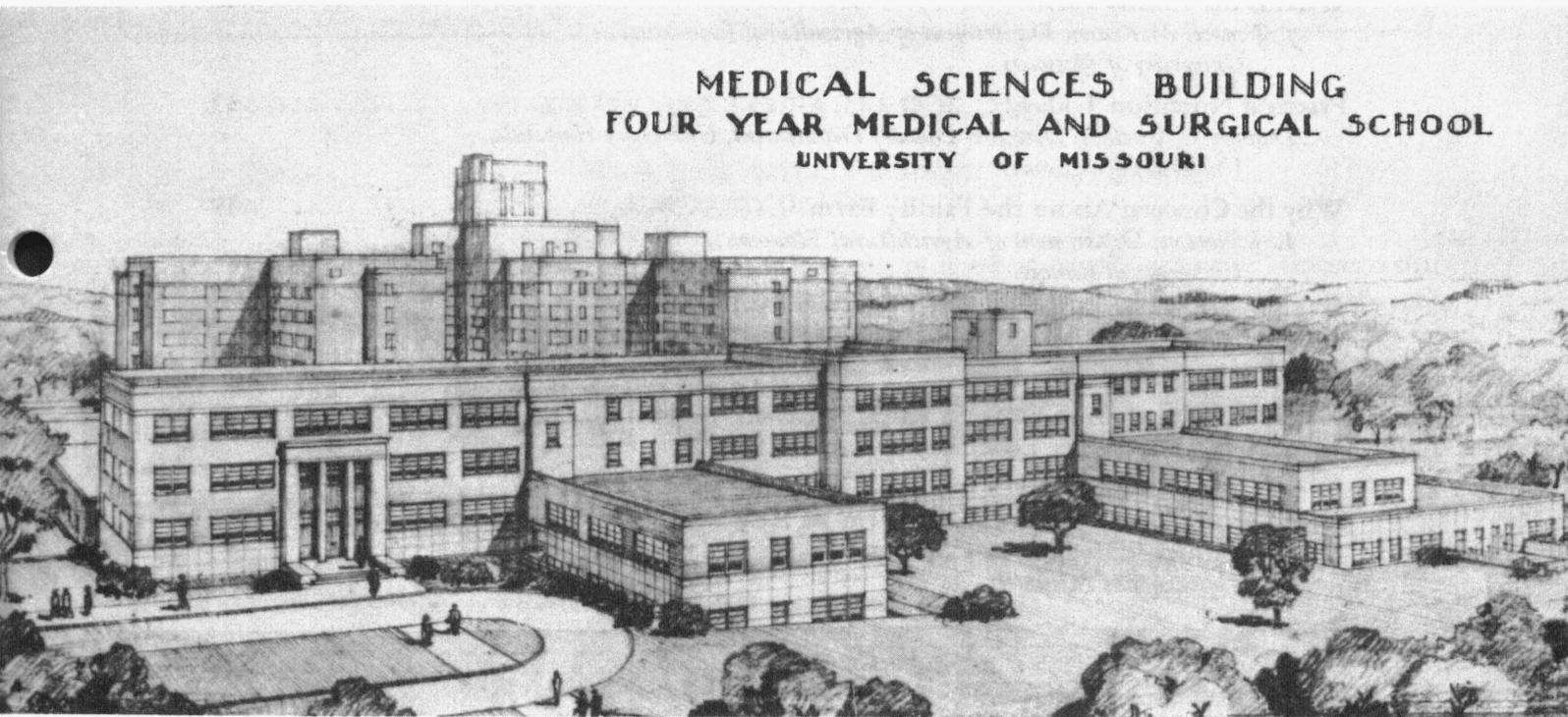


Addresses Presented at

Sixth Annual Farm Forum

MEDICAL SCIENCES BUILDING
FOUR YEAR MEDICAL AND SURGICAL SCHOOL
UNIVERSITY OF MISSOURI



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J. H. LONGWELL, *Director*
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Note: Dean Pullen spoke from notes. Therefore, a copy of his address was not available for inclusion in this publication.

INTRODUCTION

The information included in this pamphlet was presented to those in attendance at the Sixth Annual Farm Forum on Public Policy. Present development of the four-year medical program by the School of Medicine suggested this was an appropriate time to discuss the rural health situation in the state and the proposed approach to this situation by the faculty of the School. The fine cooperation by Dean Pullen and the faculty members of the School of Medicine is greatly appreciated.

The family has been for a long time the social and economic unit of farming. Agriculture is being affected profoundly by the applications of science and technology to farming and the farm family inevitably feels the effects of these changes. Many people are fearful that the family farm is destined to be replaced by an industrialized type of agriculture. The discussions at the Farm Forum are intended to develop a clear understanding of the meaning of the term "family farm," and of the probable future of this system of farming.

Farm Forum programs are planned to present, as nearly as possible, a complete picture of the subject under discussion, but no attempt is made to draw conclusions or to make recommendations. The discussions are reproduced in this form so that anyone who is interested may review the information and arrive at such conclusions as he believes are justified.

J. H. LONGWELL
Dean and Director

WELCOME TO FARM FORUM

ELMER ELLIS, ACTING PRESIDENT
UNIVERSITY OF MISSOURI

The Farm Forum is a relatively new program at the University of Missouri. It is based upon a conviction that the agricultural interests of the State need not only technical information about how to produce and market agricultural products, but that the people of the State need also to have the means of deciding sound public policy relating to agriculture. These are accurate information about policies from experts and adequate presentations of the alternative policies that are open to us. As our society has grown more complex, planned discussion has become more important in making democratic decisions. There can be no adequate adult education in agriculture unless we have such discussions.

In assuming this obligation, the University runs risks of being misunderstood by sincere people. Advocates of one policy or another are bound to feel at times that some other point of view has been better presented than theirs, and in spite of all the University can do to keep the balances even there will be times when there will be some basis for such a feeling, as we cannot be infallible.

The safe and conservative thing for a university to do is to do nothing, withdraw from the field of adult education and confine its activities to teaching, research and extension which stays out of the field of public policy. Such a program would be the exact opposite of what we conceive an effective state university should do in the field of agricultural policy. The position of the University of Missouri is that, in spite of the risks of misunderstanding, our democratic processes require that the University bring to its farm people programs of this type, in order that they will be more able to come to intelligent decisions on policies that affect them and all other elements in our population. At the same time the University accepts the responsibility here as it does in all its activities, that its teachers shall be true scholars, imbued with zeal for learning and for teaching, mature in their judgments and open minded in their search for understanding. That they are free from pressures from the outside and from the inside of the University is a corollary of their scholarship and a basic essential for sound teaching. To maintain these in this program is part of our responsibility.

CRIPPLED CHILDREN'S PROGRAM IN MISSOURI

ARTHUR W. NEBEL, DIRECTOR, SCHOOL OF SOCIAL WORK
UNIVERSITY OF MISSOURI

It seems appropriate that I report to you on a program which was originally designed for rural children. The 54th General Assembly in 1927, passed a law for the care and treatment of Missouri's crippled children— —and appropriated \$25,000 that year. Since that time, appropriations have been increased to a considerable extent. The question might be asked as to what is the State Crippled Children's Service? This service is a public tax supported program to provide medical care for crippled children.

The Board of Curators of the University of Missouri is responsible for the administration of the service. Missouri is somewhat unique in this respect in as much as only three other states have the administration of the program lodged within the framework of their state universities.

From 1927 to 1935, The Crippled Children's Service was financed entirely by state funds. Since 1935, it has been financed jointly by state and federal monies. For example, for the past year, the state appropriated \$500,000 while the federal government allocated approximately \$214,000. Title Five of the Federal Social Security Act provides that federal money shall be used for the benefit of crippled children living in rural areas and for children in areas of economic distress. The policy of the state service in the past has been that in metropolitan centers, service will usually be provided for the physical restoration of their own crippled children.

What children are eligible to the service? Any child under twenty-one years of age whose parents are unable to pay for private care and who, in the opinion of a regularly appointed physician may benefit from treatment, may apply for free care. This provision is inherent in the law. In addition to this requirement, it is a policy that a local family physician in each instance, attest to the fact that the child is in need of treatment by filling out a report as to the medical opinion of the matter.

Anyone may refer a child for examination and treatment. Some of these sources of referral are physicians, parents, teachers, and public and private health and welfare agencies.

The State Crippled Children's Service is a highly decentralized program and maintains contracts with various hospitals over the state as treatment centers for these cases. Several such centers are located in St. Joseph, Kansas City, Columbia, Springfield, Cape Girardeau, and St. Louis. These treatment centers handle the necessary hospitalized out-patient clinic service and any other necessary aspects of treatment. Periodically, itinerant clinics are held in certain locations throughout the state. These itinerant clinics are largely diagnostic in nature, but they also serve the physician by checking up on old patients. Some of the physical conditions which are eligible for care are as follows: post-polomyelitis, diseases of the bone, cerebral palsy, wryneck, accidents, bow-legs, club feet, dis-located hips, curvature of the spine, birth injuries, cleft lip and palate, birthmarks and burns.

The service does not handle such conditions as communicable diseases, sight and hearing defects, mental diseases, diabetes, diseases of the lungs, hernia, and infectious diseases, unless such above conditions are found in the same case along with a major orthopedic or plastic problem.

The services offered under the crippled children's program are case findings, diagnosis, hospitalization, out-patient clinic service, convalescent care, field nursing service and medical social service. While medical social service is not universally available in the program, it is encouraged in each of our contract hospitals and will only increase when such personnel becomes more available.

Out-patient and hospital services include surgical and medical care by qualified orthopedic and plastic surgeons, and consultants in all medical specialties. Also included are adequate nursing care, x-rays, laboratory tests, drugs, appliances, physical therapy and occupational therapy plus medical social service when available.

Some children often are able to be discharged from the hospital, but unable to return home for a medical reason. Such patients are often placed in convalescent homes so that they may continue to receive adequate nursing and medical supervision. In addition, these convalescent homes offer physical therapy, occupational therapy, schooling, and recreation commensurate with the needs of the child.

One of the most important features of the crippled children's program is the field nursing service offered throughout the state. Each field nurse has a district of several counties within which she is responsible for case finding, arranging for care of eligible crippled children, plus the follow-up care after the child returns to his home from the hospital or clinic. She works closely with the treatment centers in behalf of each child under her supervision. She also has the responsibility of coordinating and cooperating closely with local public health nurses who also assist in getting crippled children under care.

One very important service is the transportation of children to and from the treatment centers. It has been a matter of policy for the State Crippled Children's Service to encourage that such transportation be provided locally through the community's own resources. Throughout the state many civic clubs and local farm organizations plus other agencies provide the transportation. This gives a certain amount of local participation in the program which we feel should be encouraged.

Many of our crippled children cases are in need of special attention. In many instances when a child is so handicapped, we refer the problem to school authorities who may arrange to either have a class for handicapped children or may provide special teaching for the home-bound child. Each school district may finance such instructional work through special funds available through the State Department of Education.

Since many of these children are in need of special attention to prepare them for vocational pursuits, the state service arranges to refer any handicapped child, when he reaches the age of 17, to the State Vocational Rehabilitation program. If he is accepted by this program as trainable, he is carefully guided toward a vocation, trained and helped in procuring a salaried job. If after he is 21 years of age and still needs medical attention, the Vocational Rehabilitation Service will provide it in much the same manner as does the State Crippled Children's Service.

As of June 30, 1954, there were 16,274 known crippled children in the state of Missouri. There were probably more who did not come to our attention and therefore were not registered. Of course, not all of these 16,000 or more children are eligible for Crippled Children's Services since many of their parents can afford to pay for the medical care. From this group however, many children are from medical indigent families and require financial assistance for their medical care. About 2,000 new children per year are placed on the Crippled Children's register.

During the past fiscal year, 3,627 different children received services under the State Crippled Children's program. During this same fiscal year, 24,141 hospital days of care were provided and 10,166 clinic visits. In our two convalescent homes, 11,212 days of care were provided those children who could not immediately return to their own homes. A total of 659 itinerant clinic visits were extended to 220 different children.

Many Missouri communities have indicated the need for services to children with rheumatic fever. The State Crippled Children's Service recognizes this need but has never had sufficient funds to extend this service on a state-wide basis. A public medical care program such as this expends its money in behalf of these children for two specific reasons. One is to satisfy the humanism which all citizens feel toward such a handicapped group, and secondly, to prepare these children to become tax producers instead of tax users.

RURAL MEDICINE IN MISSOURI

DR. ARCH E. SPELMAN, CHAIRMAN, COMMITTEE ON RURAL
MEDICAL SERVICE, MISSOURI STATE MEDICAL ASSOCIATION

Like the general advancement of medical schools so the advancement or betterment of rural medical service has taken place in Missouri. And, like all social problems, the solution always creates new problems. Thus it is

ever necessary to reassess our position and to bring some of the details into proper focus. And this is the subject we have been asked to discuss.

When we speak of medicine in the rural communities it usually carries with it a little different viewpoint than when considered in the urban areas. Medical service in the city is generally considered just what it is, the diagnosis and treatment of disease by a licensed practitioner of the healing arts. But, in the rural areas it creates the connotation of nearly all matters pertaining to health; that because traditionally the rural practitioner of Missouri has been the general doctor or practitioner as is usually said, and it was his accepted responsibility to supervise all matters of health. And, when we speak of health matters and the doctor of medicine at the same time we create a misconception which may have had a great deal to do with the delay of better rural health facilities.

