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REVITALIZING THE LAND GRANT
UNIVERSITY

by

G. Edward Schuh

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REVITALIZING THE LAND GRANT UNIVERSITY*

G. Edward Schuh**

"Organizationally the university is, in fact, one of the most complex structures in modern society; it is also increasingly archaic."
James A. Perkins (1973)

The concept of the Land Grant University was one of the great institutional innovations of the 19th Century. As an instrument of economic development the Land Grant Universities have, over the years, served this country exceedingly well. Moreover, they are widely respected abroad, and in many countries there have been, and continue to be, attempts to emulate them.

While respected and emulated abroad, however, we in this country seem to have lost sight of the essence of this important institutional innovation. It is difficult to understand why this has occurred. Part of the problem, I am persuaded, is because of developments within the arts and sciences themselves, some of which have caused us to become introverted in our respective disciplines. This disciplinary introversion has unfortunately been at the expense of relating our knowledge to the problems of society.

Another part of the problem, I suspect, is the wide emulation of the Land Grant concept within the larger higher education community. We are much less unique than we once were. Moreover, many private and public universities now

do a better job of serving society, at least in being more responsive to its contemporary needs, than do our traditional Land Grant Universities.

Finally, the society of which we are a part has changed very greatly and we have found it difficult to relate to it. Part of this problem arises because we need to make major changes in our programs if we are to be relevant to the problems of society, and for a variety of reasons we are unable to make these changes. Instead, we find ourselves paralyzed.

It would be useful to poll the faculty of this University to discover how many of us know what the original motivation for creating the Land Grant Universities really was. My guess is that few would know. Moreover, I suspect we would also find that very few faculty or administrators know or understand the original mission of the Land Grant Universities, or could articulate it very effectively.

The Land Grants were created as a response to the elitism and limited relevance of the private universities in this country. The basic concept of the Land Grant University was that it would provide upper-level education for the masses - especially in agriculture and the mechanical arts. But it carries with it the idea that the University would generate new knowledge and apply that new knowledge to the problems of society. Every area of activity was to be a legitimate subject of intellectual inquiry. In a very real sense, the Land Grant University was christened as an agent of economic change and economic development.

It is important to emphasize that there is nothing in that concept that limits it to agriculture and the mechanical arts. However, what little concept of the Land Grant University still remains is found largely in the Colleges and Schools of Agriculture in this nation, and in their counterparts in Forestry and Home Economics. And even there, our mission seems to be changing and

turning away from our roots, with a strong bent to a disciplinary orientation. More importantly, most Schools of Engineering have long since abandoned the Land Grant mission. At one time almost all Land Grant Universities had an engineering experiment station. Today, few still have one. And for large parts of the University, the concept of the Land Grant University is a completely alien concept.

Some Symptoms of Our Malaise

In addition to the notion of providing mass education for society, the essence of the Land Grant University was traditionally a strong institutional mission orientation. The idea was that the University had a responsibility to address the problems of society, and to apply the tools of science and technology to the solution of those problems. This gave rise to the familiar description of such universities as being characterized by a tripartite mission of teaching, research, and extension (or outreach). On the agricultural side, this tripartite mission was characterized by separate funding and separate organizations for the three functions: The College of Agriculture, the agricultural Experiment Station, and the Agricultural Extension Service.

An important idea in this original conception was that the institution had a mission. Individual faculty and staff were means to that end. They were managed and administered with a great deal of missionary zeal, and tended to be rewarded only as they contributed to the administratively-determined missions of the institution. Moreover, they were rewarded as they contributed to the solutions of society's problems--and not solely for publications in scholarly journals.

A description of most of today's Land Grant Universities, including this one, is a far cry from that original concept. Today, applied work is frowned upon, or at best looked down upon. The criterion for promotion is to do

scholarly work , which means to publish in scholarly journals. And professionals do not get promoted and do not receive merit pay raises if they do not publish in such journals, no matter how they might contribute to society by helping to solve its problems.

In addition, there is almost a perverse turning away from institutional responsibility. Professionals are self- and professional-peer oriented. They are concerned with advancing the state of knowledge and hence publishing their professional peers, not generating and applying knowledge in the solution of society's problems. Moreover, outreach is construed as selling one's services as a consultant to the highest paying firm, even though much of the knowledge extended in this way has been financed with public money.

A second symptom of our malaise is the rapid emergence of substitute or alternative research organizations in the private sector. One does not need to look very far to identify a large number of alternative research organizations. The Rand Corporation and the fine work it does is only one of many. The think tanks now located in Washington are large and numerous, as are those surrounding Boston and in the Silicon Valley on the West Coast. These organizations now do much of the applied research that institutions such as this University once did. And they garner much of the public money that might have been directed to universities such as this one.

