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ON TOAD FOOD, STUCK VALVES, AND BARN DANCES:
TOWARDS A NEW VIEW OF AGRICULTURAL
AND LIFE SCIENCES IN THE 21ST CENTURY

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Around 300 BC, a Roman comic poet named Philemon said, "A farmer is always going to be rich next year." In 1987, perhaps with this apparently timeless truth in mind, the chairman of this University's Department of Agricultural Economics told a prospective student, "There are so many agricultural economists, that if you laid them all end to end ... it would probably be a good thing!"

He might have added George Bernard Shaw's observation, that even laid end to end they probably wouldn't reach a conclusion.

Has anything changed in 2300 years of history? Have we "progressed"? It seems that agriculture today provides at least as fertile ground for the comic poets as it did in the time of the Romans, though there is evidence that we lack their perennial optimism.

The theme of this essay contest, "Agricultural and Life Sciences in the Twenty-first Century", suggests that there is something fundamentally different about the twenty-first century, something which implies the need for new directions. As I will argue, some things are indeed different. However, I'd like to start by talking about some things that have stayed the same -- some of them for a very long time.

Farmers, it may be said, are an embattled group. On one side are the consumers, clamoring for cheaper food, despite that fact that Americans spend a smaller proportion of their income on food than practically any other country in the world. This clamoring for lower prices, and blaming the farmer when they rise, is not new. In the year 302 A.D., the Roman Emperor

Diocletian, outraged by the rise in food prices that accompanied his armies wherever they went, issued a decree that "there should be cheapness".

"Unprincipled greed appears wherever our armies, following the commands of the public weal, march, not only in villages and cities but also upon all highways, with the result that prices of foodstuffs mount not only fourfold and eightfold, but transcend all measure. Our law shall fix a measure and a limit to this greed".^{1/}

Then there are those who lament the excessive commercialization of agriculture, and the penetration of markets into all aspects of our lives. This concern over the nature of the market as an organizer of human relations is not new either. In 600 BC, Anacharsis of Scythia concluded that "the market is a place set apart where men may deceive one another".

Pressure on farmers from another side comes from the banks, demanding repayment of loans -- and interest rates, which have shown an unfortunate tendency to rise at inopportune moments. The problems of debt and high interest rates are hardly unique to this century; in fact, they are at least as old as Christianity, as Biblical injunctions against usury suggest.

On still another side are environmentalists, raising concerns about water quality, erosion, deforestation, and declining fertility of the land. We are told that for every ton of wheat we export to the Soviet Union, we export a ton of topsoil to the Gulf of Mexico, and that about two thirds of U.S. crop land is experiencing a net loss of topsoil.^{2/} The U.S.D.A. informs us that for over half the land irrigated by groundwater, the water table is falling by six inches or more per year, and is in chronic decline.^{3/} We are told that as erosion increases and fertility declines, farmers must use ever more fertilizer at ever higher prices to maintain productivity. We hear speeches and read reports and see graphic evidence of the ravages of

deforestation at home and abroad, of the cutting of shelter belts, and the denuding of watersheds.

Neither are these issues new or unprecedented, though this should not make us sanguine. In the 4th century BC, Plato described Attica, deforested and eroded, as a "skeleton of a body wasted by disease". Previously, he explained, the mountains were covered with forests, and "the water was not lost, as it is today, by running off a barren ground to the sea".^{4/} Lucretius, too, described the ancient process of progressive deforestation; "And day by day they would constrain the woods more and more to retire up the mountains, and to give up the land beneath to tilth."^{5/} The problem of declining fertility and what to do about it was addressed by Hesiod. "Fallow-land," he said, "is a guardian-from-death-and-ruin" -- death and ruin, we may conclude, being circumstances which were not unknown at the time. The Roman, Columella, admonished farmers to take better care of their soil with applications of manure: "It is not, therefore, because of weariness, as very many have believed, nor because of old age, but manifestly because of our own lack of energy that our cultivated lands yield us a less generous return. For we may reap greater harvests if the earth is quickened again by frequent, timely, and moderate manuring."^{6/}

It is perhaps disconcerting to realize that debt, deforestation, declining fertility, and prices controlled by bureaucrats have been with us for several thousand years. It is humbling to realize that Plato and Lucretius could have written eloquent tracts on deforestation for the Worldwatch Institute, that Anacharsis of Scythia could have delivered a lecture on the dangers of relying on the market to define the terms of human relationships, and that Hesiod and Columella could have produced manuals on

organic fertilizers and crop rotation for the Rodale Institute. But there is a lesson to be learned here. The conclusion I draw is that there are three issues which have stayed roughly the same for a very long time:

- the problem of maintaining a long-term, sustainable relationship to the land;
- the problem of maintaining and encouraging the kinds of relationships with each other that we value (the challenge of creating and sustaining community);
- the problem of making a living and surviving economically.

