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ABSTRACT

Recommendations for maintaining relevant programs which resulted from this meeting of college and university presidents and administrators are applicable to all colleges and universities offering programs of agriculture in the region. Given in this report are two major presentations entitled "The Integration of Knowledge in a Specialized Society" and "Agriculture and Rural America in the 70's." The reports of the four workgroups are: (1) "Structuring an Organization to Effectively Implement Programs in Colleges of Agriculture"; (2) "Realignment and Readjustment of Programs of Agriculture"; (3) "Relating Agriculture to Business and Industrial Usage, Rural and Urban Development"; (4) "Financing Agricultural Programs." Among the recommendations given are: (1) agriculture should occupy a position in the organizational structure of the college or university at a level sufficient to adequately implement the programs which are necessary to achieve the avowed goals of the land-grant institution; (2) coordination between the land-grant institutions founded in 1862 and those established in 1890 is absolutely essential in extension, and very necessary in research and teaching; (3) funds must be spent for the purpose intended and in such a manner as to provide agriculture and the public with the greatest returns possible. (NQ)

# MAINTAINING RELEVANCY IN PROGRAMS OF AGRICULTURE

Proceedings
Southern Regional Meeting
Land Grant College and University Presidents
and
Administrators of Agriculture

Atlanta Airport Holiday Inn
April 20-21, 1972





Sponsored by
Council on Higher Education in the Agricultural Sciences
of the
Southern Regional Education Board

# FOREWORD

Since its organization in 1956 the Council of Higher Education in the Agricultural Sciences has provided leadership in planning and implementing programs to further the development of agriculture in the South. In carrying out this overall purpose the council is currently providing guidance in conducting a project supported by the W. K. Kellogg Foundation, and under sponsorship of the Southern Regional Education Board, which is planned to advance land grant institutions, agriculture and the agricultural sciences.

At its annual meeting in Atlanta in 1971, the council recommended that a meeting of presidents and administrators of agricultural colleges and universities be held early in 1972 to develop policies and recommendations for maintaining relevant programs of agriculture during the mid 1970's. In preparation for this meeting the deans and directors of programs of agriculture met in Atlanta in 1971 to discuss the same topic. The proceedings of the meeting were distributed to presidents of colleges and universities and administrators of colleges of agriculture to serve as the basis for further study during the year and as preparation for the meeting with the presidents in 1972. The Southern Regional Meeting of Land Grant Colleges and University Presidents and Administrators of Agriculture was held April 20-21, 1972 in Atlanta, with the theme, "Maintaining Relevancy in Programs of Agriculture." The recommendations for maintaining relevant programs that resulted from

the meeting are applicable to all colleges and universities offering programs of agriculture in the region.

On behalf of the Council, I express appreciation to the 1972 planning committee--Dr. Overton R. Johnson, chairman; Charles Barnhart; Andrew Torrence; and Bill Wiley--for its excellent work in planning the program.

The two major presentations and the reports of the work-groups from the meeting are published because they have application to the further development of agriculture and maintaining relevant programs in each land grant institution in the region. The Council of Higher Education in Agricultural Sciences thro[u]. its policy of cooperative planning and regional shari[n]g recommends these materials for use by all university, c[o]llege and agricultural administrators as they plan for further development of programs of agriculture in the South.

T. J. Horne, Project Director
Agricultural Sciences

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PROGRAM

# SOUTHERN REGIONAL MEETING

## Land Grant College and University Presidents and Administrators of Agriculture

Atlanta Airport Holiday Inn
April 20-21, 1972

Thursday, April 20
Meet in Armstrong Room

Presiding:
Ben T. Lanham, Jr., Vice President for Research, Auburn University, and Chairman of SREB Council of Higher Education in Agricultural Sciences

8:45 a.m.
Welcome from SREB: William R. O'Connell, Director, Special Programs, SREB

9:00 a.m.
"The Integration of Knowledge in a Specialized Society":
Charles E. Bishop, Chancellor, University of Maryland
Discussion

10:15 a.m.
Coffee break

10:30 a.m.
"Agriculture and Rural America in the 70's"
Honorable Earl L. Butz, Secretary of Agriculture
Discussion

12:00
Lunch

1:00 p.m.
Work-group meetings

Friday, April 21

8:30 a.m.
Reconvene in work groups
Continue discussion and development of recommendations

10:00 a.m.
Coffee break

10:30 a.m.
Reassemble in Concourse Room 5 and 6
Work-group reports:

Group I: Webster Pendergrass, chairman
Discussion

Group II: E. T. York, Jr., chairman
Discussion

Group III: H. O. Kunkel, chairman
Discussion

Group IV: Walter Washington, chairman
Discussion

12:30 p.m.
Adjournment

## WORK GROUP ASSIGNMENTS

Group I
Discussion leader: Webster Pendergrass
Recorder: M. A. Fields

"Structuring an Organization to Effectively Implement Programs in Colleges of Agriculture"

1. Structuring to implement programs to service the industry of agriculture
2. Structuring to implement programs to service society
3. Structuring to implement people-oriented programs in extension, research, teaching
4. Structuring inter-land grant college cooperation in developing programs in agriculture
5. Efficient use of resources

Group II
Discussion leader: E. T. York, Jr.
Recorder: Nash Winstead

"Realignment and Readjustment of Programs of Agriculture"

1. General or specialized education in agriculture
2. New and innovative programs and systems of education in agricultural sciences
3. Responsibilities of colleges of agriculture for non-degree programs
4. Roles of internship in educating students for careers in agriculture
5. Accountability for programs, public and administrative

Group III
Discussion leader: H. O. Kunkel
Recorder: R. S. Dunbar

"Relating Agriculture to Business and Industrial Usage, Rural and Urban Development"

1. Planning educational programs to prepare students for business, industry and development careers
2. Exchange of personnel between colleges, business, industrial and developmental agencies
3. Professional re-orientation of faculty
4. Experiential teaching-learning
5. Maintaining continuous relevance: people-oriented programs

Group IV
Discussion leader: Walter Washington
Recorder: Henry Garren

"Financing Agricultural Programs"

1. State funding to adequately support growing demands for agricultural programs
2. Developing legislative support for agriculture on state and federal levels
3. Developing sources of extramural support for agriculture
4. Funding and administering regional programs in agriculture
5. Accountability

# THE INTEGRATION OF KNOWLEDGE IN A SPECIALIZED SOCIETY

BY
C. E. BISHOP

At the beginning of our discussion, it seems to me to be important to emphasize that the characteristics of our society are changing rapidly and that our universities must change if they are to fulfill societal expectations. This, of course, is not to say that the university must mirror the society or that it must necessarily change in the same direction as society. The university, however, is a social institution and if it is to relate to social needs, it must take cognizance of the changes in those needs and respond appropriately.