When we study health matters, we see that they can be broken down into the problems of society in which the practicing doctor's duty, that of diagnosing and treating diseases, becomes only one of the factors to consider. Health problems anywhere, but more particularly in the rural areas, must recognize the problem of sanitation, of nutrition, of immunization, of hospitalization and prepaid medical insurance along with the diagnosis and treating of disease. And if we assess these matters in their importance, many social students have estimated the latter as only 15% of our problem.

When we speak then of rural medicine and only of the specific duties of the general practitioner, we have 85% of our problem left out of consideration. Traditionally, the doctor has been asked to solve or serve as the supervisor for solving these problems. He was the health officer in general, he looked after contagions, checking the water supply of the community, complaining to the city council when sanitation in the community was not what it should be. He kept a running mental note on the immunization of the children and undertook to stem general epidemics of such things as typhoid fever by general immunization. He tried to educate his community concerning nutrition, prescribed cod liver oil for the children, complained about the over-indulgence in unhealthy foods. He tried to find hospitalization for people and more often begged for their care in the urban hospitals for those unable to meet the financial burden. He often improvised some type of hospital in an old home or in his office and he preached budgeting to people to make it possible for them to pay their hospital bills, if he had the gall to mention money in connection with health.

And so, the general practitioner did a very good service and perhaps all that could be expected in its time. But with our increased understanding of medicine, our better transportation and communication facilities, more is demanded and with society becoming more complex all the time because of better transportation and communication facilities, the people themselves are becoming more demanding in matters of health. And so, the general practitioner in the country is finding himself unable to meet these demands and partially in self-defense, gives up and moves to the urban areas and maybe to escape the responsibility becomes a specialist. And, the rural community loses another doctor and complains bitterly of lack of medical and health care.

Now, if they complain, who do they complain to? There is no agency with any authoritative power to do anything about it. And so, it looks like the problem is one for the people themselves. For some reason, both religion and health have been social matters about which a large number of people have always held the view that they should be free. Free, not only for the asking, but they should not even have to ask and frequently expect to have it rammed down their throat. But medicine, or health, have become factors in society that cannot be divorced from economics. And no place can the economics be so simple as in the rural areas where many health problems can be solved by nothing more than the interest of the community in learning how the individual can solve them for himself.

Many years ago I wondered if the idea that was then held that rural people were too poor to have good health or medical facilities was true. Since then we have spent a great deal of effort and money in studying this. Today, we are thoroughly convinced that the rural people in general are less healthy than people in the urban areas. This is contrary to the general belief. We are also convinced that rural people are more able economically to solve their

health problems than people in the city. It has been their lack of leadership and the lack of recognition of their own responsibilities that has kept them from getting the best health services in many instances.

What we are trying to tell you is, we can solve our own health problems in rural Missouri on a local basis. It is our responsibility to solve our own health problems on a local basis. The doctor has the responsibility of making every effort to cooperate and aid and advise in health matters in his own community, but he is no longer entirely able to carry the burden of solving the 85% of health matters other than that pertaining to the practice of medicine.

This does not mean either that the doctor has no responsibility left in the general health problem. He is a citizen and has always been very conscious of his responsibility as such. He can do much in guiding health problems in cooperation with other responsible citizens. It is our purpose at this time to attempt to point out in a general manner how an improvement in the general health may be accomplished with the aid of many things that are already at hand.

One of the most needed things is local leadership. Every community has health needs that are peculiar to it. To attempt to lay out a health program to clamp on every community and rigidly execute it is foolish. Local leadership must be developed to study the individual community needs and the means for improving or correcting deficiencies. One of the best ideas for developing local leadership of which I know is the county or community health council.

A few years ago a group representing the Missouri State Medical Association, the Osteopathic Association, the Farm Bureau, Missouri Farm Association, and various other similar organizations to the number of twenty-five, formed the Missouri State Health Council. This body has actively studied and served as a forum for health matters in general in Missouri. They serve as an advisory group to help establish county health councils of which there are now a considerable number in the state.

It is difficult to define a health council, it is a voluntary group of responsible citizens banded together to make an effort to disseminate information and serve as a local forum for discussion of local health problems. That falls far short of expressing its potential. I think one of the best definitions I have heard came from a woman in our county when she said "Well, it is just like the Indian's pow-wow. They gathered together and exchanged ideas and all were enlightened and a program for action was developed." These health councils can serve a great purpose in developing leadership among the people and to come to conclusion for a concerted action of the public in general.

The monetary means can be gained by taking advantage of an act of the state legislature a few years ago in which they allowed a county to vote a mill tax to be used for public health. This group now as a health unit can be established to carry out local projects. It can serve to enlighten the public in health matters, to study and correct sanitary measures to aid in public school health programs, to look after immunization.

Many counties are taking advantage of this act of the legislature. Much commendation should be given the eleven counties in South Missouri that have done this. Carter County with a population of less than 5,000 has set up such an organization. We can expect great improvement in health conditions in these counties. It will be necessary, however, for the responsible citizens to stay alert in their health council programs and help guide and cooperate with the health units.

We have in Missouri a very fine public health department. It is very active, efficient, and has accomplished a great deal and should be commended particularly because of their limited budget. But the state public health department neither has the means, the facilities, or the authority to accomplish anything but the most limited health measures in the individual community. They do, however, willingly serve as advisors and may guide local leadership most effectively.

The doctor situation itself in the rural part of the state has been a growing problem for the last 25 years. The doctor has been attracted to the city for one reason or another and the local rural areas have suffered sometimes for lack of easily available medical care. This has been of considerable concern to the Missouri State Medical Association and for a number of years there has been a vigorous and organized effort by the Association to cooperate with communities needing a doctor and helping the doctor to locate in such communities. The Medical Association has had considerable success in this but admittedly there are many places wanting doctors that do not have them. Sometimes it is because the area is not sufficiently populated to support the energies of a doctor. Sometimes it has been because the community did not have public facilities that would persuade a doctor to settle there. And there have been many other reasons why the wishes of the public could not always be satisfied.

There probably is no actual shortage of doctors in Missouri, it is largely a matter of what might be called unsatisfactory distribution of them. There is much that can be done by the local citizenry to attract doctors.

A popular idea in recent years has been to place a hospital in every community. While this has some very fine advantages there are some very practical disadvantages. To operate a hospital with the idea of doing the most good and the least harm requires a great deal of money. The economic structure of many communities would not allow the operation of a hospital. Better roads have brought hospitalization time-wise to many communities.

If a community, however, actually needs a hospital there is probably sufficient economic strength to build and operate one. A great difficulty has been in developing a concerted effort of the citizenry to band themselves together and lay aside all prejudices among them to try to accomplish what is the best thing for the general health of the people. If that is done there are few communities that cannot establish an adequate hospital service.

Another great need in the rural area for improving health is to aid the individual in solving the economic problem that is always associated with it. We now have 90 million people in the United States, more than one-half of our entire population, who are paying for some type of pre-paid medical insurance. More than one-half of this is handled by the non-profit Blue Cross and Blue Shield organizations. We still have, however, an inadequate system of enlightening and encouraging the rural people to budget for their necessary medical care by buying worthwhile prepaid medical insurance.

Here the health council can serve very well to help distribute the information necessary to encourage people to look ahead and attempt to save themselves from economic disaster or actual medical neglect by carrying pre-paid medical insurance. It is true that few people can carry adequate medical insurance without some sacrifice, but the responsible citizen will realize that society has as much right to ask him to sacrifice for health measures (to solve his own health problems) as is necessary to sacrifice to gain food, clothing and shelter for himself and those for whom he is responsible. There is a tremendous need to teach this idea to people in general.

The indigent medical problem in rural Missouri is a startling thing when one so closely associated with it as a practicing country physician studies it. For generations it has been the custom for the local physician to accept the responsibility for all medical care of the indigents and he has most often willingly accepted that responsibility. Changing times, however, carry with it the idea that medical care can no longer come from the physician's pill bag. Often expensive equipment, expensive drugs, hospitals and various other material things are quite necessary to give an individual the best that medical science can offer him today. In the past it has often been the custom for the rural community to shift the burden for such care to the urban hospital and these hospitals more often kindly obliged.

Urban hospitals today with the drying up of the great pool of liberal gifts from the income of the wealthy, are finding themselves much less able to carry the economic load that such a burden carries with it. They are more and more finding themselves unable to carry the load and refusing to do so. The doctor in the local community in his effort to do what is best for the individual is frequently finding there is no solution for his problem. Actual medical neglect is occurring because of this. The doctor in the community is frequently aware of it but after

utilizing all means at hand surrenders to the inevitable. Occasionally the individuals in the community complain about it but there has been little concerted effort in many communities to make any correction of it.

Under the Missouri statutes it is the duty of the county court, as it is called in our state, to provide for the indigent. They, of course, are only the agents of the people. Frequently, because of limited understanding or limited means only a superficial effort is made to provide. I cannot agree with those who believe that my neighbor, destitute, should be a ward of the society, provided for by the state or federal government. The best for the moral values, for bringing out and developing the best in the character of man, the more local a helpful hand is that is given to the less fortunate, the stronger are our communities and general society to be. Indigent medical care problems should not be solved on a greater social group than that of the community—county or municipal. There is much need in our state for studying this matter and a revision of our attitude toward the indigent sick.

It is impossible here for us to go into too much detail about the general health problem in Missouri or my talk would be very long and boring. I do feel that it is an excellent opportunity for me as a rural doctor to encourage you people who are obviously leaders in your community to try the American method and solve health problems on a local basis insofar as possible. No amount of federal legislation will ever accomplish this any more than it helped our grandfathers, who took an ax in hand and looked up to a white oak forest and said "I'm going to make a fertile field out of that land." It took courage and initiative to do that. I have wondered sometimes if my grandfather's grandchildren have not lost something along the way and become a bit bilious with some of the doctrine of federal aid to solve everything. Grandfather was an American and his toughness of spirit came a great deal from the necessity of solving his own problems.

Health problems in Missouri are greatly in need of an attack by the local citizens in the same spirit that our forefathers would attack many of their problems. And so, our thesis today is to convey to you an earnest appeal to look about you at home and recognize deficiencies. Don't be afraid to see them and to think about their correction. Enough such people will create a general will that may accomplish anything.

THE HEALTHY CHILD

DR. ROBERT L. JACKSON, DEPARTMENT OF PEDIATRICS
SCHOOL OF MEDICINE, UNIVERSITY OF MISSOURI

The objective of our health program for children in Missouri should be to make it possible for each child to come into adulthood at his or her optimal state of development, physically, emotionally, intellectually and spiritually. The medical profession in our country gradually is finding more time to devote to preventing illness and to improving the health level of their patients because of the development of our natural resources, wider distribution of wealth, educational opportunities, relatively high standards of living including sanitation and better control of infectious diseases.

A child differs from an adult in that he is growing and developing. A child grows in a number of ways. To make it easier to orient ourselves, let us discuss growth and development under five separate divisions, but remember there are important interrelationships between these subdivisions.

(1) Physical Growth and Development

Everyone has a fair understanding of what is meant by physical growth and development. It is commonly measured by observing the increases in height and weight and the improvement of muscular coordination as, for example, we observe how the child grows larger and goes through the stages of creeping, toddling, walking and running. The rate and quality of physical growth are importantly related to the general health and welfare of the child. With nearly every disease process there is some impairment of growth and consequently the proper interrelation of height and weight values may make possible early recognition of a disease and continued observation may give a good index as to the success of therapy.

(2) Emotional Development

As the infant grows, he gradually becomes aware that he is an independent human being with a mind and will of his own. In order to be happy, the child must learn how to use help and guidance from others to gain self-control without losing self-esteem. A common saying is that a child should act his age. A school child who resorts frequently to crying and temper tantrums and such forms of behavior has retarded emotional development. The emotional pattern of the child becomes fairly well established during infancy and the early years of life. Therefore, it becomes more difficult to alter the pattern as he grows older. The emotional health of the child reflects invariably the emotional health of the parents. Consequently, the doctor has to help the parents as much as, or more than, the child. Unwholesome relationships, if they exist between the child and his parents, invariably become exaggerated during adolescence.

(3) Immunological Growth and Development

Gaining resistance to disease by having the doctor give the child inoculations for specific diseases such as whooping cough, diphtheria and tetanus, or by the child having various types of infections such as measles, chicken pox and so on, is part of the growing up process. It is well known that the physical condition of the child is related to his resistance to infection and the frequency of complications from infections.

(4) Intellectual Development

Mental growth, or the learning to function as an intelligent human being, will take place according to a general pattern. Intellectual growth begins in infancy and proceeds at a very rapid rate throughout normal childhood. Various tests have been devised to measure intelligence and these are extremely useful tools when employed by those who are skilled in interpreting their results and in recognizing their limitations.

(5) Spiritual Development

As a child grows spiritually, he learns to appreciate the worth of his own soul and the soul of every human being. Into his life comes a fineness, an understanding and an outlook on life that is found only in those who are growing up spiritually. This phase of development is most important, but in our materialistic culture the spiritual development of the child is given too little recognition. The home, the church and the school have serious responsibilities in this important area of growth. The child who learns to develop virtues rather than vices has peace of mind and soul, and can make unlimited contributions to his fellow men.

