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Our Nation and Its Agriculture:
The World Scene in the Year 2005

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Our Nation and Its Agriculture: The World Scene in the Year 2005*

by Philip M. Raup**

I have come this far in my professional career by not making forecasts. I am therefore a bit intimidated by the invitation to look forward to the year 2005. It involves less risk on my part because I will probably not be around to be reminded of how wrong I was. The other side of the coin is that it is too close for comfort. To give you some idea of relative time distances, I am asked to look forward in time for a period no greater than the time that has passed since the assassination of John F. Kennedy. And that was only yesterday. The challenge of trying to forecast what will happen in the next 21 years falls in what I will call the twilight zone of economic history. It is too long a period for 1984 to be remembered vividly by the people who will live that long, and 1984 will not be far enough away in 2005 to excite the professional historians. Consequently, what I have to say is said with a good bit of reservation and with a standard error of estimation that will fall outside acceptable levels for most economic forecasting.

As I have prepared these notes I have been guided by one dominant fact that will set the stage for the remarks that follow. That is the unprecedented expansion in productivity in agriculture in the developed, industrialized nations. If anything should surprise us it is the fact

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that old, tired, war-torn western Europe is now self-sufficient in foodgrains and is exporting as our competitor. Germany lost approximately one-fourth of its area after the First World War, in the partition that created the corridor allotted to Poland, and reduced the East Prussia area. That came out of grain surplus producing lands. Germany lost another one-fourth of her territory at the end of the Second World War. That rump of Germany was further reduced by the separation between East Germany and West Germany, in the creation of the Soviet Zone of occupation after 1945. The rump that remained after 1945, involving the French, British and American zones of West Germany, represented the rump of a rump of a rump. That intensively industrialized area today is almost 100 percent self-sufficient in foodgrains.

The UK wheat yield in 1984 for the entire country is estimated at an average of 98 bushels an acre. A sizeable number of farms in the East Midlands, from Cambridge east and north, were reporting 1984 wheat yields of 140 bushels an acre and above (The Economist, Sept. 8, 1984, p. 61). France has emerged as the second largest grain exporter in the world--edging out Canada in 1984.

Looking across the Atlantic, the US doubled its production of wheat and coarse grains between 1961-63 and 1981-83, and this doubling occurred from an existing high level of output. In the same period the U.S. tripled its grain exports, also from a relatively high level.

These bits of evidence support the remarkable agricultural fact of recent decades, which has been the expanded productive capacity of the industrialized, developed countries. This must mean only one thing, and that is that industrially based inputs have become more important than agriculturally based inputs in accounting for further agricultural

production advances. Among the economics fraternity there will be general agreement on this conclusion. It has played havoc with export markets. It is not the only disruptive factor but I believe it will have to be listed as the dominant one. Closely related has been the unxpectedly strong position of the American dollar. This has been associated with a distressingly large American commodity trade deficit. We have long been accustomed to a healthy commodity trade surplus, and especially in agriculture. As a consequence of the strong dollar and the related trade deficit we now face an importing world of customers in which the real price of American grains has risen 75 percent since 1980 for the German buyer, in terms of the Marks he must surrender in 1984. It has risen 100 percent, that is, it is twice as expensive, for those buying with Sterling in the UK and in other areas of the Sterling block. The price of US grains has risen well over 100 percent since 1980 for those buying with French Francs, or for the members of the Franc block, which includes some important areas in Africa. Consequently, a sizeable fraction of the total customer world that we would like to think of as ours has seen the price of U.S. grains increase anywhere from 60 to 100 percent since 1980, without any appreciable change in price having occurred in the United States. We are only just becoming aware of the fact that our grains are being priced out of the world market.

This deficiency in understanding is associated with an institutional defect that can only be characterized as a failure of the legislative process. The Congress has been unable to resolve key conflicts in economic policy. Some crucial aspects of policymaking have been left by default to the Supreme Court and the Federal Reserve Board. These have become in our time effective legislative instruments. One principal consequence has been that for two decades the fight against inflation

has been lost by default in the Congress and in the Administration, leaving the Federal Reserve Board as the only viable agency left to fight it. It has to fight with the tools that it recognizes and has at its command. That is a limited range of tools.

