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THE ORIENTATION OF AGRICULTURAL ECONOMICS*

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I

WHEN I chose this subject I had no ambition to shoulder the burden of a critical survey of argicultural economics today—45 years after the founding of our Association. Others have found that such an undertaking requires an extensive committee, large funds, and years of work. Nor was I prompted by misgivings about our profession's performance in the pursuit of truth or the services it renders. Repeatedly, in recent years, I have seen the work done by American and Canadian agricultural economists from observation points in other parts of the world. I am the more profoundly impressed by what has been achieved within one generation, how much is going on, and how much better public service may confidently be expected in coming years.

My purpose is to offer a modest amendment to the discussion that O. V. Wells began at the 1953 Annual Meeting in Corvallis, and to which almost the entire meeting in 1954 at Pennsylvania State University was devoted, when a roster of highly accomplished members went over almost every phase of agricultural economic activities (research, teaching, and extension work) and most of the fields of special problems. My amendment contains no new formula, no program for action in research, teaching, or extension, nor does it point out unexplored terrain for prospectors in search of new ores of wisdom. I wish merely to raise some questions about the orientation of the main body of economic thought and the further action of our profession.

Some of these questions arise from a desire to grasp the present size and composition of our accrued inventory of knowledge, and to understand the forces and processes that operate in the direction of its expan-

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sion. By what and how is our specific science actually being oriented? Does it receive its impetus only from the creative imagination of leading members of our profession? Does it grow by swarming over the terrain, and the gradual, piecemeal discovery of facts in detail? If so, do the details concerning the production and exchange of food, feed, and fiber in themselves form parts of a coherent system or a natural order, so that we inevitably discover the forest by dealing with trees and groves of trees? Does its growth and maturation occur as the haphazard accumulation of pieces of work by the random private initiative of individuals in our profession according to their hunches or preferences? Or is there a sort of invisible yet effective collective strategy of groups within the profession that opens new vistas and builds a more comprehensive architecture of understanding?

Any one of these questions arouses serious embarrassment, because we sense the crude oversimplification they seem to assume in dealing with a complex pattern of growth that perhaps combines elements of all such procedures and their motivations. Yet it appears highly probable that despite the infinite variety of influences combining to make a science grow, some major ones are predominantly active. Taking all the evidence into account, I think that like other social-science disciplines agricultural economics has taken its cue for choosing its subjects, as well as abandoning them, from the political, social, and economic problems that beset society and the need for assistance in solving them. Areas of research have also been determined chiefly by the changing scenery of economic trouble and social conflict. In none of the other social sciences does this seem to have been more true than in agricultural economics in the United States.

This demand expanded from expected aid in production by what was staked out as farm management, or what we might call the economics of the farm enterprise or the firm in agriculture, to marketing; from there to prices, demand and supply, to farm credit, indebtedness, land tenure, and economic cycles. Installed primarily in colleges of agriculture and mechanic arts or at the centers of government, agricultural economists responded to this challenge by tackling the subject matter as the demand for the practical application of more knowledge became urgent and pressing. The movement, step by step, from microeconomics to macroeconomics—from the farm to the market and to national and international problems—may appear logical, but one has only to look at the background of what happened on the farm and in the market to see that the course of economic history surpassed disciplinary logic in influencing the progress of agricultural economics in the United States and the widening scope of its investigations. The early formative stage came in the final

phase of the expanding world economy before World War I, with the gold standard in operation, and virtually no autarchy policies anywhere. World War I, inflation, postwar price deflation, reconstruction in the 1920's, the crash and worldwide depression, the reform and recovery period, World War II, the enormous economic expansion, and problems of resource development have only to be mentioned to make vivid the profound impact that the social environment has had on the orientation of our science. Although there is nothing wrong with this sort of response to the historical situation, eventually the time ought to approach when enough knowledge has accrued to reduce the need for responding with research to emergencies as they arise and more study can independently be oriented toward improving the architecture of our knowledge. One of the side effects of responding continually to the dominant contemporary social issues is the sequence of turning suddenly to a major problem with absorbing interest and turning away from it entirely without having gained that lasting clarity that only the long and steady pull in research can attain. I mention as subjects that have suffered from this "hot and cold" treatment the effect of gold on farm prices, farm tenancy, population, and the diet of low-income groups.

