect of turning research into scientific advances and economic development—it's catalytic; it's priming the pump.

The Graduate School of Biomedical Science is a wonderful example. It really is "not just another academic program." We're looking forward to continued research and education success—and in our heart and soul—we believe that UMaine is the most critical investment that the state can make in securing the economic viability and future for our young people and the state of Maine.

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