In no reasonable sense can the Federal Reserve Board be said to be a tax levying authority. The Congress is. Inflation could have been fought by the tax route. It was not. This left it up to the Federal Reserve Board to use the only tool it had, which was the interest rate. A fight against inflation using the interest rate as a tool has one implicit consequence: The differential burden of the fight must be borne by those borrowers for whom the payout period has the longest time horizon. As a result, the burden is disproportionately shifted onto the agricultural sector, the heavy machinery manufacturing sector, the house building sector, and to any other sector that must borrow long term. Any commitment of capital over a period of time in excess of 3 to 5 year means that repayment capacity extends beyond the range of effective economic forecasting. This abdication of responsibility by the Congress in shifting the burden of the anti-inflation fight onto the Federal Reserve Board is at the root of much of our difficulty today.

If we take a closer look at our current export market prospects, we must begin with one remarkable fact. As recently as two or three years ago the European Common Market was producing more of certain types of grain than they could consume domestically, especially soft wheats and some feedgrains, and were exporting them onto the world market with the aid of a very substantial export subsidy. For example, to get barley into the world market in 1982 the Common Market was paying an export subsidy of over 80 dollars per ton. For wheat, the export

subsidy was as high as 90 dollars a ton in some months. The price of U.S. corn (a competing feed grain) at Rotterdam at that time was about $125 a ton. An export subsidy of $80 to $90 a ton to permit competition with a product that could be laid down in Rotterdam for under $140 was a very expensive export subsidy. It was virtually eliminated in 1984 by the appreciation of the dollar which had repriced U.S. grains in the European market to a degree that enabled the EEC to export in some months in 1984 with no export subsidy at all. This is almost unheard of in the history of the Common Market, and is dramatic evidence of what a strong dollar has done in pricing us out of world markets.

The declines in U.S. grain exports due to the appreciation of the dollar have not been evenly distributed over the market spectrum. In percentage terms they have probably been most extreme in Eastern Europe. U.S. agricultural exports to Eastern Europe in 1983 were valued at $634 million net; they had been worth 1.5 billion dollars two years earlier (USDA, FATUS, May-June 1984). Some idea of the significance of this market loss in relative terms is provided by the fact that the value of U.S. agricultural exports to Portugal in the first three quarters of fiscal 1984 exceeded the value of all agricultural exports to the six countries of Eastern Europe (USDA, FATUS, July-August 1984).

There are some brighter spots. One of them is East Asia, where U.S. agricultural exports to Japan, Korea, Taiwan and Hong Kong have held up relatively well. In 1984 U.S. exports of farm products to these four countries of Eastern Asia will exceed our exports to all 17 countries of Western Europe which was long considered our traditional grain export market. The East Asian market now supplants the whole of western Europe as a market for American agricultural exports. The long run significance

of this crossover hardly need emphasis in a midwest farm audience. The prospects for continued growth in that market are particularly good, for several interesting reasons. One is that much of the US grain is used for livestock feed instead of using it for food. A second characteristic is that most of it is fed to pigs and chickens instead of beef animals. Since grain is a much larger component of total feed consumption for pigs and chickens than for ruminant (beef, milk) animals, this East Asian demand is for grains in which the U.S. has a clear cut comparative advantage, leading to a stable, predictable market.

A third moderating influence is that the dollar appreciation against the yen, the principal currency of the area, has been less than against the currencies of other major trading nations. In fact, the dollar has not particularly appreciated against the yen since 1980. Most of the horror stories about the effect of the strong dollar on U.S. export trade are with reference to key western European currencies. The Japanese have been lucky or smart enough to have kept the dollar/yen exchange ratios in rather good balance. There is currently no sharp advantage to one side or the other in U.S.-Japanese trading relations as a consequence of an over- or under-valued currency. The U.S. has often argued that the Japanese yen is not properly valued, but that reflects our particular point of view with respect to export potential.

