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Intellectual Property Rights and the Land Grant Mission*

G. Edward Schuh**

The issue I was asked to address in these remarks was whether the emergence of intellectual property rights is an impediment to the mission of the land grant universities. This is an increasingly important issue, and I am pleased to try to address it. In doing so, I will try to be provocative so as to set a tone for the Symposium itself. My article is divided into three parts. The first part provides a review of the concept of a land grant college or university and of its mission. The second part provides a brief discussion of the evolution of these universities over time, and the third part discusses the issue of intellectual property rights and the future of the land grant universities.

As I worked on my paper it became clear that two themes were emerging and even conflicting. The first and recurring theme was whether the concept of the land grant mission was still alive and flourishing in this country. Given the economic, social, and technological changes in society, had the basic mission become so diffuse that intellectual property rights issues were of little concern? The second theme, and the one I was asked to address, was whether intellectual property rights were a significant impediment to realizing the mission of the land grant colleges and universities. I will try to respond to both of these questions.

I. THE CONCEPT OF THE LAND GRANT UNIVERSITY

The land grant colleges and universities were created as a response to the elitism and lack of relevance of the private

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universities of an earlier era.¹ The tradition of those early universities had essentially been inherited from this nation's European intellectual roots.² The main intellectual components of these elitist institutions were law, medicine, and religion, and the students were for the most part the sons and daughters of upper income groups in society.³

The land grant universities were one of the great institutional innovations of the 19th Century.⁴ As my colleague Vern Ruttan has pointed out, they were one of the few institutional innovations from this country that had been transferred abroad in our foreign aid program. Moreover, they have been widely respected abroad, and eventually they were widely emulated even here at home by private universities.⁵

The essence of the land grant university is widely accepted to be an integrated combination of teaching, research, and outreach or extension – all in the same institution.⁶ This concept did not emerge full-blown at its inception, but rather in a step-by-step process. The concept began with the Morrill Act of 1862, which allocated federal lands to individual states if they agreed to provide higher-level education to the sons and (eventually) daughters of farmers and manufacturing workers.⁷ The key ideas inherent in these land grants were two-fold. First, these institutions would provide education in agriculture and the mechanical arts, which essentially gave them a base in science and technology.⁸ Second, this education would be provided at low cost to the students⁹ – an essential feature I

1. See G. Edward Schuh, Revitalizing the Land Grant University, Address Before the Strategic Management Research Center Colloquium Series 2 (Sept. 28, 1984) [hereinafter Schuh, Revitalizing the Land Grant University] (transcript available in the University of Minnesota Wilson Library); G. Edward Schuh, The Land Grant University's Role in Economic Development: New Challenges 1 (Nov. 15, 1988) [hereinafter Schuh, New Challenges] (unpublished manuscript, on file with author); YUJIRO HAYAMI & VERNON W. RUTTAN, AGRICULTURAL DEVELOPMENT: AN INTERNATIONAL PERSPECTIVE 291 (1971).

2. See David Merchant, *Engaged Universities: Lessons from the Land Grant Universities and Extensions*, 585 ANNALS AM. ACAD. POL. & SOC. SCI. 31, 33-34 (2003).

3. See *id.*

4. Schuh, Revitalizing the Land Grant University, *supra* note 3, at 1.

5. See *id.*

6. See *id.* at 3.

7. Morrill Act of 1862, ch. 130, 7 U.S.C. §§ 301-308 (2000).

8. See Schuh, Revitalizing the Land Grant University, *supra* note 1, at 2.

9. See Jim Chen, *The American Ideology*, 48 VAND. L. REV. 809, 837 (1995).

will refer to again later in the paper. Thus began the subsidy of higher education *indirectly* through institutions of higher education, rather than directly through the student – another concept to which we will return.