There are four particularly dynamic characteristics of society that are especially relevant to our discussion: 1) the rapid scientific development, 2) the increased specialization of function, 3) the changes in economic organization, and 4) the growing interdependence of the elements of society.

Much has been written recently about the fact that the contemporary society is both knowledge-based and knowledge-oriented. Let me emphasize that inherent in the processes of growth and development that produced the contemporary society was a shift from dependence upon tradition to dependence upon the generation of knowledge. As a creator and as a repository for knowledge the university is greatly affected by this increased dependency of society upon knowledge. The University must

preserve the good of the past while avoiding the tendency of traditionalism to be reactionary and anti-intellectual.

Our society is particularly dependent upon science for the development of new technology. New technology is derived largely from scientific investigations. But scientific development also has been encouraged by the need for technological improvements. When it became obvious that improvements in technology were limited by the extent of our scientific knowledge, impetus was given for additional research.

A second characteristic of the contemporary society that is particularly important to the university is the fact that society is increasingly specialized. This is no accident. The increase in specialization is inherent in the vast growth of knowledge that has occurred in our nation. Specialization is a process by which productivity is increased through restricting the range of responsibilities. What we do is restricted so that we can become more productive in that which we do. Specialization, therefore, is an element in organization that enhances both the development and the utilization of new knowledge. It is an essential aspect of the knowledge-generating process, and it has significant implications with respect to the organization and function of universities.

As a consequence of growing specialization, the contemporary society is organized in a much different way than the traditional society. The development of large organizations is necessary to use specialized personnel and techniques effectively. Firms,

governments, universities, virtually all social organizations today are larger than they were in earlier times. Within these large organizations, decision-making and action are dependent upon specialists operating within a rigidly structural framework. As organizations increased in size, it became necessary to place increased dependence upon specialization of function, delegation of responsibilities, and relatively inflexible structures. The highly productive specialists operate effectively within small modules that are given stability with rigid interconnections.

The fourth aspect of the contemporary society that is especially relevant to us is the increased complexity and greater interdependence among the elements of society. Specialized elements are by nature interdependent. As the elements become more interdependent, the problems of society become more general in the sense that they affect more people. The limiting factor then is not speed of transmission of information, but flexibility to adjust.

The university, to a certain degree, does reflect the character of the society. The universities produce much of the knowledge upon which the current system is based. And, the graduates of the universities provide the specialized competences needed for the functioning of the specialized society.

The professional schools and colleges, especially agriculture and engineering, must relate to the society, giving consideration to the kinds of technological constraints faced by

society as well as to the professional qualifications desired of the graduates of these schools. It is the job of professional schools to project ahead the demands of society and to provide specialists with the expertise necessary to meet these demands. There is a danger, however, from over-specialization in an advanced technological society. It is exceedingly difficult to maintain a reasonable matching of the supply and demand of highly specialized skills. Witness, for example, the problems of aeronautical engineers during the past several years. No projection is likely to be perfect or of long duration. We must, therefore, produce "adaptable specialists" and then provide opportunities for continuing education.

Universities must be on guard to assure that their responsibilities as educational institutions are not undermined by overemphasis upon the training of students for particular occupations. Even though it produces many specialists, the university is not a specializing institution. The concept of a university implies that it is a generalizing institution, emphasizing the integration of knowledge. Its mission to teach people to think and adjust is more important than its efforts to teach people what to think about. Nevertheless, we have all witnessed growing specialization within the university, especially during the past twenty years. This specialization has been evidenced in the proliferation of departments and degree programs. It also is clearly evident in the research programs of the universities.

Individual research, by nature, tends to be inward looking. Most research professors concentrate on a small spectrum of their

field of specialization. Moreover, this spectrum generally narrows as the professor becomes established within his field. The emphasis upon research and the desire for professional esteem in a technological society provide strong incentives for specialization of function, specialized professional language, and an inward orientation of professors. The peer system of governance that is characteristic of most universities strengthens the professional orientation of the academic departments. This strength is evidenced in highly specialized degree programs, increased requirements for degrees, and more course prerequisites.

During the past twenty years, American universities have traveled far down this road. The circumstances of our culture have forced students to turn to more highly specialized curricula

During the same period, an increasing percentage of the youth of this nation have chosen to enroll in colleges and universities. The large state universities now have huge cosmopolitan student populations. Many students desire to pursue specialized courses of study. They want to follow the traditional patterns pursued by the elite in earlier times. A large number, however, have rebelled at being "made over into the image of their professors". They argue, rightfully in my judgment, that the raison d'etre of the university is and must be more than training, that it is education per se.

The student of today is very much concerned over problems that transcend the major specialized curricula that have been developed in the recent past. Their concern is a natural reaction

to the analysis of problems in the narrow partial framework required by a high degree of specialization. Students are especially concerned with conservation of natural resources, pollution of air and water, poverty, and other side effects of technological development and economic growth. They are demanding that universities broaden curricula providing educational opportunities consonant with the complex problems of the contemporary society.