One measure of the significance of this East Asian market is that in 1984 it is expected to account for just under 30 percent of total American agricultural exports. Japan alone is forecast to account for just under 20 percent of total U.S. agricultural exports. It is not surprising that many of our grain marketing agencies and cooperatives in the Midwest are beginning to look west instead of south or east for export markets. The

dividing line demarcating the East-West grainshed once went through central Montana. In the 1970's it moved east in Montana, and then into western North Dakota. We now have farmer-owned cooperatives in western Minnesota building sidings to handle 55-car unit train shipments to Portland. Somewhere west of Missouri, perhaps in western Kansas and in central Nebraska, there must be a dividing line west of which an increasing amount of grain is probably going to move to the Pacific in the future. When I look to the year 2005 one thing I think I see is a movement of this grain shed further east and south.

I turn now to a look at export market potentials in some of our most promising markets in the so-called LDCs, or less developed countries. Many people have looked at the forecasts of population increase in that part of the world and have concluded that population growth alone would guarantee an ever-expanding market. The well-publicized and uncontrolled population growth in the developing world was at the root of much of the inflation in American agricultural land prices in the 1970s. Several things have happened to cause us to reform our interpretation of those data in the last few years. For one thing, many of these newly independent countries are now experiencing very severe internal political and economic difficulties and have suddenly rediscovered the advantages of agricultural self-sufficiency. For some time in the 1970s this perception was postponed by the careless extension of credit by some of the largest credit agencies in the developed countries. The list includes many of the blue chip North American banks, Citycorp, Bank of America, Chase Manhattan, Manufacturers Hanover, Morgan Guaranty, Chemical Bank, Continental Illinois, and many others. It turns out that, in effect, the private sector was financing a form of food aid without any control by Congress. Grain was delivered on the basis of credit much of which would not be repaid. It would have

been more direct and received a better screening if it had gone through the PL 480 process. That segment of the export market potential has dried up. Many of the recipient countries and certainly many of the European and the North American bankers that have been financing that trade will think twice before they repeat it. There is little prospect for renewal of grain trade on the scale that prevailed in the late 1970s on the basis of credit support that did not reflect good financial judgement.

There is another reason why the U.S. grain export potential to the developing countries may be less than we think it should be or could be. That is the growing realization that many of the grain imports have been used to support inefficient or corrupt governments. Some of the governments in question have fallen by their own weight of inefficiency. In other cases the degree of their inefficiency has become so apparent that it is now increasingly clear that international social policy is involved in a decision to continue grain exports that support governments in their persistent refusal to face up to the possibilities of reforming their internal agricultural policy. The leading example, of course, is the Soviet Union.

The Soviet Union in 1984/85 will account for 24 percent of total wheat and coarse grains moving in international trade, or 50 million out of a total of 205.7 million tons (USDA, FAS, FG-14-84, Nov. 1984). When one-fourth of total world trade in grains depends on one set of decision-makers sitting in one country you have a fragile market. It has been erratic in the past and I see no reason to expect that this will not continue. I also see no reason to expect that the world will ignore the fact that the import of 50 million tons of grain by the Soviet Union is

a gigantic admission of the inadequacy of their agricultural system. The opinion of world leaders will not influence the Soviets in their interpretation of that result, but within the time frame of the forecast horizon that I was given for this assignment it seems probable that people in the Soviet Union will see the folly of this dependence. The short crop in 1984 is estimated at 170 million tons. Waste and dockage is estimated at 19 million tons, and seed usage at 27 million tons. Deducting waste and seed requirements from their 1984 crop leaves 124 million tons for domestic use. Total livestock feed use is estimated at 123 million tons (USDA, FAS, SG-13-84, Nov. 13, 1984). This means that the 50 million tons of grain imports is an amount equivalent in tonnage to total domestic food use.

At some point officials will arise in the Soviet Union who are aware of the inconsistencies of this position and who will see the savings that could be accomplished by improved utilization, not to mention the potential for increased productivity. The possibilities are really formidable. Begin by assuming no increase in the relative levels of yields that they have experienced over the past decade. Assume that they will achieve half of the gains in livestock feeding efficiency already achieved by Hungary in modernizing their livestock feeding enterprises. Assume that waste will be reduced to just half of their present level, which varies from 10 to 15 percent. Assume that, instead of seeding over 3 bushels per acre, seed use is cut to a bushel and a half an acre for wheat and barley, which is still well above the level achieved in Canada at similar latitudes. Make those assumptions and the grain saved would be equal to annual average Soviet grain imports of the last three years. In other words, by utilization improvements alone with no increase in output they

have a reasonable potential for eliminating grain imports at current levels of use. I regard that as a fragile market and a very weak base on which to build expectations regarding market expansion potentials for American grains.