In this short address I am trying to give you additional insight into the scope of pediatrics. To many, a pediatrician is a doctor for babies. To some, the practice of pediatrics is essentially feeding and immunization of infants; to others it is the management of the ills of the first two or three years of life; to still others it is the specialty for seriously ill children of all ages and to a few it is simply the management of behavior disorders. It is all of these and more. Pediatrics is the study of infants and children in health and in illness. Unlike other specialties of medicine which tend to restrict the scope of practice to a group of diseases, to the disturbances of a particular system of the body or of a method of practice, specialization in this instance is determined solely by the age and development of the person.

Concern for the child must antedate conception and extend through the final phases of growth in the period of adolescence. The medical problems of pregnancy and maternity are of fundamental concern to pediatrics because the experiences of fetal life and birth and hence the problems of maternal care are of the utmost importance to the health and development of the infant. *The healthy newborn infant is nine months old at birth.* The neonatal period, or the first four weeks of life, is the most hazardous period of life and presents problems that never arise again. The period of infancy is a time when the child is completely dependent on others for all phases of his care, when he is not only more susceptible to infections and nutritional disturbances, but also has a pattern of response to them which differs from that of later years. As the age of infancy is past and the pre-school, mid-childhood, pre-puberty and adolescent ages are attained, the child assumes increasing responsibilities for his own care.

In the practice of pediatrics, the doctor must concern himself with the causes of ill health, faulty development and lack of physical fitness. He must recognize the large part which poor social and environmental conditions,

as well as poverty and ignorance, play in bringing these about. The infant, and to a diminishing extent the child at all ages to maturity, is a dependent member of a family group and cannot be considered or successfully treated without taking the other members of the family into consideration. Children can be shown to differ greatly according to the economic and social group to which they belong, not only in the diseases from which they suffer and in their mortality rates, but by most of the accepted criteria for health. Surveys of children in all strata reveal a high incidence of nutritional and physical disturbances as well as psychological difficulties which are remedial and, more importantly, to a great extent are preventable.

The plasticity of the young and their capacity for adaptation in the processes of growth and development justify optimism as to the potentialities for natural correction or repair of retardation or defective physical states. There continues to be unlimited opportunities for the general practitioner or for the pediatrician who is fitted to deal effectively with these problems.

The role each child is to play in the drama of life goes back to the experiences of his parents in the early years of their lives. We hear, and will continue to hear, the frequent statement of each generation saying that their child will live it differently. Children differ markedly in what they do with their roles. Many, in comfortable security, accept and play the role as given to them. Many are tragically unsuited for the part they are expected to play. Some children grope in confusion, trying to find the meaning of their roles, whereas others go through all phases of life without having much insight as to what it is all about. It is the modern physician's responsibility to understand these things and carefully assay the child's fitness to do what he is supposed to do.

Nutrition plays an extremely important part in the practice of pediatrics because of the relatively high requirements of small and rapidly growing individuals and because of the frequency and special character of nutritional disturbances of early life. The evaluation of the nutritional state of the infant or child and the recognition of the effects of faulty nutrition upon his growth and development are difficult, but important aspects of pediatric assessment. When faults are recognized, skill is again required when dealing with both the mother and child if adequate corrections in the diet are to be accomplished. In other words, the cornerstone of good physical health in children is good nutrition.

Much work needs to be done to improve the health of children. This can only be accomplished gradually by dissemination and application of our current knowledge and by increasing our knowledge through research.

WHAT IS THE FAMILY FARM

J. WENDELL MCKINSEY, DEPARTMENT OF AGRICULTURAL ECONOMICS
UNIVERSITY OF MISSOURI

In our discussion of the future of the family farm, the first question we ask ourselves is, "What is the Family Farm?" It may appear strange at first thought to suggest by such a question that even though we are sufficiently interested in this subject to travel 20 or 100 or 300 miles to participate in this Forum, still we may not know what it is we're going to talk about. It is a fact that eleven of the leading economists and sociologists of our country meeting in Chicago in 1946 for the purpose of discussing family farm policy, were unable to draft a definition or description of the family farm ideal to which they could all agree. There may be as many definitions or concepts of the family farm in this audience as there are visitors to the Farm Forum. It seems to me essential that we develop a common concept if our discussions together here today are to be most useful. And it seems to me that there are some concepts that are distinctly better than others for us to take back to our various communities and use in the many discussions of policies and programs in which the family farm idea is important.

The family farm idea is not a new discovery. Without attempting to trace its' origin, let it be sufficient to point out that Thomas Jefferson was perhaps more responsible than any other single individual for the introduction of the family farm concept into the American pattern of land ownership and agricultural production. Jefferson was the architect of the family farm ideal which in turn is a part of the American democratic tradition.

In my limited examination of the literature on the subject, I find the family farm being idolized and extolled by economists, politicians, ministers, editors, resolutions committees of ecclesiastical bodies, sociologists, statesmen, a President of the United States, and the writers of the platforms of both political parties. Yet in most of these treatments no attempt has been made to define the family farm. And from the assumptions made in these writings it appears that there is no uniformity of understanding of what this thing actually is which we call the family farm.

In fact some of the economists and sociologists insist that the term is incapable of definition. We try to define it in terms of size, and cannot. Acres per farm won't work as a definition. Number of cows won't work. Output per farm won't work. Neither will dollars invested assist in defining it. But even though it escapes definition, it seems to me that we can build a very useful concept without a great deal of difficulty.

The only useful way which I can discover to attempt a conceptual definition is in terms of economic organization. And I believe that we can more easily build our concept if we pause here just a moment and examine two significant characteristics of our attitude on this matter. We in America, and in Missouri, seem clearly to have two preferences regarding the economic organization of agricultural production. (1) We prefer decentralization in economic organization in agriculture. Agriculture is one of the very few industries, perhaps the only one in which we do prefer many small businesses. Centralization in economic organization has our approval in the manufacture of automobiles. It seems to be okay in the manufacturing and processing of steel. Complete monopoly we rule out by general agreement and by law, but not only do we accept, but we desire, economic centralization characteristic of our "big business" because we recognize that big business is necessary to the large scale, low cost production of automobiles, refrigerators, radios and many of the other industrial goods which we regularly include in our standard of living. But in agriculture, and of all the major areas of production perhaps in agriculture alone, do we clearly prefer decentralization in our economic organization.

Our second preference in this respect is efficient production of agricultural products, which is to say, we prefer a large output from a given set of agricultural resources to a small output.

And in agriculture we find that the most efficient production comes from farms organized around the family. In no other major area of production is production still centered in or organized by the family. The specific number of acres, volume of output, volume of investment, and all other such measures of size of business vary tremendously by area, type of farming, climatic patterns, and so forth. But there is a preponderance of evidence to suggest that farms too small to utilize efficiently the labor of the operator and his family, as well as the farms that are so large that the functions of management and labor are distinctly separated, are less efficient than one intermediate to these extremes —one which fits the family farm concept.

And now after completing this brief excursion for the purpose of creating a mental atmosphere, so to speak, we are ready to attempt to answer directly the question, "What is the Family Farm."

The first proposition usually proposed is that a family farm is a farm business so organized that the family living on the farm provides most of the labor that is necessary most of the time to operate that farm. Here again we are not able to define specific limits. The amount of labor hired and the length of time for which it is hired will depend upon the seasonality of work load on some farms and upon the stages of growth of the family itself on other farms. When families are growing, or when certain members are unproductive because of school or other obligations, more labor may need to be hired on an individual farm than what might be considered normal for that family and that farm. Heavy work loads at planting or harvest time are characteristic of some types of farming. One method of measuring this dimension that has been suggested is that the amount of outside labor regularly hired should not cause the total labor force on that farm to exceed that found in the normal size family of the community. Perhaps a more useful measurement is that the amount of labor required should not be so great that there is a distinct separation between management and labor, but that management and labor are both provided by the family, and extra labor is strictly supplemental.

Our second proposition regarding the family farm is that it is such a farm organization that entrepreneurial functions remain in the family. That is to say at least a substantial portion of the investment of the family operating the farm, and basic decisions are made by the operator and/or his family.

The third proposition I propose is necessary to a useful concept of a family farm as an institution which we would hope to encourage or preserve. And that proposition is that the kind of family farm that is worth talking about and doing something about is one which combines a sufficient quantity of resources in a way which will provide profitable employment to the members of the family and produce for them incomes sufficient to provide an acceptable level of living, provide for the economic and social development of the family, and for the economic development of the farm. This proposition itself embodies concepts difficult to define. But this acceptable level of living should involve rewards in terms of real income at least equal to what the same kind and amount of labor can produce in alternative occupations. Farms upon which all the labor is performed by members of the family, all of the investment and all decisions are made by members of the family, but which are so small as to make possible only sub-standard levels of living are not worthwhile goals and should not be included within our concept of the family farm.

In building this concept, it is equally as important to know what a family farm is not as it is to know what a family farm is, and to dispel some common misconceptions about the family farms.

(1) The family farm does not require ownership of the land by the operator of the land. Even though many advantages accrue to society in general and to farmers in particular from the ownership of land by the operators of that land, there are also many advantages to agriculture in general and to specific farmers in particular when they allow retired farmers or persons outside of agriculture to bear the burden of land ownership, while they devote all of their resources to the production process itself, in the form of machinery, fertilizer, and so forth. For these benefits to accrue, of course, there must be tenure arrangements with sufficient security of expectation and equitable terms to make possible and encourage the social and economic development of the operator and his family, and the physical development of the farm. Such arrangements are possible and are in effect today on many family farms where the operator does not own the land.

(2) It is a misconception to think of the family farm as a type of farm which stands in contrast to a commercial farm. American agriculture is typically commercialized. Most of this commercial agriculture is organized and carried on by family farms. The proper contrast is between commercialized farms and subsistence farms.

Subsistence farms are ones on which the operator and his family produce primarily for the sole purpose of consuming the product themselves. And at the same time the farmer and his family use relatively few goods other than what they themselves produce.

Commercialized farms on the other hand are farms where all or a major portion of the product is produced for the purpose of sale, and most or a large share of the goods in production and consumption are purchased in the market place. Such a farm may produce and sell only wheat, and purchase in the market all of the goods it uses in consumption and production. It may sell whole milk and purchase butter, or oleomargarine. But the family remains the central and primary unit of production—it is a commercial family farm.

(3) It is not appropriate to contend or assume that the family farm is disappearing. The continual increase in average size of farms during the past fifty years, or the increase in number of "large" farms by census definitions do not support this contention. Nor does the continual decrease in number of farms correctly suggest the disappearance of the family farm as the basic economic organization in agriculture.

The outstanding development in production throughout our entire economy during the past 50 years has been the introduction of a tremendous amount of capital equipment to assist labor in production. In agriculture this capital has been in the form of machinery, fertilizer, erosion control devices, irrigation systems, buildings, new varieties of crops, and new strains of livestock.

Some of these additions were made to the farm business without changing the amount of labor. For example, new varieties of crops, fertilizer applications, erosion control devices, etc. are adopted without changing significantly the ratio of labor and land. One man still operates the same amount of land after the introduction of these new kinds of capital as he did before. The man and land together are more productive.

However, the one single addition which has had greater effect on the productivity of labor than any other one, that is the introduction of improved machinery and machine power, cannot produce its' full benefit unless it is accompanied by additional units of land to given amounts of labor. That is, if a farmer was to receive the maximum benefit from the introduction of labor saving machinery, it was necessary that he also add more acres of land. In 1926, one man, two good mules, a John Deere cultivator, and a cool day resulted in 6 to 10 acres of corn cultivated. One man on a Farmall tractor with a four-row cultivator can cultivate 40 acres almost any day with less difficulty.

The form of economic organization has remained the same. The family still supplies most of the labor and makes the decisions of management. The combination of resources used by that family has changed, and the increase in the amount of land incorporated into the farm business as a result of that change has been notable. However, the modern farm business with twenty to sixty percent more acres of land involved is just as much a family farm unit as was the "horse power" farm business of twenty-five years ago.

True it is that the average size of farms both in the United States and in Missouri has increased rather continuously over the last 50 years. The average size of all farms in the United States in 1910 was 138 acres. In 1950 the average size was 250 acres, an increase of 56%. Comparable figures in Missouri are 125 acres for 1910 and 153 for 1950, an increase of 22%. Farms in the U. S. increased in size on the average of 24% during ten years between 1940 and 1950, and in Missouri this increase in the ten year period was 13%.

This increase in average size occurred in almost all parts of the U. S. It is a result of the separate decisions of individual farmers to add to their holdings by purchasing adjoining or nearby farms, or land, when such became available for sale. Let me emphasize that most of these adjustments in farm size came through the separate decisions of individual farmers. And farmers arrived at such decisions because competition forces most of them to adopt a farm size that is fairly efficient. These decisions have led to larger farms.

The adjustment took place because it was good business for individual farmers. True it is that some farms have disappeared as separate farm units, but it is not true that family farms have been replaced by something else. It is the family farm that has grown in size. The family farm remains the predominant form of economic organization in agriculture, embodying a different combination of resources than it did fifty years ago.