Over the years, the land grant concept came to be identified with agricultural disciplines, the related fields of home economics (today more widely known as human ecology) and forestry, or natural resources.¹⁰ There was nothing inherent in the concept or the legislation, however, which limited the concept to those fields. The concept itself is more general, and one of the significant current failings of our universities is the failure to extend the concept more broadly to better serve society.¹¹ For example, addressing the serious problem of rural development requires that the broad capacity of the university be mobilized to address the problems of the *non-farm sector* in rural areas, but it is difficult to mobilize the broader capacity of the university to these ends.¹²

A second stage in the evolution of the land grant university was the Hatch Act of 1887,¹³ legislation that added an applied research mission to the teaching mission described above. This legislation significantly broadened the mission of these evolving universities and did so in a very innovative way. The legislation provided funding to the states on a formula and matching basis.¹⁴ The formula allocated funding based on the size of the agricultural sector, the population of the state, and the size of the rural population, thus ruling out the need for competition for funding.¹⁵ The funding match was set up to encourage the states to contribute their share in order to receive federal government funding. Over the years, the funding from the state for agricultural research far out-paced that from the federal government.¹⁶ This emphasizes the importance of land grants as viewed by the states at one time.

The final stage in the evolution of the concept was the Smith Lever Act that gave these emerging universities a mandate to extend the knowledge they generated – the well-

10. See Schuh, Revitalizing the Land Grant University, *supra* note 1, at 2.

11. See *id.* at 4-5; Schuh, New Challenges, *supra* note 1, at 11-14.

12. See Schuh, Revitalizing the Land Grant University, *supra* note 1, at 4-5; Schuh, New Challenges, *supra* note 1, at 14.

13. Hatch Act of 1862, ch. 314, 7 U.S.C. §§ 361a-361i (2000).

14. *Id.* § 361c.

15. *Id.*

16. See, HAYAMI & RUTTAN, *supra* note 1, at 144.

known extension or outreach function.¹⁷ One of the essential features of this step in the evolution was the legislatively-mandated cooperation between the federal, state, and local governmental units, with the funding of the programs to be divided among the three levels.¹⁸

The integration of the tri-partite mission of teaching, research, and extension into one educational institution is widely recognized as the essential definition of the land grant universities.¹⁹ That integration is seldom found in the educational systems of other countries, although the concept has been widely adopted in the United States. A parallel feature that at one time was essential to the definition of the land grant university was the notion that they had an institutional mission to serve society, based in part on the inherent funding of public goods.²⁰ That notion of institutional mission, however, has eroded over time.²¹

The concept of the land grants was extended to other groups in society at later dates. In 1890, some 30 years after the original legislation, additional legislation was passed creating land grant universities to serve the black community.²² More recently, in 1994, additional legislation was passed creating similar institutions to serve the Native American community.²³

The composition of the land-grant universities varies a great deal from state to state. The University of Minnesota, for example, is somewhat unique in that it is located in a major metropolitan area and is one of the most comprehensive universities in the United States. Most land grant universities are located in smaller cities and towns and offer a narrower range of programs.

Thus, it is important to note that over time the land grant universities have done much to lift the innate talent, skills, and creativity embodied in the youth of poor and lower income families. In most countries, that talent never surfaces. Effectively, it goes unused.

17. Smith Lever Act of 1914, ch. 79, 7 U.S.C. §§ 341-49 (2000).

18. *Id.* §§ 341-49.

19. *See* Schuh, Revitalizing the Land Grant University, *supra* note 1, at 3.

20. *See id.* at 2.

21. *See id.* at 3-4.

22. Morrill Act of 1892, ch. 841, 26 Stat. 417 (1892) (current version at 7 U.S.C. § 323 (2000)).

23. 7 U.S.C. § 323 (2000).

II. WHAT HAS HAPPENED TO THE LAND-GRANT UNIVERSITIES OVER TIME?

The record of land grant universities is unusual, both in its positive and negative aspects. In the first place, the original land-grant universities grew both in size and scope and became key components of the U.S. educational system.²⁴ Their academic breadth expanded, as did their intellectual depth. Some of the best of them compete with the best and most well-endowed private universities.²⁵ Their funding base was for the most part state governments, and often there were new state universities added as additional educational institutions.²⁶

It is fair to say that in their growth, these institutions did not extend across the university their land-grant mission of serving the public by delivering public goods. One of the first papers I did on the land grant universities, and probably the most widely read paper I have ever written, argued that the land-grant universities had lost their sense of institutional mission.²⁷ The growing emphasis on science and technology internalized the identity of the scientists and technologists to within their professional disciplines and organizations and helped to shift the emphasis of the universities away from serving the public.²⁸

There was one important exception to that general rule, and that was the expansion of professional education within the land-grant universities.²⁹ This was an added mission that was certainly consistent with the original educational mission, although with a much broader perspective than that seen by the sons and daughters of farmers and manufacturing workers.