This throws in sharp focus a larger issue concerning the general efficiency of socialist agriculture. J. G. Patel, then Governor of the Central Bank of India, has pointed out that socialist agriculture is a device for disguising unemployment in socially acceptable ways (The Economist, India Survey, March 28, 1981, p. 47). It does so at the expense of a greatly impaired incentive structure and retarded personal income growth in the rural sector. But it is effective in disguising unemployment in socially acceptable ways. Western or capitalist agriculture can be characterized in the same sense as a device for disguising exploitative employment in socially acceptable ways. The exploitation of labor in agriculture is disguised through the device of a family-operated unit that it makes it possible to exploit labor to a degree that would be intolerable if labor was organized under an industrial wage structure. At the expense of considerable personal sacrifice we have devised a very effective teaching instrument involving a structure of numerous relatively small farms that can fail, and that permit the exploitation of labor in socially acceptable ways.

This is a magnificiant learning situation. There is no future more dim or more uninviting than a future involving business firms that cannot be permitted to fail. We are just about to cross the threshhold into a world in which we have business firms that are so big or so vulnerable that we cannot permit them to fail. We could not permit Lockheed to fail, we could not permit Chrysler to fail, we could not permit Continential Illinois to fail. This is accepted in the industrial and financial world

of today. What is not generally accepted is that we now have some agribusiness firms so big that they cannot be permitted to fail. We are about to lose the learning tool that was represented by a population of many small farms, collectively making important decisions but individually independent, and none so large that they would not be permitted to fail. More importantly, that failure could be accomplished at relatively low social cost. That is the strength of the capitalist system in agriculture. As soon as failure is prevented from occuring you are impairing the very root of that strength.

It is distressing to hear many proposals for agricultural relief that would sell out the one great advantage that we have in family-farm type agriculture for what amounts figuratively to a mess of pottage. The stability achieved would be artificial and could be only sustained by continued capital movements from the nonfarm sector into the farm sector. But do the people who advocate a viable small farm sector really understand the economic issues? I am not encouraged by some of the meetings that I attend or some of the articles that I read. Many of the people who nominally support a structure of family-type farming do not really know why they support it or what good economic reasons would be for supporting it. The argument is reduced to emotional terms and has no solid root in economic analysis. Because it has had no solid root in economic analysis it has been easy to demolish the argument offered by many people who would continue the support for that type of agriculture. The people who have demolished the argument have themselves failed to think their way through the various issues involved and do not understand what would be destroyed if they destroy that system. So we have the real elements of a Greek tragedy, in that neither side understands the roots of the argument.

In the business world today, many businessmen have persuaded themselves that it is cheaper to buy technology than to grow it. Many of our institutions of higher education--schools of business administration, law schools, institutes of engineering and agricultural colleges--have been turning out practioneers whose concept of the way to get rich quick is to buy a set of fast-growing or frontier technology, without much thought to the process by which that frontier technology was created. And this is reinforced by much that is being taught in our universities. Much of the time in business schools and in law schools is spent in teaching how to accomplish takeover bids, how to ward off takeover bids, and how to master leveraged financing. Teaching, in other words, how to practice economic brigandage. In too many cases, students are not being taught how to create wealth. They look upon wealth in the same way that the conquistadors looked upon it when they went into Central and South America and captured the gold and silver of the Incas and the Aztecs. Too much time is spent teaching people how to fight effectively over division of the spoils. Too little time is devoted to how you create wealth in the first place. For that reason I see some hazard ahead in agriculture because we too are training people in agriculture to do all of the things I mentioned: High leveraged financing, acquisition bids, buy technologies instead of grow them, abandon the system that has produced a high level of agricultural technology almost without having given it any thought. It is in this sense that I see a big challenge for our credit institutions. I refer specifically to the Farm Credit Service, which now has 60 percent of the total outstanding farm real estate debt held by institutions in the United States. When you hold 60% of the total of farm real estate credit in the United States you can no longer behave as an ordinary business firm.