So now in summary we recognize that even though it may be difficult or impossible to define precisely the family farm, it is a useful concept. This concept cannot be defined by narrow and precise boundary lines, but rather by a zone that has considerable width. Inside the circle formed by this zone we can easily place a very high percentage of our farms, probably more than 95% as bona fide family farms. Clear outside our boundary zone we readily place those few operations that are so big that they are in no way identified with a family. Then within the zone itself there are farms, still relatively few in number, which may represent the family farm type of organization in some respects but not in others, or may be operated as family farms during certain times of the year, but not at others. But we can give our concept the following metes and bounds:

1. It is a form or organization of agricultural production in which the family is the central and primary unit in production, both from the standpoint of management and of labor.
2. It is big enough in terms of income producing possibilities to provide a satisfactory level of living—that is, living conditions comparable to what similar expenditure of effort in other lines provides.
3. Perhaps the only restriction we can place on it as a top boundary is that it shall not be so big as to result in a distinct separation between management and labor.

PRACTICAL NUTRITION TODAY

DOROTHY L. VORHIES, DIRECTOR, DIETARY DEPARTMENT
UNIVERSITY HOSPITALS, UNIVERSITY OF MISSOURI

Not long ago, I dropped in for a social chat with some friends, and during the conversation, a young mother in the group asked my opinion of some instructions on a diet that the dentist had given her to help combat some decay in her small son's teeth. It had to do with concentrated carbohydrate- or sugar- and its influence on dental caries. It was a good instruction sheet but a little wordy. She had read it, but without a nutrition background, had misinterpreted it and retained only part of it- namely that carbohydrates caused tooth decay. I was struggling to make her see the thing in its true perspective without delivering a classroom lecture, when one of the men, a physician that knows his nutrition very well and on top of that is a practical man, began to tease- "Now, Dorothy, you and Jan are telling me that if I eat carbohydrate my teeth will fall out. I look better with my teeth in, so I won't eat any of that. Only the other day, I heard a talk in which it was stated that the heart disease incidence had increased because the American people were eating too much fat. I don't want to die of a coronary, so I can't eat fat. What *am* going to eat?" Says someone laughing, "Looks as if you're stuck with protein." With a cry of anguish he cried, "But I can't afford it! What *am* I to do?!"

Actually, the truth lies somewhere in the middle and it seemed to me that that doctor was echoing the thoughts of a confused American public- -said confusion brought on by too much printed matter and too many talks such as this one might turn into. This confusion, plus our apparent concern over our health in relation to the food we eat, causes us to spend ½ billion dollars a year for so-called health foods and food fads of varying kinds. By "food fads", I don't necessarily mean the bizarre but "food styles" based on an exaggerated use and interpretation of sound scientific fact. This has happened for several reasons. People are much more interested in eating from the standpoint of pleasure, social standing, or comfort than from health, and advertising and promotion of foods are directed at this feeling. We are also beginning to learn more about the effect of food on people, as well as animals, and since science is a current national interest, these discoveries are being published and usually appear as isolated facts. Since most people without a particular professional reason for doing it otherwise, read such facts casually, they develop an exaggerated idea of the importance of one fact over another depending on the size of the headline and how well it agrees with what they are doing or thinking themselves.

For example, we went slightly berserk over vitamins awhile back and forgot, or didn't know, that the vitamins have a special function in the over-all digestion and use of the caloric part of our food. We have done the same thing with protein and right now are all counting calories like mad without regard as to where those calories come from and with too little regard as to the way food is put together. To put it bluntly, no one is completely certain of the role of food in our bodies except for one thing: When the digestion and use of food is traced, it is immediately apparent that one nutrient is dependent on many others for its function. It goes around in circles, sort of. The most intelligent approach to this fact is to realize that no one nutrient takes complete precedence over another nor one food over another. The trick is in the proportion of one to the other.

Your University of Missouri Extension Service has been using a very practical idea to help work out this proportion for many years — *The Missouri Food Plan for Good Eating*. It is practical because it recognizes the nutritional function of various groups of food and at the same time gives individuals a choice so that their own tastes and ideas can be satisfied. (This is important. It is said that one of the differences between a food fadist and a nutritionist is that the fadist appeals to the emotions and sense of taste without regard to food value, and the nutritionist is going to get the food value in regardless of how it tastes, which is why she may lose ground. The dietitian, by the way, attempts to hit a middle ground. She has to. She is trying to serve the theories in the form of meals the public will eat and go forth saying they look and taste wonderful.)

This food plan and others like it are, also, scientifically sound, but parts of it get misinterpreted. I'll try to show you how.

We are, statistically speaking, one of the best fed nations in the world today, thanks to our diversified farming, food processing techniques and distribution system. We are, as I implied a while ago, educated to the eye-

balls in various ways- -some good, some bad, nutrition wise. We are also extremely interested in what we eat. This I know: Due to circumstances temporarily beyond my control, I eat out, and to amuse myself I eavesdrop on the conversations around me. I have seldom sat through a meal (where the hearing was good) that someone hasn't delivered a dissertation on the diet he is on, is going on or has been on and what he likes to eat.

Now, statistics are actually a sort of compromise between good and bad. In this case the good predominates and so we might feel somewhat complacent about ourselves as a group. The trouble is that we are not statistics, but are individuals and at this point the statistic may be nothing more than interesting information.

If we drop from a national statistic to statistics within the family group, we get a little different picture. A recent study on the nutritional state of individuals in a family done at Washington State College and several others, shows the following order: 1st the infant, 2nd the father, 3rd the teenage boy, and a possible tie between the teenage girl and mother, with mother trailing a little. There is another study being done by six Midwestern colleges on older women that is yielding some interesting facts for this group. All of these family members appear at one time or another in our hospitals. Many of their illnesses are either caused by or intensified by mis-use or misinterpretation of this very plan. I thought you might be interested in some of the practical problems that result from this. At the same time, you might receive an added insight into a few of the problems connected with the planning and serving of food to hospital patients and how, to some extent, these problems are solved.

Probably the biggest single problem in feeding sick people is fear. Part of this fear is because they may not know what is in store for them which is quite a different problem than the part of the fear concerning food, but it is related. The fear concerning food is especially likely to arise if there are any symptoms connected with the digestive tract. Sometimes, of course, the patient is told not to eat, but most of the time he stops of his own volition. If he stopped to think about how he feels when he is well and goes without food, he'd realize that this same feeling is super-imposed on the feeling caused by the illness. He may also, in searching for a cause of his illness, blame it willy-nilly on one or several foods out of about ten he may have consumed the day before and eliminate them. He may or may not tell the doctor about this and his own elimination diet, plus a restriction that may be necessitated by the illness, leaves him out on a limb, nutritionally speaking. His own restriction may be based simply on something the neighbor told him, or that he read and only half remembered.

Now it is true that the form of the food that you are eating may change. We might liquify it to make you swallow it a little easier, or we might chop it up so that you could chew it with less difficulty; but actually, we never get very far away from this Missouri plan for eating, regardless of what your illness is- -at least for not more than a short period of time. We may increase the amount of food in one group to a higher level than might be recommended for a normal person. This would be done for two reasons. The first is that many diseases, actually, are a form of starvation because there is some defect in the body's ability to digest or utilize that particular nutrient so it may take more of it than would ordinarily be used. The other reason we might increase a particular group is because the individual has eliminated that group from his diet prior to his hospitalization to such an extent that it will prevent or delay the treatment of the illness at hand. All of you know from your experience with farm animals and crops that things may not grow properly if the soil has a shortage of certain nutrients or the animal is not properly fed. Most of these things you adjust in your farming and by the same token, you should adjust them in yourselves.

That basic principal is actually behind all of the meal planning and food service in the hospital. The physician determines the adjustment you may need and in the hospital it is the responsibility of the Dietary Department to serve those nutrients as recommended, in a way that the patient will accept. This involves some individualization in menu planning. It also means that the patient must have these recommendations explained and fitted into his home food program. It is ridiculous to expect a completely different menu to be cooked for one member of the family. This explanation may be given by either the physician or the dietitian, or both.

The fact that the infant and small child is in first place nutritionally speaking, means that the explanation has been given and is being followed by the mothers. But there crops up with a more than comfortable frequency,

a curious misinterpretation. Milk is an important part of any diet and is a good food. The need for milk in the growth of children, in the formation of bones and muscle, is well recognized by all parents. As a matter of fact, it is recognized to such an extent that some parents forget that there are other foods necessary that also contribute to the growth and well being of their child. One very common illness in childhood is nutritional anemia and can be traced directly to an over emphasis in the use of milk in the child's diet. If you remember, three to four cups of milk a day are recommended for children. Many mothers become very concerned over their child's lack of appetite, particularly when he is around three to five years old. On being questioned as to whether he drinks his milk, she replies, "Oh, yes, I see to that." Upon investigation you find that the glass in which the milk is served totals almost a pint and the child may be drinking 4 or 5 glasses a day. The capacity of an adult stomach is about one quart. A child's stomach is proportionately smaller. Is it any wonder he has no room for other foods?

Milk has been designed as the perfect food. It isn't quite- it is deficient in iron, and unless foods from group three, four and one are included in the child's diet, this iron deficiency becomes very serious. Obviously if he is filling himself up with milk, he has no room for other food. On the other hand, grandmother and grandfather have assumed because they're grown, they don't need any more milk. Here we face a double hazard. The need for calcium continues even after growth, on a much smaller scale, but none-the-less it's needed. Over and above that, older people tend to cut down on the amount of meat that they eat- probably due to the fact that their teeth may be false and meat gets a little hard to chew. The result is that they develop symptoms of protein deficiency. In other words, we have taken the sound scientific fact that growth increases our need for calcium and a good source is milk to one extreme in the child. We have failed to recognize another function of milk in the adult dietary, and the lessened demand for calcium after maturity means that we go to the other extreme there.

It is surprising to find the teenage boy in 3rd place, until you recognize the fact that he is more concerned with total quantity rather than quality. I have wondered if a teenage boy was ever really full for more than 2 hours. This concern with quantity is good because any widely selected diet will almost automatically be good nutritionally. The problem may arise at this stage with the fact that he has developed a very sweet tooth and so selects more from Group 5 and neglects particularly Groups 3 and 4. (Missouri Plan for Good Eating)

Father continues with some of the same eating enthusiasm of the teenager, but is in better nutritional condition because he is eating well but has stopped growing. He is concerned with a diet that "sticks to his ribs." Well, ribs are like any other frame-work. They are designed to hold just so much. As physical activity slows down with age, the covering laid on slips down and he develops an electric light bulb effect in profile. If his natural resistance to weight reduction regimes can be overcome, he either cuts Group 5 out all together and runs to Group 3 which ruins his disposition because he doesn't really get enough to eat, or he listens to the high protein advocates too well. . increases Groups 1 and 2 and actually may increase his calorie level or leave it the same.

The teenage girl and mother are the opposite extreme. They take their fashion models literally and want to look like bean poles. They will eliminate anything that has any possibility of being fattening. Their food selection comes from the vegetable and fruit group. Or they may skip entire meals. Mother's dietary deficiencies may also result from piecing or tasting while she is cooking, from being more concerned about the needs of her family than herself. And from dining with some of my friends, I'm convinced she misses some of her meals because she has to get up from the table to wait on the rest of the family, so that she really may have no opportunity to eat.

These last 3 are examples of only a few of the ways we torture ourselves to lose weight. Now weight loss can be accomplished without deliberate starvation. Sometimes rapid weight loss is necessary to assist in the treatment of a disease, such as diabetes or heart disease, but as a rule a slower method accomplishes as much with a normal individual. Rigid diets should be carried out only under medical supervision.

Food consumption figures show that we consume the equivalent of a fourth of a pound of sugar a day which is calorically equal to $\frac{3}{4}$ of a pound of fat laid on per week. We have dropped our carbohydrate consumption 10% (mostly from cereal foods) and increased our fat consumption in the last 20 years. We have incidently, created a surplus of wheat, also. We have not decreased our calorie consumption but simply changed its source. Both

sugar and fat are eaten in quantities that amount to almost twice as much as is recommended to meet our caloric need. This is not true of any other food, except alcoholic beverages which actually aren't food.