Perhaps one of the more important institutional developments over the years was the gradual substitution of public funding of the educational institutions by public funding of fellowships and scholarships directly to individual

24. See Background of the Morrill Act, at <http://usinfo.state.gov/usa/infousa/facts/democrac/27.htm> (last visited Nov. 15, 2004).

25. See Schuh, Revitalizing the Land Grant University, *supra* note 1, at 2.

26. See West Virginia University Extension Service, *About the Land-Grant System*, at <http://www.wvu.edu/~exten/about/land.htm#federal> (last modified Oct. 5, 1999).

27. See Schuh, Revitalizing the Land Grant University, *supra* note 1, at 1.

28. See *id.* at 4.

29. See *id.* at 3-4.

students.³⁰ This was a very positive development for society in that it gave new generations of students access to a broader range of educational opportunities. It did so while providing indirect subsidies to the educational institutions through the tuition the students paid.³¹ However, over the longer term it may prove to be detrimental to these universities. In a very real sense it made it possible for the universities to turn away from their teaching function and responsibilities and let the students exercise their free choice. The land grants no longer had a captive audience.

An unexpected consequence of these developments was the land grant universities turning to higher tuition as the means of financing their programs during difficult financial times, while the state legislatures no longer felt a responsibility for supporting the universities directly with appropriations.³² How these recent trends will work themselves out remains to be seen.

In the original concept of the land grants, there was a broad sense of equity built into the universities. The sons and daughters of farmers and manufacturing workers were not the upper income groups in society, and the land grants provided a means for these low income groups to obtain an education.³³ The legislation that provided educational subsidies to the individual was equitable in its concept, if not always in its implementation.

On the research side, a similar story evolved. In the aftermath of World War II, massive federal support for research across the board became available to the universities.³⁴ Our higher-level educational system was built on this funding. Moreover, that funding has been very significant in creating and supporting the economic

30. See Ronald Allan, *Tuition Discounts, Institutional Student Aid and Scholarship Allowances* (June 1999), at <http://www.georgetown.edu/users/allanr/docs/tuitpat.pdf> (last visited Nov. 16, 2004).

31. See *id.*

32. See Michael Arnone, *Students Face Another Year of Big Tuition Increases in Many States*, THE CHRON. OF HIGHER EDUC., Apr. 15, 2003, at <http://chronicle.com/free/v49/i49/49a02401.htm?cch> (last visited Nov. 16, 2004).

33. See James T. Bonnen, *The Land Grant Idea and the Evolving Outreach University*, in UNIVERSITY COMMUNITY COLLABORATIONS FOR THE TWENTY-FIRST CENTURY: OUTREACH TO SCHOLARSHIP FOR YOUTH AND FAMILIES, (Richard M. Lerner and Lou Anna K. Simon eds., Garland, 1998), at <http://www.adec.edu/clemson/papers/bonnen2.html> (last visited Nov. 15, 2004).

34. See, HAYAMI & RUTTAN, *supra* note 1, at 144.

development this country has experienced.³⁵

Having stated that, it is worth noting that the means by which that research funding has been administered has further weakened the sense of mission of the universities. In the early days of the land grants, when the majority of the research funding came from the state government, academic deans, department heads, and other administrators had a lot to say about the priorities of the research program and in evaluating the quality of the research.³⁶ With the growth in federal funding, however, decisions were made by peer reviewers and in Washington, D.C., not by local research administrators.³⁷ In fact, receiving a federal grant became the key to abandoning local priorities and the teaching mandate as well. Public priorities are now determined largely at the federal level, not locally.³⁸ We should not be surprised that state legislatures have lost interest in funding the land grant universities.³⁹

There are two counter arguments that can be made to the argument above. The first is that the significant funding from Washington, D.C. provided the basis for higher quality research, and thus strengthened both the resident instruction and extension programs. Second, there is a trade-off in this case between the more rigorous perspectives on what is important that comes from a distance, and the more politicized perspective when local politics gets involved. However, my basic point about the weakening of local university leadership remains.