Perhaps the lesson is that these are the issues, taken together, that we cannot afford to lose sight of.

That these are seemingly eternal constants, however, should not blind us to the fact that a great many things have changed, some of them dramatically, and understanding these changes is one of the keys to coping with the twenty-first century.

What are some of the new changes and stresses with which today's farmers must cope?

Perhaps the most fundamental threat -- though it is also an opportunity -- is the vastly expanded economic, political, and environmental web within which the individual farmer operates. Global markets are at once a tremendous opportunity, and also frequently a destabilizing risk. Worldwide political events can have positive effects, such as the creation of new markets; they are also unpredictable, largely uncontrollable, and often perverse. Environmental factors, many of which may not in themselves be new, (in fact, perhaps because they are not new), are generating pressures on an unprecedented scale, and causing dislocations which may be felt worldwide.

Communications technology, which has made information more accessible, has created the information overload problem, and tremendous pressures to keep up with all the data. It has enormously speeded up financial transactions -- and the speed with which economic mistakes can multiply. The pace of change, even positive change, may now surpass the speed with which we are able to adapt to it. The increased amount of information seems to require of us ever greater specialization. While progress may be made on all fronts, it becomes increasingly difficult to bridge the gaps between various fields, and maintain perspective on the whole. It becomes harder and harder to translate progress in research into progress "on the ground". The more we become integrated into the global system, the more our local communities risk being eroded, homogenized, and fragmented, and the more our local relationships are diluted.

But perhaps we may see these as simply new constraints and opportunities applied to the same basic problems that have been with us for so long -- how to take care of the land, how to take care of each other, and how to make a living. What has changed is the degree of complexity and the scope of the problems, some of the tools we bring to bear, and the vision we bring to the job.

The fundamental question at this point is, given the age-old problems which face us still, and the unique challenges and opportunities that come with the century we live in, whither the College of Agricultural and Life Sciences? What is our vision and our mission? What is our role in addressing the problems of agriculture in the twenty-first century?

I believe that an answer to the future lies in an understanding of the past. How did the college define its mission and the part it would play?

What was its vision, and how did this vision develop? How did we get where we are today?

A reading of the history of the college shows that in fact, there was nothing inevitable about the birth or subsequent life of Wisconsin's College of Agricultural and Life Sciences. The school faced substantial obstacles right from the start. First, there was the widely shared perception that education itself, in any form, was at best of questionable worth. Members of the Wisconsin Grange were often quite vocal in their disapproval of education, which they viewed as a sign of "aristocratic decadence". "We had better learn what to do, and do it ourselves," said Aaron Broughton, the Grange's state orator, "without being taught by any aristocratic teachers of this kind."^{7/} Members of the State Horticultural Society were equally outspoken; "I do not believe you can make a healthy community out of men who have been through college...An educated fool is one of the most disgusting things in life that I can think of, and we see them all over the land."^{8/} Many good farmers were sceptical about the content of the education the Agricultural College was trying to offer. One Charles Seymour of La Crosse referred to the program as "a purposeless and indolent sojourn of four years in one of our Yankee Doodle subsidized colleges, which has assumed an agricultural title to secure a land-grant endowment that contributes little or nothing to agriculture."^{9/} An editorial in the *Milwaukee Sentinel*, which felt that basic science education was superior to a specifically agricultural education, said "The idea of sending boys to a college for several years with no other aim than to learn farming is certainly original ... No professor of beets, no lecturer on calves, no gentlemen occupying the exalted chair of manures ... can do for the boy what he can do for himself at home."^{10/}

It was a difficult time for the college in other ways too. There was only limited financial support forthcoming from the state legislature, which was not unanimously convinced of the worthiness of the college's aims. In addition, agriculture had not yet been generally recognized as an academic discipline; it was just "what farmers did". There was serious difficulty in finding professors with something relevant to teach, and students willing to be taught. Quite simply, it was not obvious that the college even had a mission, much less that it would succeed in one. By the 1880s, one observer lamented that "Here we have six students in the agricultural college! I presume the farmers have got more sons than that in the state's prison."^{11/}