A natural response might well be: "Well, this is the free enterprise system at its best. What once was done in the public sector is now being done in the private sector." And to some extent that might be correct. Obviously, a great deal of research can and should be done in the private sector. But let's think about this issue a bit more. What about the complementarity between teaching and research? If the research is spun off as a separate function in specialized institutions, that complementarity will be lost--to the probable detriment of our teaching programs. Moreover, are certain research functions

simply lost to society as a consequence of this spinning off of some kinds of research? My judgment is that they are.

A third symptom of our malaise is the displacement of much of our educational function. I have been struck as I interacted with the private companies in the Twin Cities with how much in-house training and staff development they do. We in our Department have talked about how we might capture (or is it recapture?) some of this market. A recent paper by Clifton Wharton, Chancellor of the State University of New York (SUNY), (1984) discusses how significant this issue really is. For example, as early as 1979, AT&T was providing some kind of formalized educational experience for over half of its 825,000 personnel each year. Although the annual operating budget of SUNY, the largest university system in the world, first hit a billion dollars in 1981-1982, the Bell system training budget beat them to that level by several years.

Again, there is nothing inherently wrong with this development. A major share of the formation of human capital in this country has long been done in the form of on-the-job training. But educational programs offered by corporations are necessarily more narrow and job-related than those of even technical and vocationally oriented schools and colleges. To quote Wharton, "They operate essentially without references to liberal, comprehensive, and humane learning--the traditional goals of schools, colleges and universities." Wharton's point is that the overall quality of our education and training has declined as more and more of it has been spun off to work-related institutions. The point I would make is that training people for a job is very different than training their minds. It is in training minds that we in the universities ought to have a comparative advantage. And training minds may be a more different means of building the human capital for our nation than training people for jobs, which tends to have a high rate of obsolescence.

It isn't, incidentally, just private companies and corporations that are displacing us. Labor unions, museums, the military, governmental and private agencies, libraries, professional associations--and more--have all entered the educational and training business. Does that suggest that we are not doing our job very well? We in the Land Grant Universities ought to at least ask ourselves the question.

What ought to make us arise from our complacency is that universities in this country - especially our large Land Grant Universities - have experienced massive retrenchments in recent years. But while that is happening there seems to be little dampening off in the education and training these other organizations are providing, nor does there appear to be a significant decline in the flow of funds to private research corporations.

A fourth symptom of our malaise is our almost total failure to educate our students for the international economy and society that is now so important to us. Our integration into the international economy has increased tremendously over the past 15-20 years. Some 25 percent of our GNP is now attributed to international trade, and the international capital market is now driving our economy. We are now borrowing from abroad at an annual rate of \$80-100 billion. Moreover, that capital inflow is giving us a strong dollar, which benefits us tremendously as consumers, but which has imposed enormous shocks on our export sectors like agriculture and on sectors that compete with imports like the automobile, steel, and textile industries.

With that degree of international interdependence, our overall economic performance is determined in large part by our ability to compete in the international economy. That, in turn, is determined in no small part by the knowledge base we have on the rest of the world a knowledge base that is extremely limited. For example, what do we know in an operational sense about the individual economies of Latin America, of Africa, of Asia? What do we

know about the causes of the stagnation in the agriculture of the Soviet Union, or about the recent resurgence in the agriculture of Mainland China? Or best of all, what do we know about the underlying causes of the outflow of migrants from Mexico, or the political system of Canada our two closest neighbors? Unfortunately, the answer to each of these questions is, "Very little." And what we are doing about these deficiencies? Again, very little.

And what do we do about educating our students for the kind of international economy in which they will live and work? Again, very little. It isn't necessary to cite the full litany. But what about language training? And what about courses that teach something about the major cultures and religions of the world--not to say something about the geography of the world? The answer is the same--we do precious little.

Finally, as major research and educational institutions, we are growing increasingly irrelevant to the problems of our society. I have already touched upon some dimensions of this lack of relevance or failure to relate. But let me be more specific. What are we doing to understand and to address the very large economic dislocations we are experiencing as our economy opens itself to the international economy? What are we doing to reduce the terrible imbalance in economic wealth on the international scene? What are we doing to design the institutional arrangements for a rapidly changing international economy? In my judgment, all too little in each case. And what is troublesome about it is that we don't even worry about our lack of irrelevance any more. It isn't that we are trying to solve these problems and can't obtain the resources to do it. Instead, we deny that we have any responsibility to do anything about these problems. We insist that our task is to do basic research--to think big thoughts and then let the world beat a path to our door. We fail to tailor our educational programs to a rapidly

changing economy and then moan that demographics is eating us alive, or that our salaries decline relative to other groups in society.