Finally, there is the extension or outreach function. This may be the function for which public support has declined the most. In the case of Minnesota, the decline of both state and federal funding⁴⁰ has been such that a major realignment and redesign of the extension service has been undertaken.⁴¹ From

35. See generally Bonnen, *supra* note 33.

36. See Schuh, Revitalizing the Land Grant University, *supra* note 1, at 23.

37. See *id.*

38. See generally Bonnen, *supra* note 33.

39. See generally *id.*

40. See UNIVERSITY OF MINNESOTA EXTENSION SERVICE, MAKING A DIFFERENCE IN MINNESOTA: REPORT TO COMMUNITIES 3 (2004) (noting a \$7 million budget reduction in 2004 compared to 2003), at <http://www.extension.umn.edu/distribution/miscellaneous/components/8120pdf.pdf> (last visited Oct. 19, 2004).

41. See UNIVERSITY OF MINNESOTA EXTENSION SERVICE, MAKING A DIFFERENCE IN MINNESOTA: ANNUAL REPORT 2002 (2003) (describing the

an organization in which there was a university office in each county in the state (ninety-two in total), the system is now based on eighteen regional offices.⁴² It is more difficult to diagnose the reasons for the decline in the extension function. It probably has as much to do with the growing “distance” between the frontier of science, which is where all self-respecting universities want to be, and the application of the knowledge from that frontier to problems in society. To bridge that gap requires a significant reorganization of the university – a reorganization that is not easy to bring about.

Structural changes in society have probably also had a significant effect on the weakening support for extension. To the extent the traditional extension program was based on agriculture, the relative decline of agriculture weakened the political constituency from that sector. Even had extension broadened its constituency base, it is difficult to imagine a new political constituency with any significant strength emerging. To cite only one example, at one point the extension services turned to programs that focused on the poor and poverty alleviation.⁴³ It is difficult to imagine a weaker political base in this society on which to build a program.

Aside from the functional problems identified above, most of which imply a decline in the key elements of the land grant university and its multiple functions, there is one additional problem that cuts across the functional program lines and bodes ill for the future. There is little empirical support for this proposition, but there is concern about the growing class distinctions within modern universities. This problem may ultimately be rooted in the unequal distribution of human capital in society, with the result that those who are unusually endowed with cognitive and other skills earn more income and other fringe benefits. But this is still an open question.

Not only is the monetary distribution of income widening within the university, but the “class” of faculty is widening and becoming distinct as well. There was a time when the classification of academics ranged from instructor through

change to regional groups of specialized staff and away from “the model of county-based educators”), at <http://www.extension.umn.edu/distribution/miscellaneous/components/DM7697.pdf> (last visited Oct. 19, 2004).

42. See UNIVERSITY OF MINNESOTA EXTENSION SERVICE, at <http://www.extension.umn.edu/offices/> (last visited Nov. 16, 2004).

43. See Bonnie Braun, *Welfare Reform: The Land-Grant University Response*, at <http://www.farmfoundation.org/pubs/increas/97/braun.pdf> (last visited Nov. 15, 2004).

assistant, associate, and full professor, almost all of whom had tenure or were on the road to tenure. Today, there is a wide range of academic appointments, many of a part-time nature, many with no semblance of tenure, and all of them differing widely in their salary and fringe packages. Appropriately, there is a growing concern about the emergence of first and second class citizenship within the academy.

My thoughts on this issue are that we might want to take a closer look at the sports sector of our economy if we want to gain insight on our future. In most sports there are a few outstanding stars who receive very high salaries, and then a large number of people who play service roles to the stars. My concern is that the academy in the United States may be evolving slowly in that direction. If so, it does not bode well for the ability to garner any sense of institutional mission in the university.