At the same time, we find that agencies that have been supplying much of the support for research are beginning to ask penetrating questions with respect to the social value of research. There is no evidence of diminishing returns to investments in the generation of knowledge. However, there is growing concern that the knowledge that is generated must be helpful in solving important problems. Recently, even such prestigious organizations as the National Science Foundation have been emphasizing the development of research programs focused upon social needs. The professional schools and colleges have long been oriented toward empirical analysis. But specialization in these schools and colleges has proceeded along lines that left large problem areas unattended until the problems became acute. Our nation today is characterized by population congestion and urban decay in the metropolitan areas, depopulation and blight in rural areas, pollution of air and water, poverty in the midst of plenty, rampant crime and other related problems. These are not results that we sought to achieve in our society. But, we produced them.

These problems are largely external to the major specialized systems of decision-making that we have developed.

The development and use of technology to give us greatly increased production of crops, livestock and other products also gave sharply reduced employment in the natural resource-based industries. This technology, therefore, accelerated the depopulation of rural areas and the growth of central city ghettos. These effects were not planned. Neither the individuals concerned nor the society sought them. They were not anticipated because our approaches to integrating knowledge into society were too specialized.

The point is that in the context of decision-making in a very restricted partial framework, we failed to recognize that production technology, the structure of industry, the pattern of growth of employment, income distribution, and the location of population are very much interrelated. The changes in the economic and social structure that emerged as a result of the adoption of new technology were made in an attempt to adjust to the new technology, and they do not represent changes that were planned. We erroneously assumed that if we could develop technology to enhance greatly the supply of products that we would automatically obtain good communities. This did not follow. In our drive for abundance of goods, many people and many communities in our society have been left behind.

Much of the research that provided the knowledge base for increased production of agricultural commodities was made

possible through social investment in the land-grant colleges and universities. Expansion of production possibilities through human and natural resource development and through improvement in production organization are proper subjects for research in land-grant universities. It is not sufficient, however, for publicly-supported universities to focus research resources only upon the direct and immediate effects.

Clearly, we must rethink our social responsibility. An institution has a responsibility to society for the knowledge that it generates. The responsibility for the use of knowledge is not separate and distinct from the responsibility for its generation. Although research productivity is enhanced through specialized investigations, the institutions that sponsor research must accept responsibility for considering the side effects of the knowledge that is generated. Clearly, we cannot take the position that we will not release to the public knowledge that is generated through the expenditure of public funds. All land-grant universities have a specific commitment to make public the results from their research. Any controls that are exerted, therefore, must reside in the choice of projects undertaken. We have a commitment to see that our research programs do not leave important side effects unrecognized.

The Colleges of Agriculture, and particularly the experiment stations, must continue to develop their research and education programs pertaining to production technology. The soundness

of these programs has been demonstrated many times. Although we may expect private firms to undertake more production-oriented research in the future, those of us who have been affiliated with the land-grant institutions, and who recognize the important side effects of introducing production technology, believe that it is increasingly important that the public be given accurate and complete information concerning changes in production technology. In the future, therefore, much more concern must be given not only to the production of food but to the effects of the methods by which it is produced upon its quality. Certainly we must devote more resources to insuring that methods of production that enhance productivity do not produce side effects that are harmful to people.

Increasingly agricultural scientists must concern themselves with the effects of changes in production technology upon environmental quality. The time has passed in the United States when air and water were considered as free goods, that is when the effluent from firms could be dumped into the air or water without concern. The effluent from agri-business firms, including farms, is a heavy polluter of the air and water. In the future scientists engaged in plant and animal production technology research will of necessity be drawn into closer association with chemists, chemical engineers, and others from related disciplines who will bring their talents to bear upon the problems of pollution.

Many of the changes that have taken place in the economic and social structure of the United States in the past one-half

century have been changes that were made in an attempt to adapt to new technology. Out of these changes, there has arisen increased concern over problems of rural development, land use, especially around urban centers and massive concentrations of people in major metropolitan centers. At some point, it is clear that we must give serious consideration to the kind of society we are trying to develop and then determine whether reasonably efficient production technology can be developed that is consistent with that organization of society. It is important, therefore, that production-oriented research, especially that associated with mechanical innovations encompassing substantial economies of size, should be subjected to the scrutiny of scholars who are concerned over the organization of society in addition to that of the engineers. In any event, it is clear that the Colleges of Agriculture must become more concerned in the future that the perspective of non-agricultural disciplines be brought to bear on the research and education programs carried out through the Colleges of Agriculture.

Students will provide much of the spark needed in penetrating the highly specialized systems that have developed within the universities. Demands are emanating from all campuses for multidisciplinary and interdisciplinary programs. Such programs are not unique but are structures at a high level of generality than has prevailed in major universities in recent years. We are beginning to see a return to such structures.

A major dynamic of the revolution in higher education is the demand by students that they be given access to the knowledge

that they seek to acquire without extreme specialization. Specifically, they seem to be asking that we devise new structures encompassing "pure" and "impirical" elements of knowledge that provide for professional competence and adaptability. As more general degrees that encompass subject matter spanning several departments are developed, faculty members will recognize the necessity for simultaneously protecting departmental interests while these interests are imbedded in a larger knowledge matrix. The interdepartmental association that is involved in the development of such degree programs will force faculty to think broadly in order to protect their professional domain, and hopefully, in the process it will cause them to learn more about the interdependency of knowledge.

The revolution in education today extends far beyond the traditional campuses. Taxpayers of all walks of life are demanding that information be made available to a broader audience. The challenge is in making knowledge more accessible, not in storing it in libraries. Greater flexibility of programs will be essential. Students are demanding, and they will be allowed, to proceed at a pace consistent with their own capabilities. In the future, greater emphasis will be placed upon the attainment of knowledge per se, and less attention will be given to time spent in residence in institutions of higher learning or to how knowledge is acquired.

In my judgment, much of the discussion that has taken place recently relative to three-year or four-year degrees is misplaced.

Certainly, no one would contend that we award degrees on the basis of time spent in an institution of higher education. Instead, our objective is to confer degrees upon the basis of knowledge attained. In this connection, a major challenge facing us is the development of criteria of the attainment of knowledge in which we have sufficient confidence to use them as a basis for the awarding degrees.