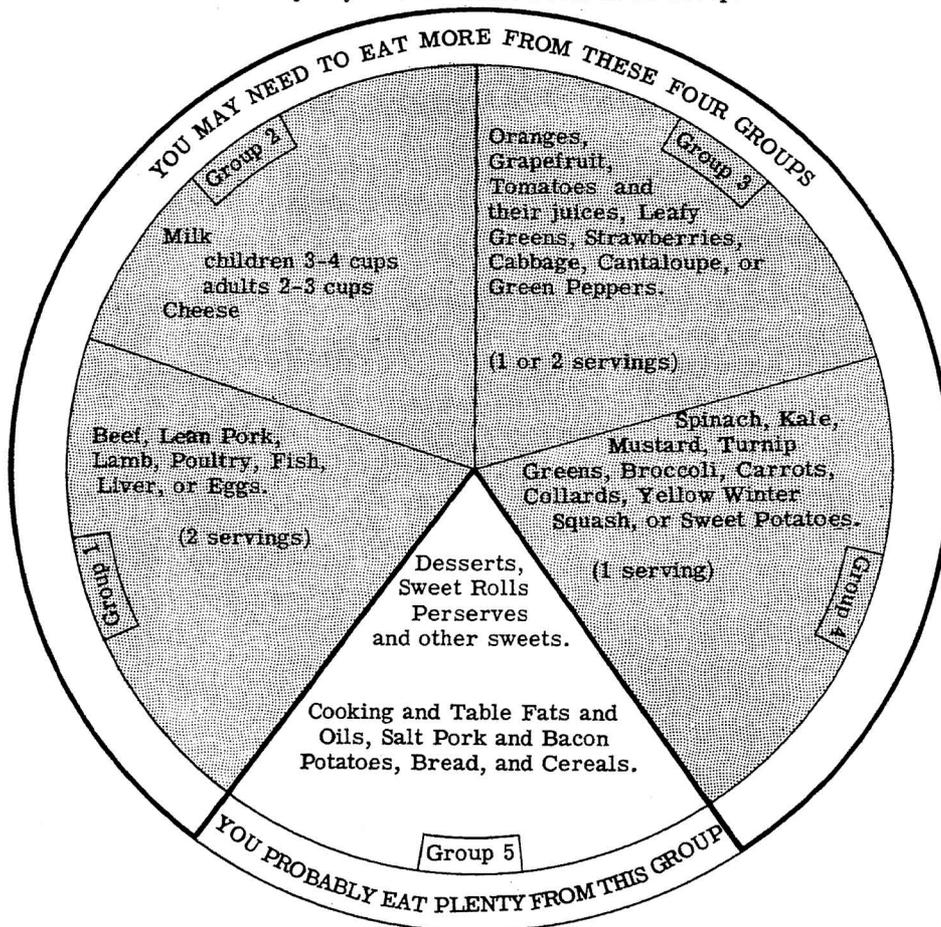
It is much more practical to limit the fat or sweet foods from each group. Why clutter the mind up with calorie values of the various foods. Everyone knows that a very sweet or greasy food is high in calories. Not everyone realizes that the number of calories written down varies with the food table used.

There are many other things we do to distort the proportion of nutrients as we eat blissfully through our lives that may eventually trip us up, many of them done in an honest attempt to improve our health or our pleasure. All of these things are somewhat characteristic of the approach individuals use when their food habits are threatened. Today we feel that education towards general nutrition and good food selection with as little disturbance of the pattern of eating as possible will be of most assistance in the prevention and treatment of poor health.

There is one thing about it that may make it hard for most Americans to accept. *It is too Simple.*

A MISSOURI PLAN FOR GOOD EATING

Every Day . . . Eat Some From Each Group.



For palatable and well balanced meals, add:
Apples, peaches, prunes, bananas and other fruits.
Nuts, dried beans, beets, onions and other vegetables.

WHY THE CONCERN ABOUT THE FAMILY FARM

L. J. NORTON, DEPARTMENT OF AGRICULTURAL ECONOMICS
UNIVERSITY OF ILLINOIS

The family farm is the basic unit in our agriculture and will continue to be so. It has enormous survival value. It has come through all the economic ups and downs of the 165 years since we became a nation under our present form of government. It has been and is the typical farm in the U. S. except in the plantation areas in the South.

One advantage of the family farm is its great flexibility. It has been said that its basic problem is to fit the size of the farm business to the size of the family. I saw a striking example of this the other day. On a tour of our farm management service cooperators—in which project we now have about 5,000 Illinois farmers enrolled—in a mixed grain and livestock area, we visited a 320 acre farm—all in tillable land. The farmer's two sons were in the army. He had cut the business to what he could do himself with a few days of hired labor; a strictly grain and soybean farm. There was one cow and one calf. And they both had white faces and headed for the family meat supply.

On my own farm the tenant farms 240 acres. He had a small herd of dairy cows which his son milked. This boy was graduated from high school and went to work in a local factory. But he continued to milk the cows. Then he enlisted in the Marines. The next week the cows were sold. But they were replaced by an equal number of yearling steers. The operator adjusted the size of business to his working force. He tells me that the boy writes that he has decided that "the farm is the place for him" after he gets out of the Marines. The farmer said, "we can make this a two-man farm."

So any basic concern about the family farm simply reflects a profound interest in what we now have and in further adjustments that may have to be made to keep it healthy and vigorous.

But if anyone imagines that economic conditions will be such as to permit *any family* with access to a little land to earn from it the kind of living that this family or someone else thinks that it ought to have, one can only say it simply cannot be done. I know from experience. I grew up on such a farm to which my father moved after his health made a normal size of farm impossible for him. This particular farm is no longer operated as a separate unit.

The earnings from farming will always be such that to earn a reasonable standard of living a farm must provide opportunity for enough productive work to keep the laboring force of the family employed efficiently. And it must be recognized that some units which some people may call a family farm may be too small to do this. A large number of small commercial farms in the United States raise little except a few acres of cotton or even less tobacco. Such farms cannot utilize enough productive labor or find employment for enough capital to earn an American standard of living. Or take a possible Missouri case. Suppose a family farm has enough resources to maintain ten beef cows. On the outside of technical efficiency such a unit may produce 4,000 pounds of beef calves. At 20 cents a pound this is \$800; at 25 cents it is \$1,000. That is all. Such a unit provides little opportunity for productive work or investment of capital. Its earnings are restricted by circumstance.

Your people know this and your small units tend to turn to dairy cows which by providing more opportunity for productive labor, provide more opportunity to increase the volume of business or gross income. Ten cows might permit sale of 60,000 pounds of milk. At \$3.50 per 100 pounds this is \$2,100.

The rise in living standards makes this situation more acute: to maintain a car, to have electricity involves cash costs and makes larger cash investments in homes and household equipment essential if farm families are to be satisfied.

I was asked to discuss what new or emerging conditions make this problem more acute. I have just called your attention to one of these: the desire for cash to meet the costs of some items which people wish to include in their living standard. With the increase in mechanical gadgets of all kinds—automobiles, television, washing machines, electric refrigeration—this factor will tend to become more and not less important.

In all crop raising and harvesting mechanical equipment is now important. Economic production requires a minimum acreage of crops in order to keep the fixed costs of ownership of necessary equipment low. This sets a minimum size level for a family farm. Contrast this with a situation where human labor is the basic factor in production as it largely was 100 years ago. Then to provide full employment a farm needed to be no larger than a man could tend. Too small size imposed little or no penalty. Adding a team of horses or mules to the minimum factors made the minimum economic size larger but still left it smaller than is now essential for economic mechanized operation.

What this means is that a family farm must be larger than it was 50 years ago to be an economic unit. But it does not need to be a giant operation. Many typical Missouri farms are economic units.

Most farms in the United States keep up their volume of business by adding livestock operations to crop production. Only in certain areas where conditions are especially favorable for crop production can farming be limited to crop production. Such an area must be particularly favorable for growing fruit, vegetables, cotton or grain. Since there is a larger component of human labor in livestock operations than in crop production, it is easier to develop an efficient size of livestock operation on a small acreage. Take dairy cows. A fairly high standard in efficiency in handling dairy cows is 100 hours per cow per year. At this rate 10 cows provide 1,000 hours of labor or the equivalent of 100 ten-hour days. This is the basic reason why dairy farming spreads into areas with limited opportunities for cash crop production. Where a good cash crop can be grown for sale along with the milk, dairy farms are more profitable than where such a cash crop cannot be grown.

Poultry is also a high labor absorbing enterprise and it is possible to develop a large business on a small acreage. In many sections of the country either egg or poultry production is the basic enterprise on family farms. Where feed grains are raised or available for purchase at reasonable cost, a good sized business can be developed on a fairly small acreage.

Specialized beef cattle and sheep farms require a considerable acreage for economic operation. Their labor requirements are low.

The above analysis suggests that one cause for the concern about the family farm grows out of the effect which mechanization has on the minimum areas for economical crop productions. In livestock operations where labor is a more important component of cost, the small farm does not have as great a disadvantage. But even then a minimum size is essential for economic survival. The business must be big enough to employ efficiently and for a sufficient number of hours per year, the labor force and other necessary factors of production.

On the marketing side, I do not see any great disadvantage for the small farm. Our marketing systems are organized to assemble products from owners of small farms and to concentrate them into large enough units for transportation, processing, storage, etc. Where private business does not do this or charges for doing so what farmers consider to be unreasonable amounts, farmers develop cooperatives.

Take milk. A milk truck will pick up the milk from a shipper with any volume if the farm is on a reasonably good road. And the milk plant will dump this milk in with that of larger shippers. It may be that a small shipper will not feel that he can afford to make the investments involved in producing Grade A milk. If Grade A milk requires added capital costs that makes a minimum volume desirable, it is another example of how mechanical equipment puts pressure on small farms. Tank truck deliveries are a current example. Perhaps more attention should be given to the effect they may have on smaller farms before they are generally adopted.

And livestock. Our livestock markets are organized to handle small lots. Most farmers have access to truckers who will assemble loads from a number of small shippers. Auctions will handle any size of consignment. So I do not see where the small man is at much disadvantage in marketing livestock.

Or grain. Local grain buyers will so far as I know buy grain in any size lot and without discrimination.

And poultry products. There is not much future in producing ordinary grades of eggs. These have to go into the market that will buy low quality eggs or to breakers who produce frozen egg products. These breakers are looking for weight and not quality. Increasingly, the trade in the big cities is moving to quality eggs. A study being made by the colleges in the north central states indicates that when egg volume is low in a given area, a rather primitive type of marketing arrangement prevails. The future for eggs lies in areas where volume is big enough so that strict grade buying and frequent pick-up develop, and so give producers the benefit of the quality market. But this is not a matter of family farm but of general location. On my own farm with a strictly farm flock, a grade buyer picks up the eggs each week and pays the average price for quality eggs. There are some special buyers who will only deal with large flock owners but again these may be family farms.

The buying of farm poultry does not seem to me to be particularly well organized. In broiler operations no one can afford to operate without a close working relationship with a buying organization. Broiler farms are often the basic enterprise on family farms with small acreage.

Fruits and vegetables. In general, this is a highly specialized business and there seems a trend to bigger units. Where speciality crops can be grown, there is no reason why small acreages cannot be fitted into family farms but here good marketing arrangements must be developed.

Purchases of feeds and other supplies. The widespread dealer organization for distributing supplies—both private and cooperative—make supplies available to farms of any size. Very large producing farms may get dealerships and so special discounts but this is true of only a limited number.

I conclude that our marketing and supply arrangements do not operate to put family farms at any great disadvantage.

How about technical knowledge? One thing is certain: you cannot farm successfully today or in the future without adequate “know how.” Some of this knowledge can come only from experience in handling particular types of lands, of how local weather conditions may affect a particular location. But most of the necessary “know how” is the fruit of scientific experimentation. I refer to knowledge concerning soils, fertilizers, feeding livestock and general farm management. Is there any reason why the operator of a family farm should lag in acquiring such knowledge? I can think of no such reason. He has access to the common sources of information. The Extension Service serves him. He can read the farm papers. He has access to our universal educational system. I see no basic problem here.

The most valuable service that government in all its branches can furnish farmers is to develop and maintain the type of research and educational services which provide all farmers with ready access to such information presented in language that they can understand.

How about capital and credit? Frankly, I do not believe that many farmers who have a business which will earn a net income are very much hampered by a shortage of credit in building up and carrying on their business. There are many agricultural economists who do not agree with my view. Credit must, of course, be adjusted to net ability to repay. A man with a small business cannot wisely use as much credit as can a man with a large business.

One barrier to use of credit by the small business is lack of ability to have much repayment capacity after meeting living expenses. This is one of the basic problems of small farms. It is a rule of sound finance that credit

for operating expenses be repaid out of gross income. You spend \$1,000 to make a crop that sells for \$2,500. When the crop is sold, the \$1,000 is repaid out of proceeds. Hundreds of thousands of crop farmers in this country—large and small—are financed on this basis. In contrast, credit for capital purposes is paid for out of net income. One thing is sure, the farmer and his family are going to live. They can make no repayments on capital until living expenses are paid, certainly no net payments. A small business with a low income/capital ratio has a difficult time finding the net income above living costs to make any net payments on capital debts.

This is the real reason why many people have trouble in getting loans and why they have difficulty in repaying those that they get. This is often the case of farms which are dependent on small herds of beef cattle. The only solution to this problem is to develop a type and volume of business which can earn enough income to cover operating and living costs and leave a surplus to pay for capital loans.

How can we maintain rural population in areas where the pressure of technical change forces family farms to get larger? If my analysis is correct, the principal pressures are: (1) increased mechanization which forces certain types of operation up to a minimum size; and (2) a higher standard of living which forces business to a minimum size in order to earn this living standard and the capital which is required in doing so. A solution which is increasingly general over the eastern half of the United States is to combine off-farm employment with farming. Many people who live on farms spend part or all of their time in off-farm employment. This practice maintains the number of people in the community, permits continuation of organized community activities, schools, churches, highways, local stores. The automobile and improved rural highways make this rural living possible. This outside work may be in local factories which spread increasingly to rural areas; or it may be in hauling milk, livestock, grains, farm supplies, etc. In some areas it may be in providing for recreation activities of visitors.

The family is the center of the family farm. The family may get its income in many ways. Increasingly United States farm families supplement farm income with off-farm work. In 1950 the census reported the situation for Missouri as follows:

82,160 operators reported off-farm work					
47,096	"	"	"	"	" of 100 days or more
34,453	"	"	"	"	" of 200 days or more
141,275	"	"no	"	"	"

Thus 37 out of 100 reported some off-farm work and 15 out of 100 reported 200 days or more.