You have to behave like a socially responsible arm of government, which in fact you will become if there is a severe crisis. Fifty years ago when we had a crisis in the 1930s there was no question about who stood behind the farm credit system. There was no question about whose land it was when Land Banks foreclosed in the 1930s. There is a question today about whose land it is, and what backup support will be available in a real crisis, not just a few bankruptcies. Consequently we have some big challenges ahead of us in trying to use credit institutions as change instruments to promote desirable directions of change. What is distressing is that some of the motivational goals that are adopted by these institutions--private sector and cooperative sector alike--concern increasing their market share with almost no thought to what consequence will result from that effort.

My nomination today for the greatest opportunity available to any credit institution in the United States is the opportunity available to the Farm Credit Service to pioneer innovative methods of equity financing. And if they do not pioneer in this way it will be done in the private sector, and at much higher social cost. The model provided by Ag Land Fund I, promoted by Merrill Lynch and the Continental Illinois Bank in 1977 is very much before us today. The great challenge to the Farm Credit Service is to come up with its own version of an imaginative way of arranging a buy and lease back provision that does genuinely preserve the possibility that the option to buy by the farmer who lost his farm will be recognized. The big danger, of course, is that much of the equity financing that is being proposed in the private sector today is not true equity financing. It is promoted by firms that want

a chance to have a cut in the price action that they anticipate will occur when farm land prices turn around and start up again. They are not interested particularly in a well financed agricultural system. They want a piece of the capital gain. That motive I submit is the wrong motive for promoting a system of agricultural equity financing. The Farm Credit Service would not be suspect of doing it for that motive and has a much better playing field in which to innovate. I see this as a tremendous opportunity.

Another potential that concerns me as I look down the obscure 21 years to 2005 is the possibility that we in agricultural will experience a phenomenon that is now convulsing the nonfarm sector. That has to do with the growth of what is called off-shore sourcing. This is a bit of jargon that describes the process by which domestic firms contract abroad for parts or complete assemblies and slip out from under the control of domestic institutions and especially labor unions. This is going on in many many fields. It is already very well developed in automotive and mechanical technology, in pharmaceuticals and drugs, and in other chemical fields, including fertilizers. I am suggesting to you that we stand before the door which is already open to a world in which off-shore sourcing will develop in the field of agriculture. Agricultural research has now become so expensive in the U.S. that it is probably going to move offshore. We cannot afford much of the agricultural research we need at the prices which must be paid to get it done in the United States today. It seems almost certain to happen in biotechnology. When a few of the fertilizer plants come on stream that are now being built in Saudia Arabia and elsewhere we are going to see a revolution in the fertilizer business.

I assume that the concern that now disturbs the auto workers or the steel workers will rapidly become the concern of the American agricultural establishment. I refer to the Deans and Directors of the Agricultural Universities and Experiment Stations, who will see their control over research resources slipping out from under them. It will certainly be cheaper to do this research abroad then it will be to do it at home. A number of foreign countries will have a well-trained corps of people to do it, many of them trained in the United States. They will have greater freedom in which to operate then will be possible in the United States. That freedom will come from less attention to environmental protection measures, from less attention to public health protection measures, from fewer reporting constraints, and from less attention to equal-opportunity hiring rules. For whatever reason, it will become more efficient to conduct agricultural research abroad then it is in the United States. I see this as a possible outgrowth of the trends that will carry us into the 21st century. This may seem to you to be rather pessimistic. I do not regard it that way. I do feel, however, that effective optimism should be steely-eyed, cold-hearted and bloody-minded. And so I have been trying to give you some effective optimism.

I would like to conclude with some arbitrary observations. First, given the technology usable in the Soviet Union, it is very clear that the possibility of economic convergence among the great nations of the world is greatest between the United States and the Soviet Union. The U.S.S.R. can buy almost literally all of the agricultural technology they need off the shelf in the U.S. The scale will be appropriate, the design will be appropriate, and the purpose to be served will be appropriate. It there are any two agricultural economies in the world that ought to

try to work together, they are the Soviet Union and the United States. If any convergence in economic systems is possible within our present politicized world it should be greatest in the agricultural sectors of these two countries. The technology is almost totally interchangeable.