Let me conclude this section by noting that the land grant mission as we have known it is being impinged upon by forces and factors from *within* the university, as well as by technological and economic forces external to it. The interactions and synergisms between these internal and external forces are quite great and could be the basis of significant discussion in its own right.

III. INTELLECTUAL PROPERTY RIGHTS AND THE FUTURE OF THE LAND GRANT UNIVERSITIES AND MISSION

I have a concern that intellectual property rights may harbor counterproductive impulses for the land grant universities and for their multiple missions. In fact, they probably carry negative implications for *all* universities, and may lead to the end of these institutions as we have come to know them. My concern is that evolution over time will exacerbate tensions that have already emerged in the university community, and that the existence of these tensions, unless they are managed well, will eventually create such internal pressures that the universities will either decline or morph into a completely different kind of institution.

Most of my tentative conclusions are based on an analysis of intellectual property rights by my colleague C. Ford Runge.⁴⁴

44. C. Ford Runge, *Sustainability and Enclosure: Land, Intellectual Property, and Biotechnology* (Feb. 2004) (working paper), available at

His penetrating paper makes a comparative analysis of sustainability and enclosure for land, intellectual property, and biotechnology.⁴⁵ One of the important issues about intellectual property rights is whether they are really needed as a means of promoting the search for knowledge and innovation.⁴⁶ Although he is neither the first nor the only to conclude that such rights are *not* needed to promote the innovative process, this fundamental proposition is still rather controversial.⁴⁷

Runge draws on the literature of the tragedy of the commons.⁴⁸ That literature has long argued that property rights were essential to avoid that supposed tragedy.⁴⁹ It was widely believed that unless or until property rights were granted in the land, the use of the commons would be inefficient.⁵⁰ Significant parts of the recent literature, however, show little empirical support for that argument.⁵¹ In Runge's view there is little analytical or conceptual support for it either.⁵² In applying the same logic to intellectual property rights, he argues that the evidence supporting the need for these rights is also weak.⁵³ In fact, the argument that ideas can be controlled is specious. Moreover, the major impact of intellectual property rights may be on the distribution of income, although if it is not possible to control the ideas, then it is not likely that there will be an impact on the distribution of income through the creation of monopolies. The issue in this case will be whether the idea or new knowledge is imbedded in some good that can be sold and traded. Some parts of biotechnology, for example, can be imbedded in products such as improved seeds and improved pharmaceutical products. To the extent these products and the patents that back them up are protected by the law, there can be a substantial return to

http://agecon.lib.umn.edu/cgi-bin/pdf_view.pl?paperid=12627&ftype=.pdf.

45. *See generally id.*

46. *See id.* at 16.

47. *See id.* at 15 (citing ADAM SMITH, AN INQUIRY INTO THE NATURE AND CAUSES OF THE WEALTH OF NATIONS (1776)).

48. *See Runge, supra* note 44, at 18.

49. *See id.* at 11 (citing WILLIAM F. LLOYD, TWO LECTURES ON THE CHECKS TO POPULATION (1833)).

50. *See Runge, supra* note 44, at 11 (discussing the development of the argument).

51. *See id.* at 9.

52. *See id.*

53. *See id.* at 24 (arguing for the right to inclusion).

the owner of the rights.⁵⁴ Runge points out that perhaps the main effect from intellectual property rights is the impact on the distribution of income.⁵⁵ That is where I want to pick up on his general thesis. Intellectual property rights further exacerbate the already problematic effects in play on the distribution of income within modern universities and within the land grant universities in particular. This promises to further segregate and divide the community of scholars within the academy.