There is no information about the extent of such employment for other members of the farm family. It probably is more extensive than for operators.

This practice undoubtedly provides the income which helps many farmers to accumulate the capital needed to build up and operate their farms.

This system is in line with a very old pattern in American rural life. It is said that in 1790, 95 percent of our people were farmers. But this is only partially true. What was true that most everyone had some land and obtained part of their living from it: the innkeeper, the blacksmith, the preacher and all the other occupations in those days. My own family were farmers and tanners. So the combination of farm and off-farm work is very old. Those of you who are concerned with the economic future of the family farm, particularly the small family farm, should study carefully the possibilities of extending this approach. It now represents a very definite trend over large parts of rural America.

MAKING OUR NATIONAL AGRICULTURAL POLICY FIT THE FAMILY FARM

O. B. JESNESS, HEAD, DEPARTMENT OF AGRICULTURAL ECONOMICS
UNIVERSITY OF MINNESOTA

The implications which may be read into the title assigned for this discussion will vary from person to person. There is a tendency in some quarters to enshrine the family farm and endeavor to make of it something which is on such a pedestal that it is almost beyond question. This usually is done without any considered effort to establish what is meant by the designation "family farm" or why it is so sacred that it must be preserved at all costs.

One hears expressions from time to time suggestive of a fear that there is on foot a conspiracy to destroy the family farm. Corporate farming is seen by some a real and alarming menace. Perhaps it is well to turn back the pages of history to obtain some perspective. Manufacturing was not always conducted on a large scale. The cobbler still clings to the title "shoemaker" even though he probably never has even dreamed of actually making a pair of shoes. Would we really want to go back to the day when shoes were made by hand generally? The village carriage maker has given way to the modern automobile factory with its assembly line. How many of us could afford to drive cars if they had to be hammered out and fitted together in a one-man shop?

The point of this is that modern large-scale operations in industry have grown from small beginnings. While some may bewail the alleged loss of work independence and the repetition of operations which this has brought to the worker and deplore the concentration of population in urban centers, few, if any, really would be willing to give up the tremendous gains in production and want-satisfaction which have resulted from the industrial revolution and the growth in scale. It must be self evident that large-scale methods in industry have been adopted because they have yielded decided advantages to man in meeting his requirements.

The outstanding characteristic which distinguishes the nations with high levels of living from those still on relatively primitive levels is that of the use of energy. The caveman depended on his own muscle, strength and cunning. Modern man commands much more horsepower than his own muscle can provide. Power not only has replaced human energy but has made man infinitely more productive.

But what if a hundred years or two ago we had decided that the "family factory" should be kept inviolate at all costs? Where would we be today?

Is the inference that we face a similar revolution in agriculture? No, it is not. Agriculture for its major share of production has retained the individual farm unit during the time manufacturing has turned to large-scale operations. The explanation for this difference does not lie in the human factor. The reason is found in differences between farming and manufacturing. Just as most lines of manufacturing lend themselves to large-scale operations, most lines of farming are better adapted to the individual farm unit. The fear that such units will disappear from the farm scene is without foundation. Moreover, if at some future time we should discover ways of employing large-scale operations in agriculture with advantages similar to those gained in manufacturing, would it be in the interest of mankind to try to prevent the adoption of these advantages?

The fact that agriculture has retained the individual farm unit does not mean that progress has not been made on the farm front. Agriculture has kept pace with industry in gains in production per man. Animal power supplemented human energy for many farm tasks quite early in our history. Within the present generation animal power has been largely supplanted by mechanical power. Agriculture has become mechanized. The farmer has applied the results of scientific research in animal and crop improvement, in fighting insects, diseases and weeds and in preserving and maintaining the soil and its productivity. The farmer is gaining in his battle with the elements. While risks of drouth, frosts, floods and the like are still with us, modern agriculture is better able to cope with them than ever before.

The individual farm unit has prevailed through these developments. This does not mean that it is the unit of father's or grandfather's day. The size of the farm business has grown vastly in terms of acres per farm, the capital employed, and the value of the output. Surely, we do not want to put road blocks in the way of such progress by arbitrary acre restrictions on size in order to preserve someone's notion of the "family farm."

You recall Procrustes of old. You remember that when travelers stopped for the night Procrustes assigned them to his favorite iron bedstead. Unfortunately for his visitors he had the peculiar notion that each one should fit the bed. If they were too short, he wanted to stretch them; if too long, the remedy was to lop off the excess. Let us not make a bed of Procrustes out of the American farm. Let us fit the farm to the farmer rather than the other way around. How large should a farm be? Large enough to fit the capacity of the farmer to handle and manage it effectively. For some a hundred acres is far too much; for others a thousand is too small. Size also depends on the type of farming. A small acreage of truck crops intensively farmed may be as large a business as a large ranch in the range country. Let us not, therefore, try to enforce size standards in terms of area.

Public policy presumably is concerned with serving the ends of the public generally. The highest level of want satisfaction can be attained only with the most effective use of productive resources and the fairest distribution of the results. Any endeavor to make public policy the means of preserving some arbitrary farm size without regard to good resource use is in conflict with that aim.

Proponents of government farm programs often stress as an important purpose that of "giving farmers a fair share of the national income" or of "establishing incomes to farm people at levels comparable to those of others." The emphasis in the attainment of this end usually is on price. It is easy to forget that price is meaningful in producing income only as it is applied to quantity. How many of us actually stand willing to provide a guarantee of income to any group regardless of its productivity and contribution to the welfare of society? If more people are kept in any line of endeavor than needed to satisfy requirements, our ability to fulfill our wants is lowered for all of us.

We may not always keep in mind how dynamic our American economy, including agriculture, really is. Population movements throw light on this point. All of us are well aware of the fact that at one time practically all Americans lived on farms. While some of the urban growth has come from immigration and excess of births over deaths, a very important share of it has resulted from rural people migrating to cities. Some figures falling well within the life span of a good many of us provide a striking illustration. In 1910 we had somewhere around 32 million persons on farms out of a total of about 92 million. In other words, better than one-third of the people were still on farms. Forty years later, in 1950, the total population was over 150 million while the farm population had dropped to about 25 million. During the period the total gained over 60 per cent while the farm population fell by about 25 per cent. In forty years, the proportion of the people living on farms dropped from over one-third to about one-sixth. The decline has continued, thus the estimates for 1954 indicate that the farm population now may be below 22 million or about 13 per cent of the total which now is well over 160 million.

Has this population shift been helpful or harmful to agriculture? To general welfare? The answer must be an emphatic affirmative on the helpful side. I well recall the widespread concern of an earlier period over the fact that young people were leaving the farm. If cityward migration had been stopped after 1910, the farm population today would have been about 55 million instead of some 21 million. The agricultural income per capita on farms would have been much lower if that had been the case. Without the aid of the millions who have transferred to industrial and nonagricultural activity our total production would not have been expanded the way it has been. We would not have had the 40 million automobiles, a host of radios, television sets, refrigerators and the other things which make for more comfortable and better living. We would not have had them because we would not have had the capacity for making them nor would we have had the means with which to acquire them.

As indicated, farm population fell by one-fourth from 1910 to 1950. During the same 40-year span farm output increased by 75 per cent. A spectacular demonstration of the resilience of American agriculture was provided

during World War II. Between 1940 and '45 the farm population dropped by about five million while food production increased around 30 per cent. Does anyone deny that we are better off because of this increased productivity? Does anyone contend that such a gain in output per man could have been achieved without opportunities for millions of farm people to enter productive employment in other fields?

Over-all figures often conceal as well as reveal. Recently I saw a forecast by a certain individual that we could expect to see the day when our food supplies would be produced by less than 10 per cent of the total population. A closer look at the situation will indicate that this is an actuality today rather than a prospect. The 1950 Census indicated a total of 5,382,000 farms. However, a million of these were primarily rural residences of people in other employment while another 642,000 were part-time farms. This left only about 3,700,000 commercial farms. Because a considerable share of these are relatively small, 2 million farms provide somewhere in the neighborhood of 85 per cent of the supply on the market. Bear in mind that most of these commercial farms are individually operated units. In short, less than 10 per cent of the population today is producing the farm supplies on the market. Nor do I need to remind you that the supply they provide is more than ample.

The shift of population away from the land does not mean that agriculture has been shrinking. We have just as much land in agriculture as formerly. Production is greater, not less. This means that the output per man has increased very markedly and that the acres per man also have increased. The trend has been towards larger farms but not to any significant degree to large-scale corporate farms. The individual unit continues to predominate. With increased mechanization and improved technology, farms need to be larger to be of the most efficient size. Agricultural policy should continue to serve further advances along this line.

Some individuals for political or other ends charge that a program which encourages or permits adjustments of this nature represent an intent to "squeeze" the small or marginal producer out of agriculture. It is true as the tempo in farming increases, there will be those who will be forced to drop out because they cannot keep up with the procession. That is a feature of competition. However, it is by no means the complete story. An important share of the migration from farm to cities consists of young adults rather than established farmers. Some of the shift represents farm operators who see better opportunities for themselves in other fields. Let us hope we never will reach the stage where the opportunities for shifting no longer exist. If we do, economic stagnation will be at hand. The usual situation in underdeveloped countries of the world is that there has been a lack of opportunities for people to shift out of agriculture with the result that a large proportion of the population is eking out a very low level of living of a self-sufficing type.

If public policy is to help preserve the opportunities for voluntary adjustment among lines of activity, it must avoid creating deterrents to such adjustments. Price aids to help tide over a situation of general depression are one thing. Price supports at levels which will invite and keep more resources in a line of production than needed are something else. In case of an over-expansion in a given line, as is true of wheat today, policy should seek to bring about adjustment in the resources employed rather than to perpetuate the maladjustment. Public programs out of sympathy for the weak may penalize the strong by seeking to hold their progress down to the slower speed of the weak. It is one thing to protect the weak against predatory acts of the strong. It is something else to hobble the strong to reduce their productiveness. The latter will harm the weak as well as the strong.

Fortunately up to now we have not permitted any fetish of the "family farm" to warp programs unduly. Payments for conservation practices have been adjusted somewhat to pressure from this angle, but this may not be too undesirable in view of the fact that to a considerable extent they have represented additions to incomes rather than being primarily adapted to conservation needs. It is difficult to see how any program which depends for results on manipulating prices can avoid affecting most the commercial farmers. Price manipulation is not an effective way of reaching the low income, noncommercial farmer because he sells little, or nothing, on the market.

The public is interested in a prosperous agriculture. That point is beyond debate. The public also is interested in an adequate supply of efficiently produced farm products. While farmers are a minor fraction of the total

population, they still provide a very important market. For lines such as farm machinery, feeds, fertilizers, insecticides and the like, they are the market. This leads some to jump to the conclusion that this means that the rest of the economy should be expected to maintain farm prices and incomes at or above certain arbitrary levels in order to assure farm prosperity. This overlooks another aspect of the public's concern. The rest of the economy benefits from an agriculture which obtains a satisfactory income from efficient production of the kinds and amounts of products in demand. This is another way of saying that what is wanted is a situation in which those engaged in farming are in a position to earn their income through production.

Payments to certain groups in the population in times of severe depression and unemployment may be entirely justified, not merely to ease distress but to help bolster the economy. In relatively prosperous times when a deficit budget is illogical, such payments become transfers from one to another with little or no assurance that the needs of the payer are less than those of the receiver, or that economic activity will benefit from such transfer. If continued, one result may be that of maintaining more people in a given line of activity than needed and keeping them from shifting into other lines where they could be more productive in providing goods and services which are needed. Reference here is to payments or aids to farmers generally and, of course, does not relate to aids which are strictly of a relief nature.

If agricultural policy is to serve this end, it must avoid getting tied to a price or income support which is not related to conditions in the market. Neither the public generally nor farmers as a group can expect long-run gains from a government program which invites continued over-expansion of agriculture by price or income supports which encourage keeping more resources than needed in that line. Arbitrary production controls which require holding productive resources on farms in idleness but remaining to claim a share in returns, are not the appropriate remedy for longer-run overexpansion of agriculture. A major aim of farm programs, consequently, should be that of aiding the attainment and continuation of a farm plant in balance with available markets.

No reason is seen for trying to make a price or income program the determinant of farm size. Gains to agriculture as well as to the rest of the economy are more likely to result from leaving a high degree of freedom to individual farmers in deciding upon the size best fitted to each individual case. Instead of being concerned over the threat of farms generally becoming too large, there is more reason to be disturbed over the fact that many farm units are too small to be of optimum size today. To the extent public policy can aid in the matter of farm size, it ought to aim to reduce difficulty on the score of farms being too small rather than to set up barriers to their enlargement.

In fact, there are situations under which it would not be difficult to marshal considerable evidence in support of having more two-family farms. A livestock enterprise, particularly dairying or poultry, requires the constant presence of a responsible person. Research studies are helping us get over the old fashioned notion that it is necessary to milk cows at a certain strike of the clock. However, we have yet to discover a milk cow which can be left unattended while the farmer goes off for a few days vacation. Two families on some farms may be the goal to strive for. Two-family farms also may be a very effective way of gradually transferring responsibility in farm operations from father to son. However, whether it is a one or a two-family business, it is quite clear that what was big enough in 1910 was too small in 1930, and what was big enough in 1930 was too small in 1950, and what is the right size today is not likely to fit the technology of 1975. Let us keep our agriculture flexible so that it will remain free to make changes which are in the direction of progress.