In response to exogenous stimuli, it was inevitable not only that the scope of the area of inquiry in agricultural economics rapidly widened, resulting in more and more division of labor and branching into fields of specialization, but also that tools and methods had to be developed. The demand was mainly not for advice in terms of ideas and principles, but for guidance in terms of practical application. What came to be sought were tools for quantitative measurement of data, instruments with which to gauge elasticities or rigidities, sequencies of responses, and a multitude of other dynamic phenomena. The Europeans had proceeded largely with deduction. American agricultural economists from the outset distrusted the results of such reasoning and relied, as much as possible, on the inductive method. They put statistics to work to make all the facts concerning American agricultural resources, production, and marketing available. By way of contrast, when I came to the United States for the first time in 1929, Germany had no usuable data on the production of milk, although this was the greatest of all industries of the country. In the United States statistics and mathematical methods for analyzing data, relationships, and sequences were adopted or developed at an accelerating rate, particularly when governmental planning during the recovery period and World War II required the application of such devices. Today undoubtedly one of the unique national assets is our Yearbook of Agricultural Statistics, particularly with such parts as capital and income. No other nation has anything comparable to it.

II

In some quarters, considerable pride and sense of accomplishment are felt among agricultural economists in the rapid refinement of this mathematical methodology and its geometric and algebraic apparatus. In fact, not a few of our younger colleagues seem to feel satisfaction that the progress in this direction is gradually spelling out the distinction between an initiated caste of true scientists who have, and the amateurs who do not have this magic key for unlocking all secrets: the oldtime "literary economists." And indeed, there is a good deal of reason for feeling joy and pride in possessing tools for quantitative analysis of data and mathematical formulae and equations. In many instances they do yield useful information and results—within limits.

However, this elaborate maze of advanced analytical methodology is full of deceptive mirror-effects. It is easy to lose sight of the true essence of economics as one moves toward mastery of this methodology. Many have been disturbed because the test of controlled experiment and exact quantative measurement could not be applied in their pursuit of economics, and so doubted its rank as a science; they find this methodology reassuring. To them, my claim may seem absurd. Is it not true, they will say, that we are dealing with ascertainable facts which we treat with the most accurate, refined, and reliable mathematical methods? How can the reality of economic processes possibly escape our firm grip?

But let us drop the methodology for a moment. Economics—of which agricultural economics is merely a major branch—is concerned with immensurably more than the question of how certain goods or services can be produced at the least cost, how they can be made available at minimum cost to the consumer, or what the causal relations are between income, consumption, capital formation, and capital investment. Economics is concerned with a major part of human activities. It is a *social* science and thus has to deal with a realm far wider than the range of reality with which the natural sciences have to cope. Biology can deal at best with the static patterns of such social forms of life as the anthill and beehive. But even in the Diluvian Age man already possessed all the characteristics of the unique zoon politicon which uses reason, tools, and techniques and has social traits that differ from those of other creatures.

By no stretch of the imagination, and by no process of the most sophisticated reduction, is it possible to inject into the framework of biology the human actions with which we as economists are concerned. Experimental psychology and psychiatry can discover all sorts of characteristics, functions, and individual or group reactions, but these are not the sciences that cope with the human action that makes the course of history.

Within the scope of man's extraordinary capacity to alter the face of

nature according to his ideas, his ethical concepts such as justice and the dignity of man, and the use of his free will, lies particularly the creation of the sort of law and order that sets the stage for economic pursuits. He has made use of this equipment since prehistoric times. The part of human action that shapes the framework for the course of economic history also lies in the area that our science must grasp, understand, and make intelligible. If the gap between the natural and the social sciences has begun to narrow in recent years, it has been the result of the enormous gain in depth of comprehension of the mysterious phenomena of life in the borderlines between physics, chemistry, and biology. The very definition of what distinguished the life of organisms from the crystallographical growth of e.g. minerals, has brought the natural scientist's realm closer to analogies with such concepts as freedom of will.