What Should A Modern Land Grant university Be?

One of the real challenges we face is that the frontier of knowledge has moved out so rapidly in the post-World War II period that the accretions to knowledge on that frontier are far removed from the problems that society is experiencing. As a modern research university we want to be on and contributing to knowledge on that frontier. And in my judgment we should be. The challenge is how to bridge that ever-widening gulf between the frontier of knowledge and the problems which the new knowledge we generate can ultimately solve.

One answer is to say, "Don't even try. There are gains from specialization and we should specialize in basic research and graduate training." But there are two problems with that solution in my judgment. First, what we know about successful policy is that the basic research needs to be effectively articulated with the applied research. I cite no less an authority than my esteemed colleague Vern Ruttan (1982a) in support of that proposition. So I conclude that one essential element of a modern Land Grant University is that it integrate the basic and the applied research under the same organizational umbrella, and that we keep ourselves motivated to a problem-solving mode at the same time that we push out the frontiers of knowledge. I will offer some suggestions on how we might do that below.

On the teaching side, we need to offer a similar range of educational services as we do on the research side. From our present vantage point that requires, in my judgment, that we offer a much richer variety of educational services than we now offer. Graduate and undergraduate teaching from 8:00 a.m. to 5:00 p.m., offered to youth 18-25 years of age, is not enough. We

need a rich variety of short courses, offered at unconventional hours to unconventional clients in unconventional packages. We are doing some of this, but not nearly enough, in my judgment. Small private colleges are skinning us alive in this game.

Finally, we need a much stronger institutional, mission orientation. It isn't sufficient, in my judgment, to say that we discharge our service responsibilities to society by individual faculty members consulting for pay with the private sector.(1) We need to have a strong mission orientation on the part of the University. The University needs to decide that it is going to mobilize its resources to attack society's problems. Faculty should be rewarded at least in part by their success in solving these problems, and not entirely by their ability to publish successfully for their disciplinary peer group.

To conclude this brief section, what we need is to reinstill a mission orientation into Land Grant Universities such as this. We need to revitalize the tripartite mission of teaching, research, and extension. And we need to do this across the university. We need to revitalize the applied in our mission statement, both in the teaching and research programs. And we need to recover our sense of institutional mission and mobilize our considerable resources to devise solutions to the pressing problems of our society.

Please note that none of this is to say that everybody in the University has to do applied research, nor that everybody should participate in outreach activities. It is to say that the University as a whole should be sensitive to these multiple missions, and that it should see to it that the responsibility

(1) This issue raises a large number of additional issues, not the least of which is that such a policy leads to serious distortions in our research programs. These issues are left for another day. implied by those missions are discharged effectively.

Some Tasks Before Us:
How To Be More Specific

To move towards this redefinition and revitalization of the Land Grant University it seems to me that we need to turn to about six major tasks:

1. We need to capitalize on and revitalize what we have learned about agricultural development.

Agriculture is one of the few world class industries we still have in this country. Most of the others, like the automobile, steel, textiles, and shoe industries, have long since fallen by the wayside. We need to ask ourselves why we have been so successful in agriculture and try to apply what we have learned to the rest of the economy.

What we have learned from our development experience with agriculture is that investments in human capital are the key to development. That means investments (both public and private) in the production and diffusion of new production technology, and in the education and training of the rural population. It is these investments in research and education that have given us the sustained, dramatic increases in productivity in agriculture.

But it isn't just the investment in research and education that made for that success. It is the particular institutional arrangements that delivered the outputs of those investments to the agricultural sector. Those institutional arrangements have given Colleges of Agriculture a strong mission orientation. The felicitous linkage of teaching, research, and extension with the prevailing mission of servicing agriculture has been uniquely successful. The irony is that that successful venture is frowned upon by our colleagues in other disciplines as not being scientific enough (!), and the faculty are viewed as second-rate because they solve the problems of society rather than publish for their professional colleagues. Even more ironically, central administrators in Land Grant University after Land Grant University are forcing their agricultural faculty into the irrelevance of other parts of

the university, rather than pressing the rest of the university to emulate the College of Agriculture.

In today's world, the comparative advantage of this nation in almost any sector one wants to think of is determined by investments in human capital. Moreover, a position of comparative advantage is never won definitively. It requires sustained investments in research and development and in the education and training of the population.