On the College Park Campus of the University of Maryland we are attempting to bring about changes consistent with the philosophy outlined above through a number of specific steps. The College of Agriculture, for example, will be maintained as an identifiable unit embracing the areas of responsibility traditionally assigned to Colleges of Agriculture. The College will be included in a Division of Life Sciences and Agriculture that will serve as an administrative umbrella for the biological sciences, chemistry and the College of Agriculture. Curriculum changes will be considered at the divisional level as well as at the departmental and college levels. Budgets also will be reviewed at the college and at the divisional level, providing an opportunity to encourage the development of more comprehensive research and service programs as well as degree programs.

The University requirements for degrees are being generalized into three broad categories: a) a study of man's sciences and technologies, b) a study of man and his institutions, and c) a study of man's cultural heritage. These will replace the designation of specific courses that must be included in all

undergraduate programs. Consistent with the above, broadly based general degrees will be offered on a university-wide basis, and by major divisions and colleges within the university. Students are being encouraged to proceed at their own pace, and additional emphasis is being placed upon credit by examination. It is our hope that the degrees offered at the college and divisional levels will draw together faculty from different, but related, disciplines in the planning and evaluation of such degrees.

Through the establishment of supra-college divisions it is hoped that we will be able to establish a closer relationship between the pure and the applied or empirical elements of knowledge, including the research programs of the university.

The Colleges of Agriculture are in a difficult period of adjustment. The effectiveness of the land-grant system of generating and disseminating knowledge is beyond question. But the emergence of highly important unresolved side-effects to the work of agricultural scientists is bringing increased criticism of the system. If these important effects are to be treated adequately, the system must adopt a more flexible stance, giving greater consideration to the interdependence of knowledge in a specialized society.

# AGRICULTURE AND RURAL AMERICA IN THE '70'S

BY
SECRETARY OF AGRICULTURE EARL L. BUTZ

For farmers and the agricultural industry, these are times of unprecedented change--significant, deep-seated change that will continue through the decade of the Seventies and make a lasting impact on the very face of America. Presidents and Administrators of Agriculture of the Land Grant educational institutions are certain to be catalysts and motivators of the changes to come.

Take a good look at the current scene, at events happening right now, and you see a great industry going through transition. New crop programs under the Agricultural Act of 1970, for example are accelerating shifts in cropping patterns--production is concentrating in regions of greatest efficiency and profitability.

Agriculture is moving toward market-oriented production.

With quotas, penalties for over-production, and similar controls removed from production of major crops, farmers are exercising new managerial freedom to plant what and where they want for best market opportunities. We are making determined efforts to curb excess production and work down excess stocks. Farmers are enrolling farms and acreage in set-aside programs at a record-breaking pace for a second straight year.

We are seeing the Nation's biggest industry--with 4.5 million workers--undergoing a fundamental change of course to gear production to the real demands of markets at home and

abroad. We are seeing farmers attain a new place of importance as they contribute $6 billion to the U. S. commercial trade balance, which is vital to the stabilization of our international economic relationships.

We are seeing the world's finest food production system improve its efficiency, outpace the growth rate of productivity per man-hour of manufacturing industries, and amply meet the needs of our growing population while increasing exports to foreign markets at record-breaking rates. Food is the first law of life--the first claim any society has on its total resources is to assure sufficient food to keep the people well fed and productive--and American agriculture is proving dramatically its ability to fulfill that vital law.

Agriculture is winning the battle over hunger.

Because of the unrivaled productive power of American agriculture, farmers are able to play a leading role in conquering mankind's ancient enemy--hunger and malnutrition. The battle is far from over; it will be long; it will be difficult; it will have to be fought domestically and internationally, by private and public means alike. But we are making dramatic progress.

Here at home, President Nixon's campaign to banish poverty-caused hunger has brought about--during the past three years--the most massive effort ever undertaken in world history and now nearly 15 million people are receiving family food assistance; more than 8 million needy younsters have free or reduced-price

meals in school; and close to 25 million children participate in the National School Lunch Program.

Internationally, millions on millions of people can look forward to more food and improved diets because trade avenues are being opened up so that American farm commodities can flow to Europe, the Soviet Union, Japan and many other countries. My recent mission to Russia was quite in keeping with the changes that are occurring.

Agriculture is gaining strength for greater tasks ahead.

Agriculture's continuing primary responsibility will be to assure our growing population an ample supply of wholesome food. Yet farmers will face other tasks and other opportunities of the first magnitude during the years of this decade. These missions are being imposed by our affluent and increasingly enlightened society--a society of people concerned with the total economic, social, and natural environment, the total setting in which people will live, do their work, and seek their recreation.

We are beginning to see signs that agriculture is gathering strength. Gross farm income this year is expected to reach an all-time high. Phase II economic controls are helping retard the rise in farm production costs. This leads us to anticipate that farmers' realized net income will also set a record this year. If 1972 turns out the way it now looks that it will, farmers' total realized net income will average $16.4 billion for the four years, 1969 through 1972, compared with an average

of $13.8 billion from 1961 through 1968. That's a 19 percent increase--even though it's not enough to satisfy me. The figure for 1972 is expected to range from $17.2 billion to $17.7 billion.

Income per farm is up, on the average, and the same is true of per capita income of farm people. The average disposable income of farm people is catching up some, compared with averages for non-farm people. During the last three years, average disposable income of farm people has averaged 75 percent of that of non-farm people--which is up from 68 percent in the 1961-68 period. We want this to improve, but it's another sign of progress.

We want farmers to do better so that they and their rural neighbors will have more opportunity and a greater incentive to stay in the countryside. We are making progress in that regard, too. The average decline in the number of farms per year during the last three years has been 47,000--compared with the loss of 106,000 farms a year from 1961 through 1968.

The new programs encourage crop specialization, and this is another source of increased agricultural strength. The programs emphasize opportunities for farmers to cash in on improved efficiency and increased productivity. Yet in its broad dimensions, modern American farming also has a remarkable capacity to be diverse and flexible, and this likewise is a significant source of strength. Nowhere is the dynamism of agriculture better illustrated than here in the Southland.