If economics, then, is a social and humanistic science, it ought constantly to be keenly aware of the limitations of a methodology that can measure quantitative cause-and-effect relations only within a given set of circumstances and on the assumptions, historically invalid, that the values, motivations, and efforts of the people involved remain static.

With this, I return to mathematical tools for economic analysis. I might inject the remark here that while there has been rapid progress in the further refinement of mathematical expressions of economic theory and analysis in recent years, their introduction was not original with Jevons (1871), Walras (1874), Marshall (1890), Irving Fisher (1892), or Pareto (1902). Augustin Cournot introduced them in 1838, and von Thünen, in the second part of *The Isolated State* (published in 1850), had differential calculus to prove his doctrine of the natural wage. He whose economic thought is rooted in the cognition of the complexity, changeability, and essential freedom of human action will never become the captive of these tools. Keynes said: "Too large a proportion of recent 'mathematical' economics are mere concoctions, as imprecise as the initial assumptions they rest on, which allow the author to lose sight of the complexities and interdependencies of the real world in a maze of pretensions and unhelpful symbols."[1] How easily the venerated precision of the mathematical analysis (often applied to data from crude estimates) can trip the economist who leans exclusively on them has been illustrated time and again in the use of the correlation analysis for prognoses. Although the course of correctly calculated but utterly false forecasts since the end of the 1920's has reduced this uncritical use considerably, there are new areas where temptation to the same error is strong. The gauging of the elasticity of demand for commodities is being applied not only to

[1] John Maynard Keynes, *The General Theory of Employment, Interest and Money* (New York, 1936), p. 298.

domestic but to foreign markets as a guide to foreign trade policy—in an era in which the factors that underlie a certain "demand schedule" not only change almost day by day, but in which the active change of major factors by foreign economic policies is the real problem.[2] This points to the danger of slipping unwittingly into all sorts of deterministic notions that are utterly false, and a narrowing of the freedom of action and alternatives by default.

At this point I am anxious to divorce myself from any attempt to extend this criticism to the outlook work on commodity markets and even for farm income for the short range of a year as developed by the former Bureau of Agricultural Economics and which is being carried on by its successors in the Department of Agriculture. I consider this cautious projection of manifest tendencies into the near future as a most useful guide, so long as all concerned are aware of the nature of this device.

However, this is not my main concern. I see a genuine danger in excessive shift of emphasis in the training of agricultural economists toward more and more rigid requirements for the mastery of the mathematical exposition of problems and mathematical analysis. The mastery of these subjects absorbs a large enough part of the student's time in his college years to crowd out time needed for the many other essential areas of economics. The emphasis thus placed on method at the expense of substance cannot fail to have a serious impact on the approach to economic problems. One derives the impression, in following our literature of this sort, that to a considerable extent the highly technical manipulations squeeze the essential substance from economic subjects. Since we need research specialists with this sort of training, the answer must lie in recognizing this limited special need, but it need not be in shifting the general education of agricultural economists more and more in that direction.

The question for our profession is not whether to train economists in higher mathematical analysis, but how many of them to train, and what proportion of a department staff should consist of personnel with this training. Ignoring this optimal proportion may lead to a vast misallocation of human resources and the nation's capital, and to a generation of dissatisfaction for the misallocated talent as well. If this sort of error were committed under the seductive pressure of search for prestige, rather than through faulty judgment of future needs, something even more profound would be in jeopardy—namely, professional integrity.

Apart from this, it is a serious question whether, by selecting candidates for teaching or research jobs primarily according to their compe-

[2] Cf. E. Victor Morgan, "The Theory of Flexible Exchange Rates," *American Economic Review* (June 1955), pp. 279-95.

tence in mathematical analysis, there is any assurance that they have what is required of a competent economist. In this connection, I want to voice my concern about the growing tendency to select teachers, particularly for undergraduate institutions, according to published results of research. Certain essential qualities that make a good teacher need not be present in a first-rate researcher, and vice versa. Although there are men who have an ideal blend of both, it seems unwise to ignore the scarcity of this type. Dealing with historical and contemporary human action, economics has an epic quality that cannot fail to inspire and fascinate the ablest among the academic youth. To convey this is the task of the teacher, not the researcher—who can be a recluse and introvert, while still a contributor to economic science.