When applying the agricultural model to the rest of the economy, a number of problems arise. First, an important key to the success in agriculture has been the production and rapid diffusion of process technology - how to produce something more efficiently. Much of this process technology has been produced and distributed by the Land Grant Universities. But since the demise of the engineering experiment stations, there has been precious little process technology produced for the rest of the economy by those same universities. That is an important reason we are losing our competitive potential in the international economy. We need, in my judgment, to get back into this business. To do so we will need to emulate the research-teaching-extension organization that has served agriculture so well.

An important distinction between the agricultural and nonagricultural sectors is that product technology has been of virtually no significance in agriculture, but is of tremendous significance in the nonagricultural sectors. The issue is "how do we organize to provide this product technology?" The University of Minnesota has been grappling with this issue for at least the last two years.

I believe we need to create some new institutional arrangements for this purpose. The problem, of course, is that product technology - contrary to process technology - tends to be proprietary. It tends to be patentable, and thus can successfully be produced in private institutions. But the issue is

whether the private sector will produce the socially desirable supply of such innovations. My conclusion is that they won't. For example, products desirable for the small firm may not be desirable for the large ones. The large firms will take care of themselves. We have a significant role to play in serving small firms and businesses.

I believe this is a perfect case in which a joint venture operation might be a solution to the problem. The private sector might put up venture capital; the University would put up selected members of its faculty. A way to share the benefits from successful ventures would need to be devised.

There are other forms that such institutional linkages between the university and the private sector might take. The challenge, of course, is to preserve the integrity of the two sides in such arrangements. Agriculture again offers an important example. The Crop Improvement Associations offer an interesting example in which means of cooperation between the private sector and public universities were created. These arrangements provided incentives to the university researcher to press ahead with his work without at the same time distributing his valuable new seeds on the side to his friends.

2. The need to respond to the changed economics of education.

Land Grant Universities are being displaced as deliverers of educational services at a very rapid rate. We explain that to ourselves by saying that we are being victimized by the changing demographics of our population. In many respects that it is too easy an explanation of what is happening; in other respects it is simply a cop-out. Our problems are much more profound than that, as evidenced by the growing role of other institutions in society now providing educational services to society.

In my judgment one of our major problems is our failure to take account of the changing economics of education (see Schuh, 1983). In this case, too,

we have misdiagnosed our problem. We express our concern about ever-rising tuition costs, and fail to recognize that the major cost of going to school is the opportunity cost of the student's time - what he or she foregoes in income while they go to school. The point is that education is a time-intensive activity. An inherent characteristic of economic development is that the value of time rises as per capita incomes rise. Hence, the opportunity cost of education rises with that increase in the value of time.

An important reason why we are being displaced as deliverers of educational services on such a significant scale is that other institutions in society, including private corporations, have found ways to deliver those services at times when the opportunity costs of the student's time is low, and in packages which enable them to take advantage of them. That means at night and on weekends, and in specialized programs, and for non-conventional groups such as employed women, the elderly, and so on.

If we are to increase our market share of the growing demand for education, we will have to change our mentality away from delivering formal courses and shift it towards delivering educational services. Then we need to package those services in ways that are attractive to potential students and deliver these packages at unconventional times. Moreover, we will have to make the packages relevant to our potential clientele. And it wouldn't hurt if we were to get out and promote what we have to offer, while at the same time actively recruiting students to our programs, much like other "educational" institutions are now doing.

3. Training and educating our students for the international economy.

There are many fronts on which the relevance of our educational offerings might be challenged. I want to address only one issue in this paper, however, and that is because of its relative importance in today's world. That issue is the preparation of our students for the international economy in which they

will work in the years ahead.

This nation is economically and politically a member of an international economy and society. A communication and transportation revolution has brought this about. In today's world one needs a knowledge base on the world to make informed judgments and decisions about contemporary events and about the choices before us. One need only read the newspaper or watch the evening television to understand how important this is. Or to ask how much one really knows about the issues in Beirut, in Central America, in Iran, etc. Or whether one could write an informed letter to a Congressman or Senator about any one of these issues? Or vote in an informed way with regard to the people who will represent others on these issues? That is what a representative democracy is all about.

This nation is now a competitor in an international economy about which we know very little. Most of us at one time or another will either work abroad or work for a company or government agency that has a strong international involvement, whether by exporting or by trying to compete with imports from abroad. We will be unable to compete effectively in that world if we don't have people who are knowledgeable about it.

It is time we stopped viewing international programs as something separate and distinct from the rest of our educational and research programs. When we do both of these things, we will also be able to respond more effectively in a service sense to the demands for such knowledge from both the private and public sectors. Reforming our various curricula so that this new perspective is introduced will undoubtedly require consolidation of much of the rest of the curriculum. But in most cases that needs to be done anyway.