Once this region was largely a one-crop economy, when cotton was king. Your institutions and the experiment stations have been intimately involved with the transformation that has taken place--a process of growth and change still underway and certain to continue. Only two decades ago, few persons could have visualized what wonders the combined forces of research and farm enterprise would perform. The South's agricultural base has vastly expanded with the rapid growth in the broiler and egg industry, the increase in livestock production, revolutionizing of peanut production, expansion of soybean output, and the emergence of wood pulp as a leading commodity.

Double cropping, livestock feeding, catfish farming--new products and new methodologies are looming on the southern agricultural scene. And to a degree far greater than in past years, the Nixon Administration and we of the Department of Agriculture are concerned with improving the off-farm income sources of rural people. We intend to give real meaning to rural development--the generation of opportunities, economic, cultural, and social, all across the board for farmers, for farm families, and for people who prefer to live and work in the rural countryside.

Agriculture will have many problems to solve.

Wehther we of the Department and you of the Land Grant institutions are occupied with commercial agriculture or the broader interests of rural America, we can foresee problems ahead that will call on our best brainpower and manpower to solve them.

Many of these problems--which we prefer to approach as opportunities--relate to the national picture; they relate to trends in the attitudes of city people as well as farm people, to research and technological approaches that ought to be pushed now in order to cope with tomorrow's needs. Tomorrow's needs, and tomorrow's standards, are more easily discernible today than they could have been just a few years ago, because we are becoming more sophisticated in our collection and use of knowledge.

When we speak of tomorrow's needs, we refer, for example, to constraints on natural resources that are likely to be imposed on farmers and other users of land and water. We refer to such controversial issues here in the South as clear cutting in forests and clear channelizing of streams--not to mention mirex and the urgency of controlling fire ants. I refer, of course, to the whole question of how best to preserve and enhance the natural environment, without jeopardizing agriculture's ability to produce sufficient food and fiber.

There is also the all-important problem--and opportunity--of how best to achieve balanced national growth, so that rural America can share meaningfully in the Nation's economic expansion during this decade. Here there is no real line of demarcation between agriculture, per se, and rural development, as far as you and I are concerned. We cannot afford to compartmentalize our attention or confine our efforts to bits and pieces--we need to take the broadest possible view of rural America's future.

The Department of Agriculture is deeply committed to the involvement of young people in all aspects of rural development.

Young men and women who are now under your charge will be tomorrow's decision makers. We urge you to give them opportunities through youth programs and junior leadership experiences to become actively engaged in the work of infusing new energies into our rural economy. Help them get a feeling for community planning, help awaken their awareness of the need for practical land-use policy determination, help them relate to the work of State and local Rural Development Committees, help them assume some part now in the responsibilities for bringing about controlled, healthy change.

The rural development tasks ahead will call for all the talent, imagination, and energy that each of us can muster--and the involvement of today's young people will be vital.

The same is true of our persistent efforts to improve rural income levels, to improve commodity and livestock production methods, or to improve the flow of products from farms to markets.

And the passage of time will uncover new challenges in food quality and wholesomeness. Science is providing more sophisticated detection devices and techniques. They give us greater ability than we had even a few years ago to observe the relationship between animal health and human health, and the potential effects of feed additives, food preservatives, and other substances. Science is providing new insights into people's nutritional needs and the potentials that lie in food production and food processing to meet those needs.

Agriculture will make increasing demands on Land Grant institutions.

Who knows what wonders may lie ahead for agriculture and rural America--in chemurgy, hybridization, artificial photosynthesis, genetics engineering, and what some might call biological farming? Who can guess what impact advances like these may have on our productive capacity, and on our future use of land and water resources? The present pace of change in our world of science and technology is so explosive that they can occur much sooner than we expect.

For the more immediate future, we must prepare now--as we are doing--to take entirely new approaches to crop production with emphasis on biological pest controls, for instance. To achieve success, we will need a "total systems approach" to this and all the other problems of agriculture and rural America--better decision-making techniques, better skills, better ideas. And this is where your role takes on paramount importance.

We shall need to mobilize all the resources of education and research to serve all the people of America--because to a greater degree than ever before, the task of agriculture during this decade will indeed be that of serving all the people. Supplying their food. Producing their fiber. Providing much of their home building materials. Safeguarding their precious environmental assets. Creating new opportunities for enjoying life in the countryside. Relieving the pressures of overcrowded cities.

The scope and multiplicity of the tasks ahead are so great that the maximum cooperation of Federal agencies, State institutions, local governments, private organizations, and rural people themselves will be essential. We of the Federal Government can help in many ways--we are already doing so and intend to do more. To cite some examples that come readily to mind--the new Animal and Plant Health Inspection Service, designed to advance health protection and save farmers money; the commodity marketing teams that are making a crash effort to develop new and innovative guidance for small farmers; the new Rural Development Service and expanded credit programs of the Farmers Home Administration; the current intensification of research on pest management methods.

But as we zero in on the problems of farmers and rural America during this decade, it becomes increasingly obvious that critical responsibilities will rest on you. Agriculture will need the best people it can get. Rural America will need the best leadership it can get. The complex of business and industrial enterprises that serve and supply farmers or process agricultural commodities will need the best personnel they can get. And governmental organizations at all levels that are serving agriculture and rural America will need the best talents they can get. Your institutions will be the chief source of supply.

The decade ahead will be full of excitement and accomplishment. We are linked together in a great agricultural industry.

We are bonded together by that industry's great needs. We are joined in service to great people--the farmers and rural residents of our country. And our greatest challenge--our greatest need--our greatest opportunity of all--will be to develop people who can carry forward the missions of agriculture and rural America triumphantly.

REPORT OF WORK GROUP I

"STRUCTURING AN ORGANIZATION TO EFFECTIVELY IMPLEMENT PROGRAMS IN COLLEGES OF AGRICULTURE"

1. Agriculture should occupy a position in the organizational structure of the college or university at a level sufficient to adequately implement the programs which are necessary to achieve the avowed goals of the land-grant institution.

2. It is recognized that there is no one organizational pattern that guarantees successful administration of college programs. Whatever organizational structure evolves, consideration should be given to the total program and the nature and scope of its responsibility.