There is still another side to this: by choosing higher mathematics more and more not only as an analytical tool but as *the* form of expression, one removes economic thinking from the access and comprehension of the public. Although it seems to me poor general communication to say that "the demand slopes toward the right, while supply slopes almost toward the vertical," this is mere borrowing from specialized geometrical language. And equations cannot be discussed without chalk and blackboard or pencil and paper.

If it is said that in medicine or physics the scientist may also use methodology and language that no layman can understand. I would say that the analogy limps on several legs. It happens to be the essence of economics that it not only deals with human action and the lives and livelihood of people, but that in a democracy the people have a great deal to say about the rules of the game and the staking out of permissible latitude in such matters as competition or monopoly. Economic thought can guide the action of sovereign people and their decisions at the ballot box only in so far as they and their representatives in the legislatures understand economics. By retiring into the jungle of strictly professional forms of expression, one erects important psychological walls that separate the economist from the people. Precisely the opposite is necessary. While reflecting on this, I recalled with delight an evening spent in the Political Economy Club in New York in 1934. This small gathering of economists from Harvard, Yale, Columbia, and the New School for Social Research had as its guest the late John Maynard Keynes. He spoke on the economic strategy for achieving full recovery. The discussion lasted until the early hours of morning. Not once did I hear this great economist, in the exclusive company of members of the profession, use a single technical term. He spoke the plainest and clearest everyday English. In all this, let me emphasize that I do not mean to speak against the use of refined tools of analysis in research or the use of symbols in pro-

fessional journals—but to point to a potentially dangerous drift, which is not confined to this country alone.

A further trouble is that in the age of increasingly powerful bureaucracies in public and industrial administrations, through the medium of mathematics a great deal of thought expressed exclusively in physical terms of production, supply, or demand irrespective of price or cost can creep into supposed economic analysis without being recognized for what it is: mechanical engineering in goods or logistics of planning, but not economics. I have been baffled by the paradox that occasionally the presumptively objective mathematical analysis of economic phenomena conducted in high public offices has barely concealed strong social or political bias of those who make the analysis. This sprang not from the application of the method but from the assumptions underlying the analysis and the tacit exclusion of alternatives. Here the temptation to cross the boundary between the realms of politics and science is as great as in those places where these analytical tools are used in the search for decisions on policy and by order of the political authorities. Here the need of the sturdiest integrity arises in proportion to the use of mathematics. In economics many not quantifiable affairs are of extreme importance. To measure e.g. the dependence on a specific source of income in terms of percent of total income ignores the importance of the potential availability of alternative sources, which is not measurable.

III

Having said enough about an excess of emphasis on mathematics and quantitative measuring tools to arouse the indignation of many a good friend, it seems high time for me to state what, in my view, might be a more desirable orientation of agricultural economics.

To state it plainly, what distinguishes a science is neither the availability of tools nor the use of method, but creation of theory. By this term I do not mean its loose colloquial connotation of an individual view, speculation, or assumption, but a coherent intellectual framework of abstract principles that explains economic cause-and-effect relations and which, like an economic law, can be tested as to its validity by the observation of actual processes. In agricultural economics particularly there is decisive need for more theory to guide the further search into facts and to make its results meaningful and applicable by distilling abstract principles from concrete observation. The concrete reality of what actually occurs economically is economic history. Empirical research deals with it. But one cannot productively dig aimlessly into amorphous masses of data on phenomena, merely accumulating a larger and larger mass of facts. No one can arrive in that way at the dynamic principles of such involved proc-

esses as those of a highly advanced industrial economy or of its further development. Theory explains possibilities, necessary cause-effect sequences, emancipated from specific space or time. Theory is required to understand historical facts and data. Without theory the pattern of the rug that rolls off the loom of time makes no sense at all—as Macbeth put it, "a tale told by an idiot, full of sound and fury, signifying nothing."