Related to these kinds of changes, there is also a very significant market opportunity for us in the international arena. This nation has become an exporter of services as international comparative advantage has changed over

time and our ability to compete in manufactured products has declined. An important opportunity we have not capitalized on, however, is the export of educational services. We are a human capital-intensive economy. It should be to our comparative advantage to export human capital-intensive activities, which includes educational services. But we have done very little to develop that market. Instead, we passively recruit them. And then all too often we worry that those students we do accept will distort our programs.

Increasingly, other nations are recognizing the importance of education and human capital as the basis for economic development. Contrary to popular belief, many nations and private individuals are willing to commit their own resources for such purposes. In fact, only about 3 percent of the over 300,000 foreign students in this country are here on their own money.

If we were to move to develop this market, there is a significant opportunity for us to capitalize on a natural complementary between exporting more educational services and strengthening the international component of our general educational and research activities. Our students will have an opportunity to interact more extensively with students from other countries, and it will be easier to build institutional links for greater collaboration on research through this same means.

As in the rest of our educational offerings, we need to break out of our conventional modes of delivering these educational services. There is a large role for offering educational packages in other countries, as Harvard, Stanford, and other universities now do. There are also very significant opportunities for us to offer a variety of educational packages on campus. These efforts need not distract from our regular missions; they should, in fact, be an integral part of them, and strengthen them.

4. Institutional design questions for society.

If Land Grant Universities are to recapture their role as agents of economic and social development, they need to once again play a greater role in the design of institutional arrangements for an ever-changing society. Interestingly enough, at one time we played significant roles in such activities. In a recent paper, Ruttan (1984b) describes how the profession of agricultural economics contributed to the design of agricultural policy in this nation, and to the design of the impressive Farm Credit System. But as we have turned away from our mission, from problem-solving orientation towards a predominantly disciplinary orientation, we have turned away from problems such as these. Private consulting companies and other organizations now do it instead.

There are a number of very important institutional design questions for us at the present time. Perhaps one of the most obvious is in designing how the Land Grant Universities relate to the private and public sectors in a rapidly changing society. An important premise of my paper is that we have done a poor job of developing such relationships recently, and thus have seen our role in society pre-empted by other entities and organizations - at considerable loss to ourselves, and more importantly, to society. If we don't redefine these relationships soon, we can only expect further budget retrenchments and increasingly less relevance on our part to the problems of society.

The technological revolutions in telecommunications and computers, together with the break-up of AT&T, present society with enormous organizational questions. Our major research universities seem to have little to offer on those questions, other than through individual faculty consulting with the groups in society who are actually bringing about the changes. Can the major Land Grant Universities mobilize talent and capability to more

effectively address these important questions? As long as we retain our strong disciplinary orientation and lack the ability to bring together competencies from various disciplines, the answer is probably "no."

Our challenges on the international scene are equally as great. Our economic integration on the international scene has far outpaced our political integration. Many of the international institutions which we helped to design at the end of World War II have either broken down, disappeared, or grown increasingly irrelevant. Hence, we find ourselves in each others' way economically, with little or no means to resolve conflicts and make policy choices in a systematic way. In some respects we are like the original thirteen colonies at the time of the Articles of Confederation. We need a new world Constitution to reflect the changed realities of the world. Who is to design it? Will we leave these issues to drift - possibly until we suffer an international collapse on the order of the 1930s?

There are many more challenges before us on the domestic scene. But the above examples should at least illustrate how important the design questions are and how great our opportunities are.

We at the University of Minnesota have some recent examples of successful attempts to address such problems, and this should encourage us. For example, Vernon Ruttan and Leo Hurwicz have for a couple of years now been leading a Faculty Study Group on Technical and Institutional Change. This study group brings together faculty from a wide variety of disciplines in the University to address the institutional change and institutional change and institutional design issues arising from technical change in society. In addition, over a year ago, faculty from some 14 different academic units on the St. Paul, Minneapolis, and Duluth campuses came together to address the serious problems of Northeast Minnesota, and received high marks from people in that region for their efforts. The recently created Humphrey Institute has been catalytic in

getting important public policy issues on our intellectual agenda. And the Humphrey Institute has teamed up with the Department of Agricultural and Applied Economics to launch a major study of the North American Granary and the problems it faces in the future.

It is fair to say that these are exceptions that prove the rule, however, and not representative of the central core of the University. They show that we still do have the capability to respond to society's problems, even though we no longer take such endeavors as central to our mission, nor are we particularly rewarded for such activities.