3. The designation of an individual with administrative responsibility for coordination of all areas of the program is a very necessary component of the success formula for effective management of an agricultural school or college.

4. The nature of the program, in terms of such factors as scope and goals, should dictate the need for designating an administrator of each of the several elements of the program of agriculture.

5. Coordination between the land-grant institutions founded in 1862 and those established in 1890 is absolutely essential in extension, and very necessary in research and teaching.

6. The breakdown of the organizational pattern of agricultural colleges and schools into departments should be kept

to a minimum, consistent with the size, scope, goals and diversity of the programs of extension, research and teaching. Over-departmentalization tends to create operational barriers to faculty efficiency.

REPORT OF WORK GROUP II

"REALIGNMENT AND READJUSTMENT OF PROGRAMS OF AGRICULTURE"[1]

The members of our group felt that we had the most "relevant" topic of all--because the maintenance of relevant programs demands a rather constant realignment and readjustment of effort--the topic assigned to Group 2.

First we must recognize there is no one good measure of the relevancy available. Relevancy is largely a value judgement and frequently only a historical perspective will tell us whether our efforts were relevant at a given point in time. For example, four or five years ago many people would have said that our research efforts on corn blight were not very relevant. Yet almost overnight these efforts became some of the most relevant things we were doing--for very obvious reasons.

We must recognize that we can never be able to anticipate when a corn blight situation may conceivably develop. Generally, however, how relevant we are today indicates in a large measure how forward looking we have been in the past.

While this conference is concerned with relevancy, it was suggested that everything we do might not necessarily be required to meet every measure of current relevancy we might wish to apply. Certainly a university should have the freedom to engage in some efforts which might not be considered relevant in the light of the current circumstances--but, from a longer frame of reference, might become exceedingly relevant at a later date.

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[1]Introductory statement prepared by E. T. York, Chairman of Work Group II.

We discussed at length our ability to anticipate problems that will face us tomorrow. We talked about long range planning--we talked about our capability to look ahead and plan our programs in such a way that we might try to make them relevant tomorrow.

We recognized the rapidly changing world in which we live and emphasized that we must either anticipate, plan for, and adjust to these changes--or we suffer the likelihood of literally being run over and trampled under by the onrush of such change.

By looking ahead and anticipating change we can frequently prevent undesirable changes from occurring--or as Secretary Butz put it, "We can be the architects rather than the victims of our environment."

Our group emphasized strongly the value of long-range planning as a first step towards realignment and readjustment of programs to maintain program relevancy. There is an old adage which seems to apply here--"planning without action is futile, but action without planning is fatal." Too frequently we find ourselves spending most of our time putting out fires and not devoting enough effort to the sort of planning which could help prevent the fires from breaking out in the first place.

We talked about how we might evaluate program relevancy. One university indicated that they sent questionnaires to their students several years after graduation to get their views on the relevancy of their courses and curricula.

Many institutions are using advisory committees from industry or other clientele groups to help them evaluate the relevancy

of their programs. Others bring in colleagues from other institutions or consultants to help them review their programs. It was generally agreed that there was need for program evaluation by external groups.

We talked about adjusting programs to keep them relevant--and the difficulties we frequently face with shifting priorities and needs when we find ourselves with serious financial constraints, little money, a system of tenure which lessens our flexibility in terms of personnel management, etc.

We talked about one approach being used to help us respond to changing needs and priorities. Some institutions are following the practice of taking every position which becomes vacant and reassigning it, not necessarily to the department or unit from which it comes, but to the department which might have the highest priority and need. In addition to enabling an organization to respond to new priorities in a more rapid manner, this also encourages department chairmen constantly to reappraise their programs, priorities, needs, etc.

The speakers on yesterday's program all emphasized the problems of rural areas as being of very relevant concern to us all. Many of us for years have been talking about the unique capability of land-grant universities to deal with such broad-based problems as rural development. We in agriculture have recognized that these problems require expertise from many parts of the university outside of agriculture and we have said that we could mobilize resources from throughout the total university if necessary to deal with these problems.

We recognize that while this sounds good and on paper it is possible for us to do this--in practice it frequently has not worked out that way. Many other parts of the university don't have a service concept or commitment as Colleges of Agriculture traditionally have. Many have negative reactions because of their desire to consult for extra pay rather than to do this as a part of their university assignment.

We would ask those of you from Central Administration--presidents, chancellors, academic vice presidents, etc.--to be conscious of this problem and need; and if you think such a service role for parts of the university other than agriculture is important, we in agriculture need your help in motivating some other areas of the campus to join with us in working on some of these important problems--such as rural development--which demand the expertise from many segments of the university.

1. New and Innovative Programs and Systems of Education in Agricultural Sciences

We discussed the idea of shortening the time required for degree programs; for example, the three-year degree program.

Concern was expressed that the term, "years required for a degree," is less appropriate than the "level of knowledge required for a degree." It appears in this era of the explosion of knowledge that requirements based on knowledge to be learned in a field may be increasing rather than decreasing.

We should be flexible in the manner in which we adapt and evaluate progress in the education of our students. We don't

feel that arbitrary 3, 4, or 5 year tracks are necessarily appropriate as requirements but we feel that flexible programs designed to effectively educate students for career opportunities should be encouraged. As changes are made the adjustments should not be made by external agencies to save a few dollars.

We should be willing to innovate and to try new approaches. It appears that the institutions represented in our group are already using a vast array of experimental devices such as credit-by-examination, advanced placement, College Level Examination Programs, and correspondence courses which in practice enable students to move into programs at the level of their capability and hence provide appropriate mechanisms for shortening the time required for on campus educational experiences.

Several schools presently have degree programs which enable students to tailor their own curriculum to meet their career, educational and cultural goals. Such flexibility should be encouraged.

Opportunities are provided for students to gain credit for educational involvement in off-campus or community-based experiences. A few schools have cooperative programs with industry; most schools reported that mechanisms now exist or are planned for early implementation which provides for opportunities for internship experiences. These independent study, special project, or internship courses allow variable credits towards graduation.