The problem was to define a curriculum which would be widely regarded as relevant and useful. The farmers were not accustomed to the idea of formal education to learn "practical" things, nor were they familiar with the methods or philosophy of directed scientific research and experimentation. They were beset by problems of tariffs, wheat pests, limited access to markets, and high transportation costs, and it was not obvious that an agricultural college could offer solutions to these problems. Furthermore, the various agricultural societies were at odds with each other, disagreeing about the proper direction for Wisconsin agriculture to take, the role of advocacy organizations, and the nature of the problems to be addressed. They had yet to articulate common interests, or develop a vision of where they wanted to go.

In this context, the college of agriculture had no clear set of directions. It had unreliable and generally inadequate financial support, a feuding and divided potential constituency that didn't know what it wanted, and it frankly had very little to offer. The result, rather astonishingly,

was the development of a modus operandi which became one of the chief factors in the eventual success of the school. The college did the only thing it could.

With no students to spend time on, the school began to devote a substantial portion of its limited resources to experimentation and agricultural research. It started generating information. And because the college was unable to get farmers to come study on campus, it had to go to them. And because it didn't know what was useful, it enlisted the aid of farmers to find out. The method it established for doing this was the Institutes. The Institutes were gatherings in farming communities throughout the state, lasting one or several days, to discuss agricultural issues. They were a forum for farmers to talk about problems of common concern, to share techniques they had developed, and to exchange information. Because the professors of the college did not know a great deal more than many of the better farmers did, the meetings were highly participatory. In fact, in the beginning most of the presentations were given by farmers. Relevant information, which the farmers had doubted the agricultural college could provide, was thus assured, even if its source was simply the accumulated experience of years of tinkering on the part of one's neighbor.

The collective experience of sharing the results of tinkering began to create a demand among farmers for more rigorous scientific information, though this did not happen overnight. Perhaps the most important contribution of the Institutes was that the farmers and the founders and early participants of the agricultural college began to develop of shared vision not only of the direction of Wisconsin agriculture, but of the role and nature of agricultural experimentation and education. The supply and the

demand for education and research grew in tandem, with constant cross-fertilization between farmers and professors, and a constant checking of results against reality.

The Institutes were a great success. And I believe the style in which they were created and operated offers the key to the success of the agricultural college as a whole. They were not the result of a plan dreamed up on paper and handed to bureaucrats to implement. Nor were the Institutes guaranteed any sort of support -- they had to earn it. Most importantly, they arose out of a combination of the vision of a few dedicated and farsighted individuals, and endless compromises and adjustments to accommodate the changing, diffuse, and often unarticulated needs of farmers.

The process -- and the result -- was often messy. The professors, for example, were peeved that many communities organized carnivals to coincide with the Institutes, and that evenings were devoted to dancing and socializing. Clearly however the farmers had more in mind than just exchanging information on cows, and they insisted on preserving the social aspect of the Institutes. There were also many spillover effects from the Institutes, the benefits of which went far beyond simple agricultural improvements. Farmers gained experience in organizing and public speaking, developed the confidence to challenge the "experts" and demand their accountability, and grew into an active civic role which greatly enriched the life of rural communities.

All of these developments influenced the direction the college was to take. Out of the friction, a vision emerged that was to guide the college through the first decades of its life. It is instructive to look back on what this vision included, and on how the domain and role of the college of

agriculture were defined. Indeed, the school's founders might scarcely recognize CALS today.

Economics, for one thing, played a limited role in the curriculum, as opposed to its current emphasis. In 1870, for example, the census of Jefferson county yielded the information that out of a population of eleven thousand, only two farmers kept books.^{12/} It was not until Henry Taylor and Charles Galpin initiated a program in economics and social organization in the early 1900s that economics became a regular part of the agricultural college. Even then, the interests of these two men, and of the farmers and students who formed their constituency, could hardly be said to be primarily or exclusively economic. Henry Taylor was interested in agricultural history, Galpin in rural sociology and lifestyle, and both were active in the Country Life Movement being promoted by Theodore Roosevelt.