5. Spanning the ever-widening gap between the frontier of knowledge and the problems of society.

We in the Land Grant Universities face a major design problem of our own. Daniel Alpert (1984) has given us a remarkably perceptive and insightful description of the modern research university in the United States. The main thrust of his paper is that our introversion into our respective disciplines has given us a national disciplinary peer orientation rather than an orientation to our potential or actual constituents in society. This peer orientation, which has been fostered by federal funding of research on a competitive basis, has in his judgment created severe management problems for universities while at the same time driving us to increasingly narrow and single-criterion concepts of academic excellence.

My perception, as I indicated in the introduction to this paper, is that our problems have been caused at least in part by the evolution and development of the science and arts themselves. The advancement of knowledge has caused the work on the frontiers of the sciences and the arts to be conducted at increasingly abstract levels. This has pushed the frontiers of knowledge increasingly further away from the contemporary problems of society.

Those who work on the frontier of knowledge are thus increasingly removed from the problems of society.

One might argue that what has happened is a logical specialization of function, with the major research universities concentrating on basic research and graduate training and other institutions in society doing the more applied research and the applied or vocational training. Moreover, one might be inclined to argue that this is a "natural" specialization that ought to be promoted and facilitated.

But that would be an error, in my judgment, for at least three errors. First, such specialization is surely the road to irrelevance. The whole purpose of research and the quest for knowledge - if we want society to reward us - is to produce that knowledge needed to solve society's problems and to make for a better life for our citizens. If we search for knowledge without any expectation that it is ultimately to be applied--to go after knowledge for knowledge's sake, as the saying goes--it can be very inefficient in a social sense.(2) Society will not long support such research, as we are already beginning to learn.

Second, there is little evidence to support the notion that specialization of the basic research activity is the most effective way to do even that research. Major breakthroughs on the frontier of knowledge have tended to arise out of attempts to solve practical problems for society. Hence, even though there may be individuals who are working on basic research problems, they will be more effective if they are linked with people doing the applied work. Ruttan (1982a) recognizes this when he emphasizes the importance of articulating basic and applied research. The same applies on the teaching

(2) Unfortunately, we tend to take the felicitous examples of serendipity in research as justification for being irrelevant in general in our research efforts. To do that strains logic more than a little bit.

side, however.

Finally, if we in the Land Grant Universities really want to specialize in basic research and graduate training, then we need to recognize that we need to be scaled down very dramatically in size. As Alpert (1984) perceptively points out, there are only a few people who really work on the frontier of knowledge. Moreover, graduate training programs are much the smaller part of our overall educational efforts. If those are the things we want to limit ourselves to, then we need to be much smaller institutions.

I can only conclude that if we continue to specialize ourselves in this fashion, then we can only expect even more irrelevance in what we do and less and less political and financial support for our programs. We will indeed become much smaller institutions. But that is not my main concern. My main concern is what we will have sacrificed for society as a consequence of our growing irrelevance and the loss in effectiveness and payoff to society from its investments in the sciences and the arts.

To circumvent this problem we need to recapture an institutional mission orientation, and attempt organizationally to bridge within the university the growing gap between the frontier of knowledge and the contemporary problems of society. This can be accomplished if we are willing to consider a new layer of institutions within the university, and possibly a redirection of some units now within the university. Together with those changes we will need a change in the criteria we use for academic excellence, a subject to which I will return below.

A number of creative organizational possibilities are within ready reach. Thus we do not need to impose major reorganizations on the universities to deal with our problems. One possibility is to create more problem-oriented Centers within our disciplinary departments. Such Centers can draw on existing faculty, but they provide a means of mobilizing the existing talent

and focusing it on contemporary problems. These can be the same faculty who are doing more basic research.

In my own Department we have recently created a Center for Farm Financial Management so we can more effectively respond to the urgent problems farmers now face in this area. The strategic Management Research Center was created with this same thought in mind at a somewhat different level. And many of the Centers for Public Policy and Public Administration nationwide have been created to fill this same kind of gap. The Humphrey Institute is an excellent example, and has concentrated on drawing in representatives from numerous disciplinary departments to participate in its activities.

Another possible institutional innovation is to create new Colleges and Schools, with their own staff and faculty, but well-articulated with the basic disciplines. Over a decade ago Purdue University created a new School of Technology to essentially do what the Schools of Engineering did in their early days. Within a period of three or four years, that School was the largest school on campus! Moreover, with the creation of that School and its strong outreach programs, Purdue tremendously increased its relevance to society.