Farm programs, as we view them today, concentrate too much of the attention on price alone. They need to be considerably broader than price supports or income payments. It is not fully appreciated that present support programs affect directly only a part of the farm output and only a part of the producers of the supported commodities. Price supports would have to be expanded very greatly to serve agriculture generally. Even though this should take place, they would not accomplish the entire job. One feature of our economy which we must never lose sight of is the interdependence among its parts. The strength of the market for farm products depends heavily on the high level of productive activity and employment in the rest of the economy. Included in our agricul-

rural policy must be a recognition that public policy has a vital role to play in fiscal, monetary and other measures to help maintain economic health generally.

Rural life may be bettered by operations on other fronts. The steady flow of people from agriculture to urban activity makes it vital that doors to non-agricultural employment and activity be kept open. Farm youth who go to the cities need better preparatory training to fit them for urban activities. Better employment services could be very useful in aiding rural youth to find their appropriate places in other fields.

Education, health, highway and similar services are of much more than local interest and a more general participation in the support of such essentials can be a way of improving upon rural living.

We need to get over the notion that there is one single farm problem and that somehow we are going to hit upon some miraculous easy solution for that problem. Farm problems are legion; improvements come in a great variety of ways. It is highly important that farm people and the public generally put forth more effort in acquiring an understanding of these problems and using that understanding as a basis for developing improvements. There is a tendency to use too many dark colors in painting the farm picture. American agriculture is a dynamic line of activity which is constantly pressing forward. The aim of public policy should be that of aiding that forward movement. It will do so only as we study and gain understanding and take steps which are in the direction of real improvement. Let that be our aim. A public policy based on that foundation will serve the interests of farmers and all of the rest.

SUPPLY OF PHYSICIANS IN SELECTED RURAL AREAS OF MISSOURI, 1912-1950

ROBERT L. MCNAMARA, DEPARTMENT OF RURAL SOCIOLOGY
UNIVERSITY OF MISSOURI

For the past decade and longer there has been a considerable public interest in the supply of physicians, particularly in rural areas. Migration of many rural doctors to urban centers is but one of many evidences of social change affecting rural life. Rural people have come to depend on urban centers for many services including health service. On this count many thoughtful people dismiss the fact of rural physician shortages as being without significant point. To the extent, however, that rural people, for their day-to-day medical services, must rely on fewer practitioners who are older and less specialized, or travel considerable distances to medical centers, the situation merits careful study and appraisal.

We should like to picture for you the situation as it prevailed in a recent year for two rather sizeable rural areas of the State comprising twenty counties and to show how the supply of doctors has changed over the past forty years. Data were compiled from the Directories of the American Medical Association by selected years for the period 1912-1950. The areas were not selected because of their isolation from large centers of population and actually are fairly typical in this respect with other rural social areas that might have been used in Missouri. In Area I five of the counties are within about 50 miles of Kansas City or St. Joseph and six of the counties in Area II are within 50 miles of Springfield or Jefferson City. Otherwise, the areas are considerable distance from large cities which could be expected to be well supplied with professional health personnel. There are no large centers of population in the 20 counties studied. In Area I the largest town is under 10,000 population, while in Area II there is no town over 3,500 population. Again, this is not unlike Missouri as a whole for of the 114 counties in the State 96 or about 85 percent do not have within them centers as large as 10,000 people.

In terms of rural level of living, the index for Area I was considerably above, while that for Area II was well below, the average for the State. For the purpose of this discussion the two areas are probably a reasonable cross-section of rural Missouri. They will be discussed as the "study area" henceforth in this paper.

Our purpose here is to portray the number and mobility of physicians in the study area, their age structure, and educational background. Physicians as used in this paper refer to medical doctors and are exclusive of osteo-

pathic physicians or other types of practitioners. The years for which the data apply are 1912, 1921, 1931, 1940, and 1950.

Changing Number of Physicians—The supply of physicians has declined numerically throughout the approximately 40-year period both for the State and for the 20 counties of the study area. In the face of a growing population in the State this has meant a successively larger number of persons per physician at each of the years for which data were compiled. In the rural areas, where population has declined but where the number of physicians has declined at a much more rapid rate, population per physician has increased to the point that the 1950 ratio is more than double that of 1921 and nearly 70 percent above that of 1931. Moreover, the largest percentage drop in number of physicians occurred in the last decade in the rural counties.

PHYSICIANS* IN MISSOURI AND IN 20-COUNTY STUDY AREA, FOR SELECTED YEARS 1912-1950

	Number					Percent Change			
	1912	1921	1931	1940	1950	1912-21	1921-31	1931-40	1940-50
Missouri									
Physicians	6,037	5,921	5,640	5,297	5,074	-1.9	-4.7	-6.1	-4.2
Population (000)	3,321	3,437	3,649	3,785	3,955	3.5	6.2	3.7	4.5
Population Per Physician	550	580	647	715	779	5.5	11.6	10.5	9.0
Study Area									
Physicians	539	459	319	244	158	-14.8	-30.5	-23.5	-35.2
Population (000)	338	317	289	278	241	-6.2	-8.8	-3.8	-13.3
Population Per Physician	627	691	906	1,139	1,525	10.2	31.1	25.7	33.9

*Includes all physicians listed in the A. M. A. Directories

The relatively large number of physicians at the turn of the century and up to 1920 was due to the lower standards of medical education prevailing at that time and following the Flexner report of 1910 and subsequent reforms it would be expected that there would be many "drop-outs" and fewer graduates of medical schools. However, for the State of Missouri, decline in the number of physicians has continued for the last 40 years and in the rural counties studied here the relative declines have been particularly heavy since 1921.

The concentration of physicians in large urban centers is demonstrated over the years by separating the data into two classifications: (1) the four largest cities and their counties of location and, (2) the balance of the State.

	Physicians					Population (000)				
	1912	1921	1931	1940	1950	1912	1921	1931	1940	1950
4 City-Counties	2,865	3,122	3,557	3,515	3,687	1,258	1,445	1,694	1,753	2,006
Balance of State	3,172	2,799	2,083	1,782	1,387	2,063	1,992	1,955	2,032	1,949
Percent of Total in 4 City-Counties	47.5	52.7	63.1	66.4	72.7	37.9	42.0	46.4	46.3	50.7

When the data are arranged in this way we find that nearly three-fourths of all physicians listed in the Directory are located in the large urban centers and their immediate environs, almost a complete shift from the situation prevailing 40 years ago. Even in the most populous centers the number of physicians has scarcely kept pace with population growth, and for the balance of the State the supply of physicians has lagged far behind the growth of population. The usefulness of our 20-county sample for analysis is enhanced by the fact that the sample is very similar to all rural Missouri with respect to trends in population and supply of physicians.

Practicing Physicians in the Study Area—Let us now turn our attention to a more intensive examination of the data on practicing physicians in the study area. In the following analysis only those physicians have been included who apparently were in practice. Excluded are industrial and institutional physicians, interns and residents, those retired and not in practice. On this basis the number compiled for the five selected directory-years was at its highest point (537) in 1912 and has been successively smaller at the beginning of each decade up to

1950. In 1950, the number was only 137. Losses during the last 20 years have been relatively heavier than during the first 20 years of the study period.

	<u>1912</u>	<u>1921</u>	<u>1931</u>	<u>1940</u>	<u>1950</u>
Physicians	537	448	304	219	137
Percent change		<u>1912-21</u> -16.6	<u>1921-31</u> -32.1	<u>1931-40</u> -28.0	<u>1940-50</u> -37.4

Age of Practicing Physicians— Migration of physicians has been selective with respect to age, and far too few young practitioners have entered the study area to replace those who died or retired, so a disproportionately large number of physicians are of advanced ages. In 1950, more than one of every three practitioners was past 65 years of age, a proportion which has nearly tripled in the past 20 years. Moreover, if the number of "effective physicians" is computed and the ratio applied as adopted by the War Manpower Commission during World War II, namely, that 1,500 persons per effective physician is the maximum beyond which civilian health is endangered, it can be seen that even before the war the supply of physicians in this 20-county area exceeded that maximum and had gone beyond it by more than 60 percent in 1950 when there were upwards of 2,500 persons per effective physician. Effectivity rates were determined at 33.3 percent for practitioners 65 years old and over and at 95.0 percent for those under 65 years of age.

PRACTICING PHYSICIANS IN 20 MISSOURI COUNTIES, BY AGE, AND FOR SELECTED YEARS, 1912-1950

Age (Years)	1912		1921		1931		1940		1950	
	Number	Pc't.								
All Ages	537	100.0	448	100.0	304	100.0	219	100.0	137	100.0
Under 36	123	22.9	36	8.0	22	7.2	30	13.7	28	20.4
36-65	378	70.4	336	75.0	240	79.0	132	60.3	58	42.4
66 & over	36	6.7	76	17.0	42	13.8	57	26.0	51	37.2
Population (000)	338		317		289		278		241	
Effective Physicians	488		378		263		173		99	
Population per Effective Physician	693		839		1,099		1,607		2,434	

Also of interest is that nearly 1 of every 5 physicians in the study area received a medical degree before 1900. Median year of medical school graduation was 1912 or about 40 years ago at a time when the successful crusade against the sub-standard proprietary medical schools was hardly under way. About one-half (47 percent) of the 1950 supply of physicians in the study area were graduates of schools now out of existence. Of course, some of these schools were consolidated with schools now existing but by no means all of them. It is commonly held that although physicians may have been trained 40 or 50 years ago they are able to "keep up" with the advances of modern medicine by means of professional journals. A principal asset in this respect would be the Journal of the American Medical Association and the Journal of the State Medical Society, but of the 137 physicians in the study area, only 87 (63 percent) were members of the A.M.A. in 1950 and could therefore be presumed to receive the journals of the national and state societies. Membership in the A. M. A. is highly selective by age among these rural physicians. Only 47 percent, less than one-half, of those past 65 years of age were A. M. A. members, and it must be emphasized that elderly physicians constitute nearly 40 percent of the total practitioners.

Maintenance of Physician-supply— With modern transportation and communication, people in rural counties do seek some medical care outside their counties of residence, although medical centers are quite distant for at least one-half of county residents in the area studied. Let us assume however that the war emergency ratio of 1,500 persons per physician can be applied without endangering the health of the people and therefore determine that 160 physicians are required for the study area. If population remains as in 1950 there would be required about 40 in-migrants to take the place of those from the 1950 cohort who would be expected to die during the next ten years. An additional 20 would be needed to bring the 1950 number to the stated requirement, plus 30

others to replace those who from past experience would retire or move away. There would thus be required at least 90 additions over a ten-year period, which is nearly three times the number of physicians who began practice in the area during the last ten years. It is, of course, unlikely that as many as 90 physicians will begin practice in the area in the next few years. The example does serve, however, to point up the fact that the disproportionately large number of elderly practitioners now in these counties will be greatly reduced in the near future and that an energetic recruiting program will be necessary to maintain the physician supply at anywhere near the present low level. Current trends can bring only further deterioration of the situation.

Medical School Attended— Within Missouri there are now three medical schools, one of which is the University of Missouri which has recently become a 4-year school. Graduates of these schools accounted for about one-fourth of the physicians practicing in the study area in 1950 and were actually fewer in number than for any of the study years since 1912. Apparently, recent graduates in Missouri schools are not settling in rural areas of the State. With other states taking every possible measure to retain physicians trained in their own schools, it seems highly unlikely that schools in adjacent or in distant states will continue to contribute to the supply of rural physicians as in the past. Of the 36 newly-arrived physicians who were practicing in the study area in 1950 but who were not there in 1940, only one-half were young men just out of medical school. Of these, only 7 were trained in Missouri schools, 4 others received training at the University of Kansas, 2 at the University of Tennessee, 2 at Illinois schools, 2 at Louisiana schools.

Although only 7 newly-graduated physicians from Missouri schools were listed as being in the study area in 1950, the two schools, Washington University and St. Louis University, graduated about 2,000 medical students in the decade 1940-1950. Being predominantly schools with non-resident medical students—only one-fourth of enrollments are residents of Missouri—it could not be presumed that their medical school graduates would have a great interest in rural Missouri as locations for practice.

Moreover, "turnover" rates for physicians are high in the study area, out-migration being particularly common among the younger physicians. In effect, the supply of rural physicians consists of practitioners who typically were trained at least 40 years ago, whose numbers are being rapidly depleted by death and retirement, and replacements for whom are not appearing from present medical schools either within or outside the State.

HOW CAN THE GOALS OF THE FAMILY FARM BE REACHED?

C. R. MEEKER, EXTENSION FARM MANAGEMENT SPECIALIST
UNIVERSITY OF MISSOURI

Before we discuss goals for the family farm, we want to talk about farms and farming in general, and Missouri farms in particular. The wide variation in farms and farm families causes them to have different goals to some extent.