Second, I am aware that our progress in the development of that technology is a result of the fact that we have distorted our investment in agricultural research by a concentration on technology that could be applied through the use of petrochemical tools. We have a petrochemical based agricultural technology. This is especially pertinent for the grains, including rice, for soybeans, and for cotton. If you pick up a typical farm paper, leaf through it, and mentally blank out every page or part of a page that advertises a petrochemical technology you would virtually wipe out the present farm press. It knows on which side its bread is oiled. In this sense, the private sector extension system delivers information through agricultural journals far more effectively than is done in the public sector, but it is a biased delivery system. It gets its reward by delivering a certain type of technology that can attract a certain class of advertisers. By the same token it neglects other dimensions of technology. This biased delivery system in the private sector extension service has dictated the kind of technology that has received the most investment and command over resources in American agriculture. That is not necessarily the best mix of technology for the rest of the world, or even for the United States.

Third, we have adopted a numberof policies in the United States that have had the indirect but sometimes unintended consequence of very heavily subsidizing a certain kind of agriculture. Specifically, the

deduction of interest on debt in the reporting of income tax liability on Form 1040 is a major subsidy to large farms. As long as you can set up a form of business enterprise in a way that enables this deduction potential to be preserved for the individual investor you can create a biased flow of funds in agriculture. It is biased by the fact that capital can receive a higher rate of real return by entering in a form that will permit use of all the deductions possible in subtracting interest charges when computing tax liability. This is a very expensive form of subsidy, and it is only available to high income investors. In addition, we have permitted the rapid depreciation of capital. That was multiplied by some power function in the 1981 tax bill. It is strange that an administration that claims that it is seeking to restore a market system and achieve a reduction of government interference in business has chosen as its principal instrument the manipulation of the tax rate structure. The result is a tax structure that gives an advantage to certain sources of capital investment.

In this regard I foresee another possibility which is beyond the scope of my assignment today, but I think is worth mentioning. These depreciation allowances have become so outrangeously out of line with reality that we are virtually certain to have a commercial real estate price collapse within the next five years. We have a lot of commercial construction that is not justified by market analysis or by the possibility of theeconomic use of space. It is primarily justified by the financial subsidy that can be gained through building under present depreciation allowances. To achieve maximum benefits, the properties must be sold within about half the life of the depreciated property. This means that somewhere between 5 and 7 years after construction somebody has to take it off your hands or the advantage that you were

going to get by this subsidy will be lost. Since much of this tax-induced construction occurred in the past three years, it will have to come on the market in a similar three year period. There is a high probability that we will have a commercial sector repetition of the agricultural sector land price collapse that we are now living through. It will have been created by the artificial stimulation growing out of accelerated depreciation ad pted in the 1981 Reagan tax bill, and it will probably not be attributed to its source.

Fourth, and finally, we are still subsidizing the use of cheap water and cheap energy and these too have been subsidies to large scale agriculture. In the Southern Great Plains we have the largest concentration of beef cattle feedlots in the United States, existing on a heavily subsidized economic base. This takes the form of cheap fuel in the form of underpriced natural gas; irrigation, using cheap water involving no extraction or severance tax for its withdrawal; and a very high writeoff of the capital equipment invested in feedlots and irrigation. It is frequently said that there is no subsidy to beef cattle. A good topic for a future seminar would be to enumerate the ways in which a certain structural form of the livestock industry is being very heavily subsidized. None of those subsidies are worth much to a family-type cattle feeder who does not have a net taxable income above about $20,000 a year. As a result, the way in which we subsidize these firms has not only directed production to certain geographic areas but it has dictated the mix of size of farms involved in the feeding operation. Until we correct that we cannot really talk about a market economy in agriculture.

I would like to end on a bright note. The one I nominate for the brightest prospect I can think of between now and the year 2005 is the

possibility that we can develop offshore sourcing to include the sale abroad of services to agriculture, in much the same way that the non-farm sector is replacing commodity exports with the sale of services. The management of agricultural research is still a sector in which the United States has a comparative advantage.