Extension work too was broadly defined. There were projects on standard of living, rural leadership, church and community organizations, drama and culture, youth work, cultural analysis, art, and home economics. The college had, for some time, an artist in residence whose mission was to depict rural life, and promote interest in art among rural dwellers by organizing drawing contests and the like.

John Barton, a professor of rural literature, inspired his Farm Folk School students of 1937-1939 to put together a short book of their own writings, entitled From the Fields. This collection is prefaced by Professor Barton's comment that "the idea is abroad that the modern farmer and his family are becoming practical-minded business folk, commercializing their farming activities and fashioning their ideals and relationships thereafter.

But these short short sketches of creative writing...point to a different interpretation..."^{13/}

They do indeed. One essay begins, "Did you ever sit along a lake shore at night? Well, do it!". Another starts out, "The perplexing problem of opening a stuck valve is something that will confront everyone in his life; therefore it is advisable that the layman be informed as to the proper procedure used by most of the authorities." The proper procedure, the author goes on to inform us, "is to cuss profanely enough to blister the paint on the opposite side of the room. This first step is vital and absolutely necessary and to the average layman is easily done."

The volume has essays and poems on the joys of barn dances, rural electrification, snow, fishing, shirred eggs, the art of feeding a calf, truth and religion, and pigs. The simple existence of this book is telling evidence that agricultural education was conceived quite differently some fifty years ago. And that the different conceptions of it that existed at the time were fairly easily united within the program, which was smaller and less specialized than it is today. The titles in the Cutter Collection at the University's agricultural library also suggest a different view of what farming and agricultural education were all about. The titles include Plowing on Sunday, The Call of the Soil, Hope Farm Notes, and No Better Land. There is even a rather thick volume entitled Rude Rural Rhymes, (though it is pretty tame stuff by today's standards).

It seems to me that the college -- and these students, and the professors who taught them -- had a vision. They had a vision of a lifestyle they wanted to promote, a relationship with the land they wanted to preserve, and a community of people they wanted to celebrate, study, enjoy, and write

rude rhymes about. They didn't always know what they wanted; they had to find out. They had to develop their vision out the unarticulated, contradictory, changing, and incessant demands of farmers, farm organizations, legislators, community leaders, and distant consumers. They held meetings, they wrote poems, they raised hell when the experts gave them bad advice (and even sometimes when they got good advice), they organized fairs and barn dances, and tinkered with stuck valves, and tried out different ways of communicating with each other. And through it all, they figured out where they wanted to go, and something of how they could get there.

The question that arises at this point is, what is our vision today for the College of Agricultural and Life Sciences? Does it include a vision of who we are and who we want to be, and where we want to go? Where is our vision summed up? The students of the thirties summed it up in their book on pigs and Truth and sitting by lakes and opening stuck valves. Is our vision summed up in the pamphlets on the different academic programs in CALS? If so, our vision says that we can divide the "life sciences" into horticulture, rural sociology, economics, bacteriology, meat and animal science, food science, agronomy, soil science, dairy science, biochemistry, landscape architecture, agricultural journalism, and integrated pest management. Read this way, it is an odd-sounding list, and it seems to me a rather strange way to define the mission of the college. One gets the disquieting feeling that indeed it is a strange way to define "life sciences".

Clearly, there are good practical reasons for dividing the disciplines in this way. It would probably be impossible to make progress in research without specializing, and these are specialties that have apparently proven

useful. There are historical reasons for the divisions too. The college's research program developed in tandem with the needs and interests of farmers, who were intimately involved. They wanted research done, and they got it, which is as it should be.

But perhaps it is time to re-evaluate and redefine what is needed. Specialization is still important, but perhaps we need to restore the embeddedness of each specialty in the broader whole which unites us. Perhaps if the biggest change that has occurred in recent decades is increasing complexity, what is needed to tie it all together is a vision much bigger than any of the sub-disciplines of CALS can possess.

In 1953, economist Kenneth Boulding published an article entitled "Toward a General Theory of Growth". The form of any object or organization, he said, was the result of its laws of growth up to that moment. Thus, a sphere was something that grew equally in all directions, a spiral something that twisted because it grew faster on one side than the other, and so forth. He further postulated that "growth creates form, but form limits growth".^{14/}

I believe this is a useful way to view the development of the College of Agriculture and Life Sciences. Out of the school's initial amorphous and undifferentiated agenda emerged the various threads which ultimately became separate departments and programs. Over time, and through an ever-growing body of research, each "thread" developed along its own line, increasingly separate in many ways from the other threads, and increasingly differentiated from the larger body from which it had emerged.