We agreed that such learning experiences have educational value and we encourage each individual institution to look at

such programs on an individual institutional and educational basis. At the same time we would not like to infer that all off-campus experiences are worthy of college credit.

A variety of innovative approaches is being used on most campuses. In most cases audio-tutorial techniques, closed-circuit TV, tapes and programmed learning are being used in a limited way. It was generally felt that these approaches are most effective when used as supplemental educational devices. It was recognized that such approaches, when effective, are expensive.

2. Cooperation Within and Between States

Many examples of cooperation were cited as having been initiated between intrastate institutions. Such cooperation has been fostered by SREB's Council on Higher Education in the Agricultural Sciences. As a result of the dialogue encouraged by SREB and the U. S. Department of Agriculture we now have established a basis for much closer cooperation and collaboration. Such efforts have been very timely for now that funds have become available we can move to significant levels of cooperation, thereby making more effective and total contributions to the solution of agricultural problems.

CSRS has supported most of our successful regional programs in agriculture and SREB has been active in encouraging and bringing us together in other regional cooperative ventures. For years a lot of lip service has been given to regional cooperation. Now that we are all faced with budgetary constraints

perhaps we can get serious about the concept of regional or interstate cooperation. Our problems are vast. Solutions will require more complementary actions, more sharing, and wiser uses of these resources. The need exists for cooperation in each of the three facets of our programs: in teaching, research, and extension. Each college of agriculture teaches too many graduate courses with three, four, or five students in a class at excessive costs. The time has come for us to look at our programs and to explore ways and mechanisms of cooperation, trade-offs and sharing. It was suggested that we start with a few obvious areas involving a limited number of states (three or four) and as the cooperative efforts succeed, expand the activity to a regional operation.

We urge the presidents and chief agricultural administrative officers gathered here to encourage their leaders in research, teaching and extension to give positive and serious consideration to planning and implementing programs of regional cooperation. We also suggest that the appropriate regional bodies for research, extension and teaching give attention to the development of positive mechanisms for implementation at their regional meetings.

3. Responsibilities of Colleges of Agriculture for Non-Degree Programs

A recognized need for trained personnel exists in all states, especially at the agricultural technician level. In general such needs are not met. Some state-supported community colleges and technical institutes are attempting to meet this

need. In many cases they lack the equipment, staff, facilities and resources to provide adequate training. Employers needs indicate that this educational service is needed in agriculture and has not been provided effectively to date. If the job is going to be done, and it should be, who can do it better than the colleges of agriculture? Colleges of agriculture have traditionally responded to the needs of the state. While there will be objections on the basis of "This is not the responsibility of a university," or "It is not university level work," we alone seem to have the capability of accomplishing the job and meeting the need.

We feel that it would not be inappropriate, after study and development of basic requirements, for students who drop out of programs after two years of study in the regular academic program to receive associate degrees. Where technical courses in agriculture are taught in community colleges there should be close coordination with appropriate faculty in the colleges of agriculture.

4. General or Specialized Education in Agriculture

We should recognize that colleges of agriculture have responsibilities and should participate in the general education of students in the rest of the university. It is imperative that agriculture not neglect this opportunity. Where else will the citizens of tomorrow obtain the foundations for dealing with such basic issues as man's foods, consumer protection, nutrition, and environmental quality?

When we asked, are your programs becoming more generalized and more specialized, the response was, some are going in one direction and others in the opposite direction. Some concern was expressed about the effect general degree programs would have on the college environment. In general it was felt that we should provide an array of appropriate general education courses; however, students should use such courses as an educational supplement to the existing basic or professional curricula.

The question, whether general education should take place during the earlier or later years of a student's education was discussed. Several schools are presently distributing or are considering spreading these requirements over the entire four years and bringing a few of the courses in the major into the first two years. SREB should provide the leadership in developing some innovative programs for pilot or case study in the region.

5. Accountability for Programs, Public and Administrative

We in agriculture have a high degree of accountability for what we are doing. When a classroom teacher meets his classes and is effective with his students and colleagues praise him, he is a good teacher and is accountable. If he carries on pure or basic research, he can take pride in his work and is accountable to his peers or his grantors. Accountability for faculty in agriculture includes all of these facts, but is far more demanding. They have the additional requirements imposed to get the job done and to produce results which not only solve problems but also get the solutions into the hands of those who can use them.

## REPORT OF WORK GROUP III

## "RELATING AGRICULTURE TO BUSINESS AND INDUSTRIAL USAGE, RURAL AND URBAN DEVELOPMENT"

Initial statements, observations and suggestions ranged over a broad spectrum of concerns, concepts of responsibility, and innovative efforts to increase the relevance of programs in agriculture to industry and development fields. Only the most widely accepted within the work group are reported below as recommendations:

1. Planning Educational Programs to Prepare Students for Business, Industry and Development Careers

After lengthy discussion it became apparent that one of our difficulties stemmed from the fact that in some of our agribusiness curricula, for example, we have attempted to achieve the desired result by adding some courses from business administration to courses in agriculture production. The group was rather unanimous in its conviction that any such curriculum must a) incorporate concepts and practices of financial planning, marketing, debt service, legal constraints, etc., and b) most importantly, be synthesized from the outset rather than collected. Although no definitive plan was recommended to achieve this goal, certain procedures and programs which have the potential of achieving relevancy were described. Among these were: a) providing mechanisms for granting credit for work experience, b) student internships wherein students are employed to work with small firms in rural areas, and c) a "Faculty,

Industry Enrichment Program" wherein selected faculty are permitted to go out into industry for a few weeks to work shoulder to shoulder with managers of agricultural businesses. In this latter program it is hoped that the attention of the faculty may be focused on the contemporary problem areas in agricultural businesses.

Incidentally, it was observed that the cooperative education programs that we are all familiar with may not be especially useful in agriculture primarily because most students are reluctant to extend the period required to obtain their degree.