Formation of theory requires, invariably, accurate knowledge of a great deal of observed detail. As in history, analogy is a method. But it calls for creative imagination, intuition, subtle judgment, and inventiveness to state hypotheses that, after much testing and trial of better ones, may lead to a theory. Within our discipline, testing excludes—except in the areas of marginal productivity analysis—the controlled experiment. Only by logic and supporting or contradictory empirical evidence can economic theory be tested as to its validity. Fully valid theory bestows full understanding of complex economic processes without full empirical study of all detail in each historical case.

The current gigantic output of monographic research reports scattered over the 48 states will, in my opinion, fail to survive even a few years of mostly regional usefulness. Only sublimation into theory could make the content of this literature survive in the intellectual inventory of the profession. But if this is to be done, this part of the formation of economic thought ought not to be suspect as unscientific, but recognized as its very essence.

In order to avoid the reproach of putting up vague postulates, let me say that there are large areas in which theory is needed as a guide and a frame of reference in agricultural economics. By definition, agriculture is the perfectly decentralized "industry" since it deals with the utilization of all land and water resources for food and fiber. American agriculture, with its unique two-billion-acre uniform market area has major "belts" of specific enterprises and regional specialization. Moreover, many products are produced 10 miles, 1,000 miles, 2,000 miles, or even 3,000 miles from a market, with the producer's share in the consumer price ranging all the way from 95 to 5 percent. That there are differences in quality or in time-utility involved does not invalidate the challenging phenomenon. Yet there is no developed and coherent theory of economic location in the United States that can claim to explain the coordination of factors lying behind the actual location of farm enterprises or the causes of shifting location. J. H. von Thünen published the nucleus of such a theory in 1826, which to this day is a most useful introduction to the economics of the farm enterprise as well as to the theory of intensity, and in Europe is still used as such. Among agricultural economists, Theodor Brinkmann and particularly Friedrich Aereboe further advanced the theory, while other

German general economists, such as Alfred Weber, E. Schuster, H. Schumacher, and H. Ritschl, and still others such as A. Predöhl and August Lösch, and the Scandinavians Bertil Ohlin and Tord Palander, contributed to general location theory. Perhaps, in the United States, the emphasis on interference with the principle of comparative advantage prohibits the application of true economics from erecting the theoretical structure for the pattern of division of labor in our agriculture. Perhaps the actual changes are so rapid that one is frustrated in trying to keep pace with them. But a multitude of local and regional studies are available or in the making which all contribute material for its creation. It is my misfortune not yet to have read the book by Edgar S. Dunn, Jr., *The Location of Agricultural Production*, which may fulfill the need I have mentioned.[3]

Let me mention another area where, in my view, the major theory is missing. One of the outstanding features of the economic structure and performance of American agriculture today is the vertical integration of a highly capitalized and capitalistically managed livestock industry with the use of land for crop production and forage. By an economy of abundance, the conversion of edible and inedible bulky staple commodities into mostly perishable livestock products acts as the balance wheel which, at very low social cost, reduces the impact of heavy fluctuations of the output of crops on the food household and the national economy. This system functions smoothly with a changing supply of specific livestock products and a consequent smaller variation in the diet of the consumer. Ultimately, it works through a very subtle shifting equilibrium price of livestock products at retail, i.e., through the intelligent budgeting and purchasing tactics of the housewife and the chefs in feeding establishments through the medium of flexible prices. This whole system represents a fascinating example of the most essential manifestation of economics. Yet a comprehensive theory of it is not available, notwithstanding Ezekiel's cobweb theorem, hog-and-cattle cycle analysis, studies on the livestock-feed price ratios as control mechanism, and many others. At the same time we have been hearing for years from various agricultural economists recommendations for a change that essentially would throw the whole system overboard by transferring the balancing role of the flexible livestock industry to a system of granaries, with the simultaneous "stabilization" of the output of livestock products—and a stabilization of prices of products and of the composition of the diet. All proposals of this sort appear to be the antithesis of economics. They belong in the engineering of physical inventories and thus basically in the logistics of a quartermaster corps. That such proposals can be made repeatedly is due largely to

[3] Having read the book since, I think it safe to say that despite its useful contents, the challenge remains unanswered.

the absence of a unified general theory of the livestock system. This conversion industry arrangement stands and falls with the rule of prices and costs and obedience to this rule all the way from the consumer to the beef-cattle rancher or the producer of broiler chickens. The theory would, in my view, show in essence the functioning of an almost classical market economy in which the many corrections applied by private and public interference dwindle to the insignificance of detail.