Perhaps we could call this the CALS Spaghetti Theory of Growth. And perhaps we could ask ourselves if spaghetti is really what we want, whether the "form" of growth up to this point is in some sense determining the

directions we take, or limiting our actions or our vision. Is our "image of the future" (to borrow another of Boulding's phrases) constrained by our departmental structure, and the various fiefdoms (or "noodles") we have carved out within the college?

Boulding suggests that growth often occurs at the "loose ends", and certainly we have lots of those. I would ask whether growth along our loose ends is what we need at this point as much as we need unity, coherence, and tying-together.

* * *

Several months ago, a group of graduate students in the agricultural economics department spent a day visiting Wisconsin farms. At the first farm, we were introduced by the organizer of the visit as "the future agricultural policy makers of America". One of the students asked the farmer what was growing in the field. The farmer, surprised that we didn't recognize his crop, told us he was growing soybeans. The student said, "Hm. Soybeans. What are they good for? What can you do with them besides make tofu?" The farmer looked at us incredulously and asked, "Toad food?"

It was an embarrassing moment -- the gulf separating agricultural economists from their object of study had been revealed, and the depths of our ignorance exposed. It occurred to me at the time that if the farmer were asked to describe The Farm Problem, his description would probably contain a (justifiably) rude reference to ignorant economists, among other things. And if we were to define it, it might contain rather few references to things the farmer cared about. It was not a great moment in the history of academic specialization.

The word "discipline", we are reminded, "once meant one way to approach a total whole. Now it is often used to designate a kind of province or fiefdom whose major concern with other disciplines centers on boundary disputes."^{15/} Do our thirteen CALS programs really sum up our vision, or any vision for that matter? Are they the best way to approach the whole?

I debated titling this essay "Your End of the Ship Is Sinking". It seemed to me that perhaps we had lost sight of the Big Picture, and the fact that we were all pretty much on the same boat together, like it or not. It seemed that maybe we had put so much energy into pursuing our departmental threads -- noodles, if you will -- that we had lost sight of the eternal questions. A reading of the history of the agricultural college, however, was profoundly encouraging. It began to seem that there was good reason for optimism after all. The history of this college is an inspiring story of a group of dedicated people developing and making manifest a vision based on a shared reality.

Are we continuing in this tradition? Perhaps this centennial essay contest is evidence that we are -- that we are searching for a new shared vision of the future, and that we are engaged in the process of questioning, tinkering, arguing with each other, and talking about it all -- the process that alone can carry us forward. But I think we need to do a lot more of it. We certainly shouldn't wait 100 years before we do it again!

The instructions for this essay contest include the directive to discuss implications of the subject matter for future teaching, research, and extension work. What I would like to suggest is that we try to think more like Professor Barton and his rural literature class, not necessarily because they had all the right answers, but because they asked the right

questions. What I would like to propose is that we dare to consider the role of poetry and barn dances in our quest, as well as the role of bacteriology. I would like to propose that our vision include carnivals and rural art contests as well as spread sheets, and that we dance away the evening at our next conference. This may sound hopelessly impractical -- and maybe that's exactly what could be right about it.

G.K. Chesterton once wrote an essay about what was wrong with business education. What he concluded was that it was too practical.

"...When a problem is really bad and basic, we should...cry aloud for an unpractical man. The practical man only knows the machine in practice...It does not follow that he is imaginative enough to suggest something else, when it obviously does not work."^{16/}

I propose that we spend some time doing what the members of the Dairymen's Association did way back in the late 1800s. They started meetings slowly, doing what they called "getting a feel for the barn." They took the time to get a sense of the place and its people, and to let word to get around that they were really there, and that there was going to be some action.

The barn is a pretty big place these days, and maybe we need to spend some time finding out who's here and what we know and where we're going -- and who's coming to the dance.

* * *

Dean Henry, one of the founders of the Agricultural College, wrote a letter to professor Babcock in 1924 saying, "So often I think of the early days in Madison...They were good days. We had little to do with, but the opportunity was a glorious one."^{17/}

It still is.

ENDNOTES

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- 8/ Ibid., 92.
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- 12/ Ibid., 329.
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