Still another alternative is to change the mission of some of our existing disciplinary departments. Some years ago my own Department shifted from being a Department of Agricultural Economics to being a Department of Agricultural and Applied Economics. That change came about in part because of a Congressional mandate for the agricultural research - teaching - extension complex to take a greater responsibility for community and economic development - in other words, to broaden its mission away from production agriculture. But it was also a logical development in light of the declining interest in applied problems in the Department of Economics as it became more involved in basic research. Although resources have never

been provided commensurate with the broader mission the Department took on at that time, it is still the case that our Department has the strongest applied economic research capability within the University. Moreover, as we have changed position descriptions and brought in people with capability on the centrally-planned economies and on Europe, together with our existing strength in the less-developed countries, we are able to contribute on a much broader base to other programs on the campus, especially on the Minneapolis campus.

We have strived mightily to keep our programs integrated and articulated with those of the Economics Department. Our graduate students take their theory courses in that Department. And we want our faculty to be conversant with the faculty in that Department. This creates stresses and strains, but they are creative stresses and strains.

My perception is that the College of Agriculture more generally could and should be reoriented in a similar direction. Rather than to drastically retrench the College, as has been done in order to develop new programs and greater disciplinary depth elsewhere, resources should be directed to the College as we attempt to recapture our institutional mission orientation. (In a few months I will no longer be a member of the faculty of the College of Agriculture. That should exonerate me from any charges that I am engaging in special-interest pleading with this suggestion.)

What is encouraging about the examples of possible reform I have just reviewed is that they indicate we are still doing some of the things we need to do to reestablish a stronger institutional mission orientation, and that we can move stronger in that direction without having to make major organizational changes. What we need is a clear sense of the direction in which we want to move, and a more explicitly designed roadmap for moving in that new direction.

6. Management and government in academia

One of Alpert's telling points is that as individual faculty have become more disciplinary oriented, they have grown increasingly beyond the leadership and direction of university administration that is beyond the reach of not only the university president, but also the deans and department heads or chairs. The point is that increasingly, money comes to individual faculty and only indirectly to the university. Moreover, the allocation of this money is determined by national peer groups, not by local administrators, and when money comes in this way the tendency is to free up the time of these individuals from the grubby institutional work and permit them to dedicate even more time to disciplinary interests.

It is little wonder that we have lost our sense of institutional mission! And what a far cry from the original funding of research and extension in agriculture, which at least gave university administrators some means of influencing programs. In today's world, however, deans, directors and department heads - the College of Agriculture, Home Economics and Forestry excluded - have very little discretionary funds to use to develop new programs and change program direction.

The net effect of these developments is to effectively neuter university administrators. They would have a very difficult time developing a strong mission orientation even if they wanted to. They can recruit funding from the private sector to develop such mission-oriented programs, but that money also comes with strings attached to it, as do resources from the major Foundations. Even endowed positions increasingly come with strong programmatic directions.

The situation is no less encouraging when one turns to the problem of faculty governance. Faculty senators have lost both status and effectiveness as a factor in campus governance. And college-level

assemblies and department faculty meetings have become almost equally ineffective as a means of decision-making. College assemblies are frequently adjourned for lack of a quorum, and many departmental faculty meetings continue only because somebody doesn't ask the question. Interest in the mission of departments, schools, and colleges has declined as individual faculty have become more self- and professional-peer oriented.

These developments are in large part a consequence of the decline in institutional mission and the rise in individual and disciplinary orientation. The individual faculty member is king - or queen - and he or she insists on his or her right to do what he or she wants to do. Their reward system is oriented towards the discipline, not towards the mission of the university or even of the school or department. And the greater their success among their disciplinary peers and the larger the flow of money they attract, the more independent they become.(3) The result is a decline in institutional relevance, in institutional vigor, and in the perceived lack of value of universities on the part of those who would give us political

The dimension of the university system that perhaps best characterizes and epitomizes these developments, at least in the Land Grant Universities, is the increasingly narrow concept of academic excellence used for promotion and merit pay increases. Unfortunately, there is increasingly only one factor that determines whether a professional gets promoted or receives a merit pay raise, and that is "what have you published for your disciplinary colleagues lately?" Moreover, the evaluation of the quality of those

(3)Needless to say, it tends to be the brightest and best that earn the national reputations and thus are pulled away from working on society's problems and diverted to working on problems of discipline. It would be difficult to design a more perverse set of incentives! and financial support.

publications is determined not by departmental colleagues, but increasingly by peers outside the university. Individuals can win an outstanding teaching award and not get promoted. They can make an enormous contribution to society through applied research or outreach programs. But that won't get them promoted, nor will it get them elected to a Regents professorship. There is only one thing that will do those things - publishing for disciplinary colleagues.