Let me touch upon another subject in which I believe theory, and I may say quantitative information as well, are lacking, although they are needed to keep abreast of what is going on. One significant achievement of American agricultural economics is that the process of shrinkage in the proportion of agricultural employment within national employment is generally recognized as a concomitant of economic development and rising agricultural income. It is obvious, however, that in spite of the net gain won, this process involves a constant marshalling of mineral, industrial, commercial, transport, and research resources for purposes of food and fiber production and a transfer of manpower from agricultural to nonagricultural resources. The developing industrial economy does not have agricultural production attached to it as a separate segment of a pie, but has vital parts of agricultural production interwoven into it. If the proportions of the food, feed, and fiber economy (for which we have only a few lump figures) and the exchange pattern with the other parts of the national economy were available, we would know a great deal more about the changing nature of our agricultural economy and the impact of maladjustments in it.

IV

In the few subjects I have mentioned it is inherent that economics must proceed from mingled empirical study and statement of hypotheses to testing of hypotheses and construction of theory if processes that actually occur are to be made comprehensible. Historical economic development precedes analysis and synthesis of theory. Only in a secondary way does the scientific comprehension become a part of the human action that results in economic development. It is well to recognize this priority of the men of action—the farmers, the businessmen, and all the others. Some of our colleagues seem to subscribe to the idea that American agriculture is not only aided, guided, and served by economists, but moves essentially under the command of science. I believe that this vastly overstates the case. To mention only a few items: (1) In the case of the extraordinary rise of the conversion of grain into chicken meat, a vast new integrated industry has been made possible by progress in animal nutrition and many other sciences. That it came into being however, was due to the alertness, initiative, and will to take risk on the part of thousands of small entrepreneurs acting under the influence of price, profit, and ex-

tremely easy credit terms. Progress was enhanced by the aid the feed-processing industry has given them. Economists neither foresaw nor generated this phenomenon of the growth of an industry, but observed and analyzed it. (2) In the last 15 years, American farming has suddenly began its sharp increase in output by intensification rather than by acreage expansion. This decisive change came about by adaptation to changed technological and economic conditions by several million farmers, not by strategic decisions by economists, although economists participated in the shaping of some of the economic conditions. (3) The revolution in irrigation by shifting to the sprinkler system has not come, so far as I can discern, through recommendations of economists, but through application on the farm under the influence of salesmen from the manufacturing companies.

But to go one step further with the notion that the time has come where our science must mature toward the development of theory, I believe that a theory of an even broader and more comprehensive scope is needed—that of the economic order as it evolves within the boundaries of the political constitution and social philosophy of a country.

So long as the economic order in western countries remained within relatively conventional boundaries, it may have been less essential to comprehend the characteristics of this order. But since the end of World War I the rise of the Soviet form of society has been creating an entirely new order. Its radical socio-economic doctrine derived from an economic school that branched off from Ricardian classical theory. After World War II this new order spread over enormous areas of the world.

The processes occurring in that sort of socio-political and economic order are in considerable degree governed by certain basic economic principles. But this new order definitely is not merely a deviation from economics as explored or understood in certain countries of Western Europe and in the United States. Again, Fascism in Italy, National Socialism in Germany, and Corporatism in Portugal have created still different systems of economic order. And in the West, which was not subjected to the Fascist experiment, the depression, too, found economic theory largely unprepared to cope with the severity of this social earthquake—exactly at the time when agricultural economics in America began to connect with and merge into the science of political economy that had had a history of several centuries in Europe and a remarkable and honorable one of at least two generations in the United States behind it.