As we study the makeup of agriculture in the Nation and in Missouri, we immediately must conclude that agriculture is a decidedly mixed up business. It is so thoroughly mixed up that averages are meaningless. Each farm is an individual operation, in constant competition with all others of the same or similar type, in both production and price. There are 5.4 million farms in the U. S. and they are of all sizes, of all kinds and of all qualities of land. They are financed in all stages, from 100 per cent inheritance, 100 per cent down payment to 100 per cent or more indebtedness. They are manned or worked by men, women, boys and girls of all ages. The amount of labor expended ranges all the way from a few hours a day to from daylight to dark. There are no eight-hour days or five-day weeks. There are no time clocks to punch. Farm people are their own bosses, with certain concessions to their livestock and to controls. They can determine the hours per day and the days per year they will work, guided by economic necessity as they feel it. They can work to make their farm beautiful and well kept, or only for a dollar return, or for both. They can work part-time on the farm and part-time off the farm. And to further confuse all of us that work with farmers, a lot of them do just that. Latest national census figures show that of the 5.4 million farms today in America 3.7 million are commercial farms, 1.7 million are non-commercial. The

latter, or about 1/3 of all farms, are mainly part-time and residential farms. They accounted for only 2.5 per cent of the value of farm products sold in 1949. The 3.7 million commercial farmers received 97.5 per cent of all income from farm sales.

The facts about our farms is needed if we get the true picture. It also helps us to keep from getting the habit of making blanket statements about all farms, which possibly may lead us to false conclusions. I'd like to suggest that if you have a pencil and paper that you take these figures down for reference.

Let us look for a moment at the 1950 census figures on Missouri farms: There are in Missouri:

230,045 farm operators

141,275 of these operators worked on their farms full-time

82,160 worked off the farm and

34,453 worked off the farm over 200 days.

Another important fact to keep in mind is that farms are permanent, farmers are not. In the 1950 Census, farm operators had lived on their farms an average of twelve years. About 84,126 of them had occupied their farms four years three months or less; 22,054 or almost one in ten had been on their farms less than one year.

A look into the future makes us conscious of the fact that 1/3 of all Missouri farmers will pass away or be retired on social security in 5 to 10 years. In 1949, approximately 84,000 farm operators were listed as 55 years of age or older. This fact makes constant readjustment in farm operators and operating units necessary.

The family provides most of the labor required to operate Missouri farms. Census data show that 195,000 were operated exclusively by the family; 21,000 farms reported hired workers; and 15,000 of these 21,000 hired only one worker. There is no doubt about Missouri farms being operated by the farm family. However, there are many opportunities for two-man operations within a family — such as father-son partnership.

The Census data divides farms into two general classes:

1. Commercial—All farms with sales above \$1200—165,000 operating units.

2. Other Farms — With gross sales of less than \$250. or farms where off-farm income exceeded farm income —66,000

Area 7—Polk, Greene, Dallas, Christian, Stone, Taney, Ozark, Douglas, Webster, Wright, Texas, and Howell Counties.

This area has 19,301 commercial farms and 11,044 other farms. Of the 19,301 commercial farms 13,000 were in Class V and VI income brackets with gross sales of \$250 to \$2500. Many of these units were rural residences. Others were part-time farms. Those operated full-time without other sources of income did not provide satisfactory levels of living for the families on them. If the family farm is defined as an operation unit that returns some minimum level of income believed to be desirable, then considerable adjustment must be made in most of these businesses before they can be included.

Farmers, in general, may be said to be unorganized except in commodity groups; and these commodity groups are fiercely competitive for the consumer's dollar. Oleomargine against butter, oranges against tomatoes, broilers against other meats, to name a few. Mo. broilers against Georgia broilers. Mo. cheese against Wisc. cheese. Farmers not only sell to city and town consumers but they also sell vast quantities of commodities to each other. The farmers, in general, lose control of their products as soon as these leave the farm. They are processed, packaged, transported, stored, wholesaled and retailed largely by other groups. Farmers hardly recognize the fruits of their own labor in the retail store and the cost to the consumer is doubled or tripled or more. The farmer gets perhaps 44 cents of the consumer's dollar. But, that's the way the American housewife apparently wants it, so she can spend less of her time in the kitchen.

We all know about the many changes that have come to the way work is done on the farm. Changes have also come to the way of life as well. In the past, farm and city were separated by space, time required to get where a man wanted to go, training, and tradition. Farming was an isolated life. As the present Century unfolded, the car, better roads, electricity, radio, television and the many devices for making life more pleasant came along, one after the other. The wars mixed-up our young people and made farm and city one world both socially and culturally. Farm boys go to the city to become engineers, doctors, teachers and skilled workers. There is a back flow too. Many engineers, doctors, teachers and skilled workers return to the country. Some want small farms, some want part-time farms, some want large farms. Maybe one great future of the Ozarks could well be the sale of small farms to people on pensions and retirement pay. The units they occupy need not provide the satisfactory level of income often specified in the definition of a family farm. The problem then of reaching the goals of the family farm becomes one of setting up adequate enterprises on those units that are expected to provide a farm family with a definite level of income which is desired by them.

Let us turn our attention now to our goals and the methods of achieving these goals. For most farm people the purposes of their business activities are the same as those of all the rest of us. Most of us know we are not going to get rich. We want a satisfactory income for a better family living. We want a reasonably good car, a comfortable home, good healthful food, educational opportunities for our children and savings for the years when we will no longer be able to work. We would like to have fair roads and a good community with a well-supported church. We would like to take a vacation once in a while, and we would like good wholesome recreation for ourselves and our children. We would like to have enough income from our business to fulfill all these desires. Certainly these are reasonable goals. Can they be achieved on family farms?

The answer is a qualified yes. It is being done on a great many farms. It is true that agriculture attracts enough people to produce enough products to hold prices around 85 to 95 percent of parity level. That has been the average for most years, except war years. There are apparently some rewards, other than money income, inherent in agriculture which many people like. These advantages are in the field of independence, food production, personal likes and other psychic values.

Nonetheless, enough data are available to determine about what income can be expected on a farm at levels of management within our reach, through ordinary budgeting procedures. It is also evident that a large number of farm families can make satisfactory livings at peace-time prices.

A successful farm business is one that will:

1. Pay all operating expenses.
2. Pay the prevailing rate of interest on all capital invested.
3. Maintain the productivity of the soil, and
4. Pay a satisfactory return to labor and management.

In other words, it is necessary for the operators of a family farm to make enough money above operating costs to pay family living expenses and have something left over for getting ahead. To do that, we must base the organization of family farms on what successful farmers do and use the management principles they use. These are old, but they are fundamental:

1. Get a large volume of business. Get a farm that is big enough or put enterprises on it that will make it big enough to keep the labor force fully employed with equipment that has proved to be profitable in the community.
2. Concentrate on the most profitable enterprises and push them first and farthest.
3. Set definite goals or objectives for the business.
4. Get high yields of crops and high returns from livestock.
5. Use good equipment to make labor productive.
6. The time has passed when a man can earn a good living for his family cultivating crops with a mule and a double shovel plow.

The final result of applying these sound management principles is low cost production at a profit.

The budget approach helps to find the most profitable combination of crop and livestock enterprises for each family. Working out the organization first on paper, and then applying it to the business, is the Balanced Farming technique. It is used by thousands of Missouri farmers to figure out and make management decisions about:

1. What they shall produce—the crop and livestock combination.
2. How much they shall produce—the business volume that can be carried by the labor force.
3. How and when they shall produce.

To be more explicit these successful farmers are following a very well-balanced system of farming. They are doing a good job of Balanced Farming in the way most of us would think was Balanced Farming.

They are giving careful attention to the following factors:

1. They select crop and livestock enterprises which suit the farm, the farm operator, and available markets, and which provide sufficient volume of business for profitable production.
2. They establish a cropping system that will bring the highest returns, and still maintain productivity.
3. They use livestock adapted to the cropping system in amounts to balance labor and capital. In Missouri most of the high profit farming operations include livestock. Livestock is selected on the basis that it will use labor not used in crop production, it will use feed which otherwise cannot be sold, and third, it will expand the volume of business on these farms where livestock is used to balance resources of capital and labor.
4. They control erosion and build fertility.
5. Adequate soil treatments and rotations are used to secure high crop yields.
6. The livestock enterprises are managed for high efficiency and profitable return.
7. Buildings are economical but efficient to save labor and cut costs.
8. Farm products are marketed most profitably.
9. Adequate financial records are kept.
10. The income produced is used to improve the farm business, for better living and for financial security for the farm family.

The results of their efforts is low cost production. It should be kept in mind that in many cases low cost production does not necessarily mean putting more total products on the market.

This approach to farm organization goes right to the heart of the problem. It makes it possible to see now what it will take, on any farm, in the way of labor, capital, and combinations of enterprises to make a satisfactory living at a given price level under a reasonable level of management. The findings are based upon yields which are within reach of most of us. Being from the southern half of the state and from the Ozark area where smaller farms predominate, my next few remarks will be based on that background.

Even a small farm can do this job under certain conditions and if the family is willing to use the enterprises that will bring high incomes on small acreages. Recently members of the Farm Management Extension Staff completed a plan of organization which shows that a family can earn a satisfactory level of income on a 40-acre farm under Southwest Missouri conditions, but the farm when organized to accomplish this task is no longer a part-time unit or a place for old people to retire. Approximately 500 days of work are required to take care of the enterprises, which included strawberries and tomatoes or cucumbers and poultry and dairy. In other words, the business will keep a family employed full-time. It is not satisfactory for people who want to escape work either because of age or disability or greater preference for leisure than for incomes. The enterprises that make a small farm into a big one are all heavy users of labor.

The small operator may choose to be a part-time farmer. His principal interest is in a job. He likes to live in the country where he can raise part of his food and have pleasant surroundings for the family. Census data also show that many of the farm operators on farms smaller than 50 acres are 65 years of age or older. Many of them are not standard man-equivalents when efficiency in the use of labor is being calculated. Now does this mean that we want all farmers who prefer not to apply all of the principles we know about scientific organization to leave

the farm? Not by any means. In the Ozarks I had a number of friends who preferred to be marginal farmers, although I doubt that is a good term. They were willing to accept a lower level of living than many people would want today. Total productive work units did not run over 100 to 150 on their farms. They wanted it that way. It left more time for hunting and fishing and other things they liked to do. They had always done some part-time work also. I would defend the rights of each and every farm family to remain on their inadequate unit, even if they have decided to work one-third time, one-half time or any other fraction of a full labor load. That is their privilege. I would also insist on their right to have the necessary information and the technical assistance needed to change their situation if they want to change. That is exactly what the Experiment Station and the Agricultural Extension Service is trying to do. If they should decide to make a full-time farm out of a part-time or inadequate business they should have access to reasonable assistance, to loans that fit their needs, and to assurance of safeguards against rapid or extreme drops in the prices of their products. It would be difficult, however, to justify artificial price fixing at a level high enough where a family working only one-third or one-half time at productive labor would receive enough income to live as well as those who normally expect to live while working full time.

Now I have tried to present the following facts:

1. Farms are of many sizes and kinds.
2. Variability in size and organization is essential to fit the needs and desires of our people.
3. Information is available that can be used to set up a satisfactory family farm business on most any size of operating unit. In many places more technical assistance is needed to get this information into use.
4. Farming is highly competitive between groups and individuals, by the very nature of the enterprise. It is likely to have a price disadvantage for that reason. From the standpoint of the family operated farm, this disadvantage is not always as great as it appears to be because of contributions of the farm to family living; such as food supply, housing, etc.
5. The goals of the average farm family are the same goals we all have, that is a better living for the family.
6. These goals can be reached at prices likely to prevail during peace times through the application of proved Balanced Farming principles on the farm and in the home. Many Missouri farm families are reaching and have reached these goals.
7. Cooperation among farmers and between farmers and business interests can contribute to the success of the family operated farm. Finding a better market for quality eggs is a current example.
8. Farming on family farms is both a business and a way of life. On many farms the food produced is also income, and a very important part of the total returns to the family. This is particularly true of small units or units occupied by part-time operators and aged or retired people.

The family farm is still dominant in Missouri and in the Nation. It is a tough, sturdy institution or it would not be with us today. It is likely to be here a long time. Our demand for livestock products strengthens the family farm. The reason I believe this is because only extremely unwise laws and controls can put the family farm out of business. Small farms appear to gain less from price fixing than do large farm units. There is some evidence to indicate that too high fixed prices tend to decrease rather than to increase the number of small farms. There is some evidence to indicate that high fixed prices on basic crops has actually increased the operating costs of the small livestock farmer. A very careful study should be made of this whole problem of price and acreage controls and the effect on the family size farm. To keep our family farms going strong, in my own judgment, the family needs reasonable freedom of decision, full access to education and research findings, they need the advantage of properly adapted credit facilities. They need some assurance, probably public or government assurance, that price drops will not be too extreme, because farming is a long time process. There is also needed some non-political method of assisting people on farms in times of drought and floods. This is needed because of high fixed costs. But we should always remember that it is the people who are important. Following good principles of farm organization, efficiency in the use of economic factors and policy are the only means that can be had to reach the goal of better rural living. It is the man in farm management that counts and it is quite likely that the family on the farm will determine the success of the farm more than will the actual farm itself.

Farms are timeless, farmers are not. The families operating the farms change every generation. Continuous research and help in applying the findings through all manner of educational procedures are essential in accomplishing the task of keeping farm families adjusted to their environment and to consumer demand. The family farm of the pioneer period is unsatisfactory today and the family farm of today will likely be obsolete tomorrow. But as long as we have freedom of decision and freedom of the individual we'll have farm families operating the farms. The opportunities ahead in farming are good.