All of this is done in the name of scientific excellence and quality. My point, of course, is not to quarrel with the drive for quality and excellence. Instead, it is to challenge the notion that there is only one criterion for determining that quality and excellence. For surely that, as much as anything else, is causing us to lose our sense of institutional mission and become increasingly introverted within our particular discipline.

My conclusion after having spent most of my professional lifetime within a Land Grant University is that we have an institutional imperative to revitalize our sense of institutional mission. Moreover, to do that, we need to broaden our concepts of academic excellence, and give university administrators more responsibility and more discretion in their allocation of resources. Associated with that will be a weakening of the overwhelming disciplinary orientation into which we have settled.

Such changes will mean that within a large Land Grant University such as the University of Minnesota we should experience both increased diversification and increased specialization. It also means that we should reward managers and entrepreneurial types. We should concentrate on getting the right people in the right positions, and stop the foolish folly of trying to have researchers who work on the frontier of knowledge manage our undergraduate programs or do undergraduate teaching. We need to give greater attention to making more efficient use of our resources by having people do

what they do best and rewarding them accordingly.

We can do that without making dictators out of administrators and without failing to assist faculty members to attain their disciplinary rewards. What I am appealing for is that we take greater advantage of the diverse resources we have, that we mobilize them more effectively, and that we make them more productive in terms of society's goals. We still do that in Colleges of Agriculture across the country, although much less so than we once did. We also can make these choices of mission and program direction by democratic means and concensus building, with ample room for persuasive and creative leadership still left. To accomplish these goals, however, we have to move away from the single criterion of academic excellence, we need to elevate our sense of mission, and we have to give university administrators some discretionary funds and freedom so they can manage and administer a mission-oriented institution, not a collection of individuals who are oriented primarily to their national peers, and who only by chance happen to be at a particular institution. Contrary to the notion that this will denigrate the value of the individual, it will do just the opposite. The individual will have value to the particular university because he or she is important to the particular missions that university has. The individual should be rewarded accordingly.

Similarly, our choice is not between the disciplinary orientation or a mission orientation directed only solving society's problems. We obviously must do both. And that is what makes our challenges so great, and potentially so rewarding.

Concluding Comments

We in the Land Grant Universities have lost our way. We wring our hands about declining real salaries relative to other groups in society, and about

the impact that demographic forces are having on us. Somewhat surprisingly, at each university we consider our particular problems to be unique, without recognizing that we are facing a systemic problem and not a particular problem. Moreover, we deal with our retrenchments in piecemeal fashion, with the notion that if we can just get through this one we will be okay. The devastating effect this has on morale and productivity is difficult to exaggerate.

I'm sure that many of my professional colleagues will be concerned and, yes, even alarmed, at my suggestion that we revitalize our institutional mission and give administrators more resources and discretion so they can be more effective managers and more entrepreneurial in their program development. Surely, they will say, that is not what academic freedom is all about!

There is nothing in my suggestions that erodes academic freedom. More importantly, the choice is ours to make. My appeal is that we rediscover our intellectual roots and redefine and revitalize the Land Grant concept in terms of today's society. It is unrealistic to expect that society will reward us to do just what we want to do. It is our responsibility to once again make ourselves relevant to the society we should be serving, or else see our salaries continue to decline and periodic retrenchments slash away at us. The point is that the missions I refer to are there for us to fulfill. If we don't pick them up, the resources will go to other places in society where people are so motivated--as they have been doing at an ever-increasing rate this past decade.

Perhaps the more important issue is where present trends leave society. My own notion is that an important part of the economic stagnation we have experienced in the United States this past decade is due in no small part to our major Land Grant Universities having lost their way and having played an increasingly less important role in society.

I would like to close this paper with a quote from Alpert (1984, pp. 39-40):

Although inspired by the worthy motive of defining and achieving "excellence," the research universities of the nation have been led into a rating game that places far greater rewards on conformity than diversity, measuring performance primarily in terms of original research published in scholarly journals. This situation has served to impose the values and the mission of the outstanding research institutions on most of the other colleges and universities without providing, even in principle, for the justification or support of the overall research enterprise. A narrow definition of excellence has also served to impose the values of the most powerful disciplines on many of the less prestigious disciplines and powerful schools and, in the process, have denigrated their intended purpose. At the same time, the national needs for undergraduate education and for advanced continuing education are not being adequately addressed, and little attention has been given to the local and regional needs for applied research and public service.

It won't be easy to extricate ourselves from the box into which we have forced ourselves. But we owe it to both ourselves and the society of which we are a part to at least make the effort.

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