Specifically, I believe that the theoretical counterpart of the distinctive economic order that has evolved in the United States and which is the setting for anything we are concerned with in our agricultural economics has not been constructed. Our economic order has grown under its own momentum and it has continually been changed by reform legislation, particularly between the depression and World War II. It has been

changed further under the impact of war and postwar events, and the undreamed-of expansion since 1940 is changing it in more aspects than can be, or at least have been, traced. While it is immeasurably complex by virtue of practical compromises, existing but not enforced laws, and the coexistence of federal and state legislation, the economic order of the United States today has nevertheless, by comparison with other orders, very distinctive structural features. Efforts have been made to sketch outlines of specific parts of the order, such as, to name only a few, Gardiner Means's theory of flexibility of farm prices *vs.* rigidity of industrial prices, or the theory of monopolistic competition by Chamberlin and the economics of imperfect competition by Mrs. Robinson. All of these are efforts to correct the conceptual framework of the competitive market economy as predepression economics accepted it. Theodore Schultz, with *Agriculture in an Unstable Economy,* did a great deal to elucidate certain phases of the dynamics of the modern economy. Yet it seems to turn out to be far too static to depict the behavioral pattern. Galbraith's theory of counterveiling power is the most ambitious effort to present an X-ray projection of what this economic order is. But to stay with this metaphor, it may take many X-rays from different angles and with different techniques to show the circulatory system and its control mechanisms. So far Galbraith's theory of the American economic order has been criticized and major assumptions have been challenged. But the real challenge can only take the form of more compelling theory. It is still missing. Perhaps the new emphasis in research on development, which did not precede, but followed, the actual development, will fill this gap. In the absence of a commanding and generally accepted theoretical and conceptual framework of our economic order and in the presence of partial hypotheses that focus on the limitations of competition, I notice throughout our profession a wholesome appreciation of the substantial amount of competition, willingness to take risk, and to work under the impact of prices. Implicit in this strong feeling is the tacit recognition that theory does not yet comprehend the complexity of the true "order" of this extraordinarily vital and strong economy of ours. But this situation is highly uncomfortable and must be overcome.

The war and the postwar periods have given hundreds of agricultural economists the new experience of going on foreign missions into distant countries and colonies. They have been confronted with economies in widely different stages of development, with diverse political and social systems, and cultures having values and motivations different from our own. This contrast, stimulating thought by comparison, has prompted the search for a theory that crystalizes whatever core of abstract economic principles may remain valid even in social systems different from ours. These missions into strange political and social environments, addition-

ally, provide many startling examples of how facts contradict accustomed patterns of explanation of development in one place and stagnation in another. This experience has inevitably given considerably greater scope and depth of thought to our profession in discerning the nature of economic problems. It comes not only by facing concrete evidence of economic porcesses within different social environments, but also by the accidental contact and cooperation with scholars from other disciplines.

V

If it should be a sound endeavor to orient economics more toward theory, I doubt that concentration on methodology will help. While it has been much stressed in the past that any science worthy of its name must be concerned with methodology, it also seems possible that preoccupation with methodology may be a sign of a science's decay. More exchange of thought with general economists, and discourse on problems of economic development with researchers in other disciplines such as philosophy, logic, philosophy of law, jurisprudence, political science, economic history, and anthropology will not only widen horizons but give by analogy or transposition a firmer grasp of what economics is and what it cannot be. It cannot be the arbiter of values for society and it cannot decide what ought to be done. To establish this contact with other disciplines a deliberate effort toward orientation may be made, and our Association could be the catalyst.

Agricultural economics will gain in stature and influence if, as one of the disciplines in the realm of the humanities, it sets its sights high and keeps aware of the fact that its subject is concerned with cause and effect relations in human and social action, and that this involves far more than material needs. Let us suppose that we have a generation without a major war ahead of us, and that the imagination, energy, and drive of the nations can to a larger extent be allocated to and absorbed by efforts toward accelerated economic development. The changes brought about in the economic and social spheres will be breathtaking, and call for bold perception of the macroeconomic problems. The actual pace of economic progress may overtake the economic profession just as the stalling of investment, exchange, and employment caught it unprepared in the great depression. In such a period of economic growth as may lie ahead, problems of maladjustment may become even more severe, but their nature will be dynamic—such as disparity in pace of development—and their susceptibility to remedial action will be greater. All this argues for more alertness in our profession to the strategy to be employed in allocating our human research resources, a firmed understanding of the economic order as a whole, and strengthening of the will to create theory, or, as I prefer to say: to complement analysis by synthesis.