Much less discussion focused on problems of rural and urban development than on agri-business, perhaps because there is less certainty of what is included than is understood in the case of agri-business. However, there was at least a strong assertion that problems of pollution, waste management, and land use must receive greater attention by faculties in agriculture. It was pointed out that air and water quality regulations impose restrictions on farmers and other agricultural industries and that the colleges of agriculture have a responsibility and capability to render service in this area. However, an immediate problem is how to bring people together and focus their attention on these problem areas. Although there was recognition of this responsibility on the part of those in the work group, the discussion did not follow up with ways of coming to grips with the problem. It was observed in this, as in all other efforts, that communications with the groups involved was often difficult but always essential.

A further point brought out with respect to rural development was the need for leadership capital. Young people who are able to do so get out of the withering rural communities and do not go back. The observation was made that if we can engage faculty in development in foreign countries we should be able to find a way to involve them similarly in rural and urban development at home. The colleges need to pool their resources in the development of some pilot programs to implement rural development concepts and to adequately provide agricultural services in programs of urban development.

It was suggested that there was a need for the general agriculture curriculum. It seems to be necessary to broaden the education of the undergraduate and simultaneously equip him to specialize after gaining employment. This single degree program might more adequately serve the needs and reduce the costs of education in colleges with small student enrollments.

2. Exchange of Personnel between Colleges, Business, Industrial and Developmental Agencies

Although recognized as beneficial, the exchange of personnel with other colleges and developmental agencies is difficult to arrange. However, by incorporating flexibility such as the notion of the mini-semester or other short-time arrangements, selected personnel can be utilized advantageously. It is difficult to coordinate programs with developmental agencies, but rather innovative programs may be developed by bringing in professional staff from such agencies for special seminars, intensive periods of concentrated study or short courses.

3. Professional Re-orientation of Faculty

It was generally agreed within the group that professional re-orientation of faculty members is a difficult objective to achieve and in many instances impossible or impractical. However, the need exists and there are several things that may be done. Much greater use should be made of sabbatical leaves even if the individual does not change his major field of interest significantly. An additional program could be inaugurated granting selected faculty short leaves on salary to work alongside managers in industry and developmental agencies. Additional suggestions included: a) outlining and funding a multidisciplinary research project and soliciting interest of selected faculty to participate in the project, and b) development of special intensive workshops similar to those that have been and are being sponsored by SREB.

4. Experiential Teaching-Learning

Recognition that most learning takes place outside of the classroom emphasizes the opportunity to make programs of education more relevant by granting credit for planned and supervised internships and similarly arranged programs of work experience. In fact, it was suggested that if it is a desirable component of education for a group of students then it should be required of all who have not had the experience. It was recognized that this might be difficult to implement when the number of students is large.

5. Maintaining Continuous Relevance: People-oriented Programs

Discussion in the group brought out several points dealing with people-oriented programs. It was observed that all of the components of rural development are encompassed within the mandate of the land grant institutions but that we probably do not know or understand all of the issues involved in rural development and that consequently we will need to learn much more about it. Several suggestions were made which would provide greater assurance that all programs in the future will be relevant to people problems. Among these was the suggestion that in addition to working with individuals, extension may need to work more with institutions, and research groups should be organized to back them up. Such research groups would have more specifically defined objectives in terms of people problems. Further discussion brought out that we need to bring into the programs of the colleges of agriculture additional talents other than those focusing on production agriculture. It was suggested that this might be achieved by developing new partnerships within our universities, by maximizing cooperation among colleges and possibly by adding these additional talents to our present faculties.

REPORT OF WORK GROUP IV

"FINANCING AGRICULTURAL PROGRAMS"

1. State Funding to Adequately Support Growing Demands for Agricultural Programs

The 1862 and 1890 institutions should work cooperatively in developing a joint budget request based on the needs of both institutions. Joint appointments of faculty members between the two institutions in each state should be encouraged in order to foster closer cooperation.

The basic formula for supporting teaching programs in agriculture should be weighted to take cost (the expensive facilities and equipment required in agriculture) into consideration. Formulas based entirely on numbers of students result in insufficient funding for teaching programs in agriculture.

In order to obtain this consideration, it must be shown that programs of instruction in agriculture have unique requirements that necessitate additional funds. SREB is encouraged to identify the unique requirements of programs of agricultural instruction that increase costs and to urge the state legislatures to take these requirements into consideration when funding programs of instruction in agriculture.

A strong program in instruction is dependent to a large extent upon strong programs in research and extension, therefore, states should also be encouraged to meet the increasing needs of these programs.

2. Developing Legislative Support for Agriculture on State and Federal Levels

For the past three years, federal teaching funds provided under the Bankhead-Jones Act have not been recommended by the executive branch of the federal government. Since Bankhead-Jones and other funds appear in jeopardy, other sources of state and federal funding must be sought.

In order to gain the support of the consumer, the state legislature and the National Congress in acquiring additional funds, the positive story of agriculture must be told through personal contact, brochures, news stories, radio and TV programs.

If an effective organization does not exist within a state that works actively with the state legislature and the National Congress for agricultural funding then an organization for this purpose should be formed.

3. Developing Sources of Extramural Support for Agriculture

Various foundations are receptive to funding programs for which there is a need. Here again a cooperative effort between the 1862 and 1890 institutions is the most effective approach in acquiring these funds. SREB is encouraged to help in expanding their avenues of support by working closely with funding agencies and the Office for Advancement of Public Negro Colleges.

4. Funding and Administering Regional Programs in Agriculture

Regional programs should be encouraged in the areas of need and wherever cooperative interest is expressed.

Methods of funding and administering regional programs should be worked out by SREB through formal agreements prior to the initiation of such programs.

Funding should come from whatever source is available. Foundation sources offer promise in some areas, especially rural development.

SREB is encouraged to identify problem areas that can be solved on a regional basis.

5. Accountability

Once research, teaching, and extension programs have been developed on basis of relevant needs of agriculture and the people, their accountability boils down to telling the story of what is being accomplished through these programs.

Duplication of research effort, proliferation of course offerings, and the development of programs that have little relationship to existing problems must be avoided in the college, state and region.

Funds must be spent for the purpose intended and in such a manner as to provide agriculture and the public with the greatest returns possible.