Most economists are familiar with Ronald Coase's argument for the existence of private firms as distinct entities for the allocation of resources and the distribution of income – in contrast to reliance on market forces to do the same thing.⁵⁶ By analogy, Runge argues that within a university there is a need for positive network externalities that result from the sharing of information by a “club” whose members have rights to be included in the common pool of information.⁵⁷ He further argues that rather than to refer to these as “externalities,” it would be more appropriate to term the advantages of a club-network, including many sorts of common property, as “internalities.”⁵⁸ The internal economies (internalities!) that result from such networks require a degree of loyalty and trust among the members of the university community.⁵⁹ However, these same networks generate substantial benefits from reduced transactions costs.⁶⁰ With intellectual property rights, the loyalty and trust among the members of the university community will be seriously weakened. This may be one of the more pressing challenges the system of higher education faces.

The newer systems of management for this and other universities, referred to as “managed growth,” are basically misguided. They seek to make units of the university compete with each other as if they were in a competitive market, thus creating very divisive forces within the university. When central administrators managed central funds, they had a basis for promoting departmental cooperation and multidisciplinary research and educational programs. With managed growth,

54. *See id.* at 22.

55. *See id.*

56. *See Runge, supra* note 44, at 21 (explaining Coase's theory).

57. *See id.* at 20.

58. *See id.* at 21.

59. *See id.*

60. *See id.*

the competitive forces instead play one academic unit against others.

These effects of intellectual property rights are the basic concerns in terms of impeding the mission of the land grant universities. There are a number of other points that need to be made in a related context, however. First, the idea behind the land grant concept was that public support would be provided so the universities could provide public goods to society in each of their main functions.⁶¹ Intellectual property rights weaken that concept at all levels and dimensions of the mission. At the University of Minnesota, there are discussions at high levels over how the accumulated royalties from patents are to be allocated. Central administration wants to allocate those revenues so as to generate more such revenues, not towards the production of the University's public goods. An important part of that perception comes from the fact that the discussion is carried out by internal members of the University, without representatives of the private and public sectors being present. Second, intellectual property rights will distort the research agenda. Only research for which patents or other rights can be obtained will be funded. Many problems in society can be addressed only by means of public funding. The private sector is not likely to pay to produce such knowledge. Eventually such research will fall by the wayside unless it is funded by public means. Third, and perhaps the most important part, is that the distortion in the research program will carry over to the teaching and extension programs. Those in the land grant tradition like to emphasize that the synergism of the system comes from the fact that the researcher teaches in the classroom and in the extension programs the knowledge that he or she is producing.⁶² If one takes a longer-term or broader view, the knowledge produced by a private-incentive driven system will inevitably be different from a publicly funded and driven system.

Finally, the impact on the salary structure within the university can be significant if intellectual property rights become more pervasive. It probably already has had such an effect, especially if one takes into account non-monetary benefits. That widening in the distribution of income within the university will be increasingly divisive. As universities face

61. See generally Bonnen, *supra* note 33.

62. See Chen, *supra* note 9, at 838-839.

severe financial difficulties there is growing pressure to use the ability to increase funding from “outside” sources, including teaching enrollment, as the basis for merit pay raises. That will be the ultimate divisive factor, especially when it is combined with the effects of intellectual property rights.

IV. SOME CONCLUDING THOUGHTS

The land grant universities have survived through a period of rapid change in society, change that has witnessed huge social and economic shifts as well as huge changes in science and technology. All of those changes have been further challenged by the rapid economic integration of the world’s economy. These changes have drastically altered the conditions under which the land grant universities have existed. Perhaps the important question is whether there is still a need for such universities, with their inherent institutional mission mandate. Perhaps the weakening of the sense of institutional mission, and of the “glue” that holds the land grant universities together, has been inevitable and has caused the land grants to no longer be relevant.

That is a plausible answer. However, the concern goes much beyond the land grant universities per se. The concern is the slow destruction of universities in general as educational institutions. It is difficult to envision what will replace it. The collegiality of the academy is not all that may be lost. The sharing of information within a common community with low transactions costs that has served exceedingly well in the past is also at risk. The seeds of this coming destruction in developments can be seen within the publishing industry and the disciplinary publication of professional journals. More fundamentally, it can be seen in the growing conflicts within the academy and the decline in public support for our land grant universities. The pressing issue of the day is whether academics will have the wisdom to change the course!